Program of the 2nd International Symposium on Partial Least Squares Path Modeling

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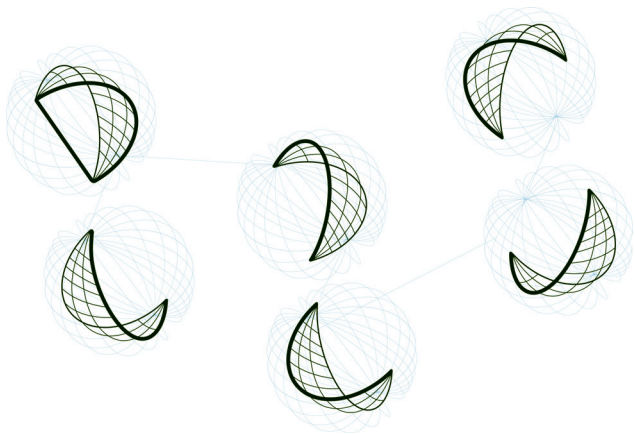
The Conference for PLS Users

Jörg Henseler
Christian Ringle
José L. Roldán
Gabriel Cepeda

June 15, 2015



Contents

Welcome

Welcome to the 2nd International Symposium on Partial Least Squares Path Modeling – The Conference for PLS Users here at the Universidad de Sevilla. Special thanks go to Prof. Dr. Carmen Barroso, Vice-Rector of International Relations, and Prof. Dr. Manuel Rey-Moreno, Cátedra Metropol Parasol, Prof. Dr. José C. Casillas and Prof. Dr. Adolfo Vázquez, persons in charge of the Cátedra Santander de Empresa Familiar, and Prof. Dr. Carmen Núñez, Dean of the Faculty of Economic and Business Sciences (Universidad de Sevilla), for their support. We also thank Dr. Javier Landa-Bercebal, responsible for Institutional Relations in the City Council of Seville (2011-2015).

In addition, many thanks to the Organizing Committee (see page 66) for providing organizational, administrative, and logistical support for the conference.

Finally, thank you very much to all of the keynote speakers and concurrent presenters for making this wonderful program possible.

Venue

Main conference

The main conference (Wednesday, June 17, and Thursday, June 18) will be hosted at the Facultad de Ciencias Económicas y Empresariales, Universidad de Sevilla

Address:

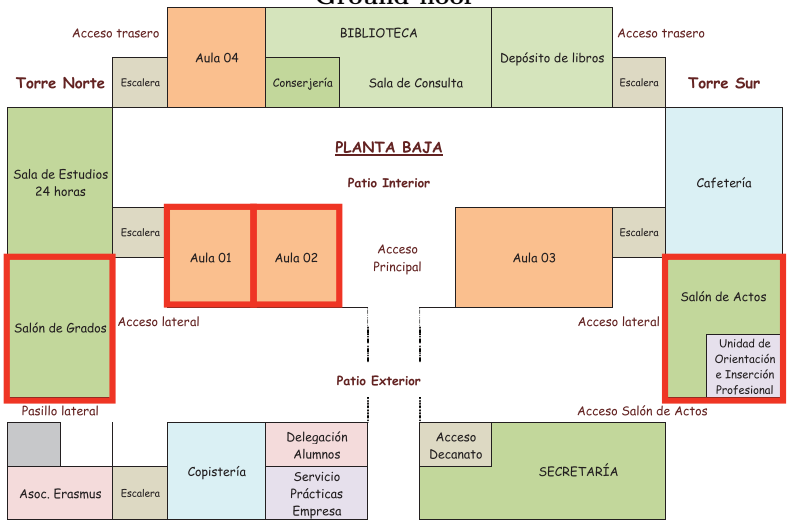
Facultad de Ciencias Económicas y Empresariales, Universidad de Sevilla, Avda. Ramón y Cajal, n 1, 41018 Sevilla

How to get there:

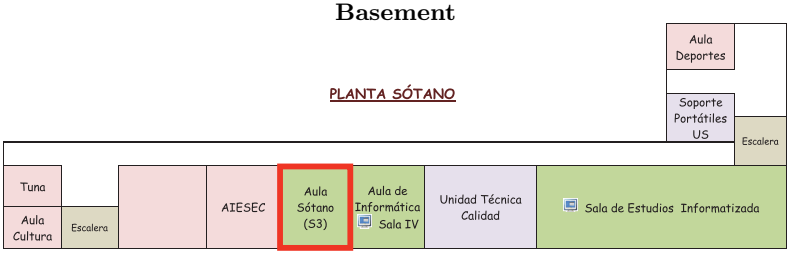
TUSSAM bus lines:	C1, C2, 5, 22, 25, 26, 70, and A5
Metro:	Line 1, San Bernardo Station
Train:	San Bernardo Station

Location of rooms:

Ground floor

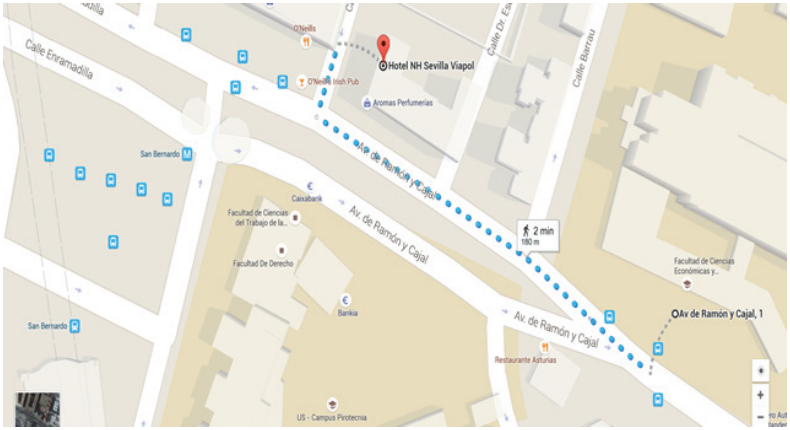


Basement



Lunch:

Lunch will be served in the Hotel NH Sevilla Viapol.



Workshops

Both the pre-conference workshop on Tuesday, June 16, and the post-conference workshop on Friday, June 19, will be hosted at Metropol Parasol, one of the major attractions of Seville.

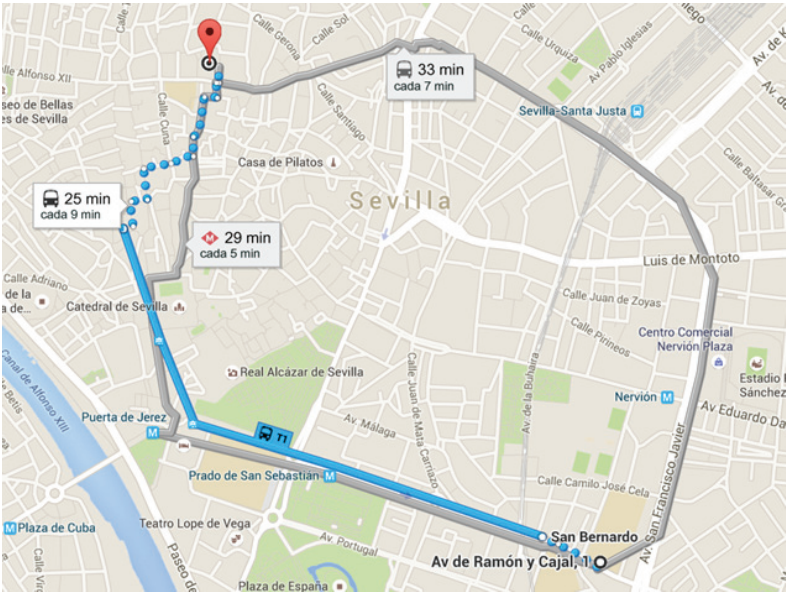
Address:

Espacio Metropol Parasol (Las Setas), `http://www.setasdesevilla.com`
Plaza de la Encarnación, s/n
41003 Sevilla

Find it on Google maps: `https://goo.gl/maps/LhMCz`

Entrance from "Puerta Este" (East Door), `https://goo.gl/maps/mtFqI`

How to get there:



Pre-conference Workshop

Schedule

Time	Track I (English)	Track II (Español)
09:00-10:30	*Registration*	
10:30-11:15	Opening Talk (Joe Hair, see p. 10)	
11:15-12:15	Model development and operationalization of constructs	Modelización y operacionalización de constructos
12:15-12:35	*Coffee break*	
12:35-14:00	Fundamentals of PLS-SEM	Principios básicos de PLS-SEM
14:00-16:00	*Lunch break*	
16:00-17:25	Evaluation of reflective and formative measurement models	Evaluación modelo de medida: indicadores reflectivos y formativos
17:25-17:45	*Coffee break*	
17:45-19:10	Structural model evaluation	Evaluación modelo estructural
19:10-19:30	*Coffee break*	
19:30-21:00	Introduction to the software program SmartPLS 3	Introducción al programa SmartPLS 3

Practical Information

Please bring your own laptop with you. You should have SmartPLS installed. SmartPLS can be obtained for free from `http://www.smartpls.com`.

Venue:

Metropol Parasol, Plaza de la Encarnación, s/n, 41003 Sevilla (see page 5)

Entrance from "Puerta Este" (East Door), `https://goo.gl/maps/mtFqI`

Opening Talk: Constantly Moving PLS Path Modeling Forward: Two Steps Ahead - No Steps Back!

Joe Hair

After more than 45 years of researching and writing on multivariate data analysis topics, the following represent my reflections on current perceptions of structural equations modeling (SEM). Reflection One: Weak Conceptualization and Research Designs. Reflection Two: Pursuit of GOF at any cost! Reflection Three: Inadequate reporting of SEM model information. Reflection Four: Belief that PLS path modeling solves all SEM application problems. Reflection Five: Over-emphasizing that PLS loadings are over-estimated and path coefficients are underestimated. Reflection Six: PLS scholars need to be very careful when proposing goodness of fit measures. Reflection Seven: PLS scholars should focus more on the strengths of PLS Path Modeling. Reflection Eight: There are many other PLS scholars to thank. The Future

- Data quality will improve, as will measurement and prediction - if ??
- Software will be more powerful and more accessible to more people - but ??
- PLS path modeling will be a highly respected SEM approach and as widely applied and accepted as CB-SEM - and reviewers will not reject your article simply because you used PLS ??

Main Conference Day 1

Schedule

Time	Event
08:15-09:30	*Registration*
09:30-09:50	Conference opening
09:50-10:50	Keynote talk I: Edward E. Rigdon (see p. 12)
10:50-11:10	*Coffee break*
11:10-12:25	Parallel paper sessions: Session 2a: Methodological Advances (p. 12) Session 2b: PLS in Marketing/E-commerce (p. 14) Session 2c: PLS in Management Research (p. 15) Session 2d: PLS in Social Sciences (p. 16)
12:25-12:45	*Coffee break*
12:45-14:00	Parallel paper sessions: Session 3a: PLS in Supply Chain Management (p. 18) Session 3b: PLS in Human Resources (p. 19) Session 3c: PLS in International Business (p. 20) Session 3d: PLS in Social Sciences (p. 22)
14:00-15:30	*Lunch break*
15:30-16:30	Poster Exhibition I (see p. 23)
16:30-18:10	Parallel paper sessions: Session 5a: PLS in Strategic Management (p. 26) Session 5b: PLS in Marketing/Brand Management (p. 28) Session 5c: PLS in Innovation Research (p. 29) Session 5d: PLS in Tourism Research (p. 31)
18.10-18:30	*Coffee break*
18:30-19:20	Keynote talk II: Theo K. Dijkstra (see p. 32)
19:20-20:30	*Personal time and transfer to Alcazar*
20:30-. . .	*Visit of the Alcazar and Welcome Cocktail*

Session 1: Opening & Keynote Talk I

Wednesday, 17 June 2015, 09:30-10.50
Room: Salón de Actos
Session chair: Jörg Henseler

Conference Opening

Keynote talk I: "Reconciling composite-based and factor-based approaches to structural equation modeling"

Edward E. Rigdon

Advocates for factor-based and composite-based approaches to structural equation modeling have been presenting the same arguments (and exchanging the same epithets) for years. As a step toward liberating this conversation, this presentation offers new perspectives on four claims which are part of the pro-factor argument. Do composite methods produce biased parameter estimates? Not if the model is correctly specified. Does the factor model "account for measurement error?" No, observed variable residual variance is only repackaged into factor indeterminacy. Do only factor methods model "latent variables?" No, both approaches create proxies to represent unobserved conceptual variables which should be validated against prior knowledge. Does the factor method's overall fit test make the method "more rigorous?" It does not address the most important question – the validity of the common factors as proxies for the conceptual variables – though it could be used in that way.

Session 2a: Methodological Advances

Wednesday, 17 June 2015, 11:10-12:25
Room: Salón de Grados
Session chair: Christian M. Ringle

Weighted partial least squares: A new method to account for sampling weights in PLS path modeling

Jan-Michael Becker

Applications of PLS path modeling focus usually on survey responses in social science or market research studies. Researchers thereby often aim to estimate population parameters from the sample that they have collected. However, by doing this they are assuming that the sample represent the population very

well. However, population members are not equally likely to be included in the sample so that sampling units have different probabilities of being selected. Hence, sampling weights should be used to get consistent estimates when estimating population parameters. We discuss some simple alterations to the PLS path modeling algorithm to account for sampling weights to achieve better average population estimates in situations where researcher have a set of appropriate sampling weights. We illustrate the appropriateness of the new approach with an illustrative empirical example and simulations.

FAC-SEM using PLS-SEM: An empirical illustration in a customer value measurement context

Sandra Streukens, Sara Leroi-Werelds

FAC-SEM is a special type of multigroup analysis where the groups are structured as a factorial design. The aim of FAC-SEM is to assess how the path model parameters vary as a function of the dimensions of the underlying factorial design. As such, FAC-SEM offers researchers a unique opportunity to further understand their experimental data. This paper explains how the FAC-SEM methodology can be used in a PLS path modeling context and demonstrates the procedure using empirical data from a customer value measurement study.

Segmentation of PLS path models by iterative reweighted regressions

Rainer Schlittgen, Christian M. Ringle, Marko Sarstedt, Jan-Michael Becker

Uncovering unobserved heterogeneity is a requirement to obtain valid results when using the structural equation modeling (SEM) method with empirical data. Conventional segmentation methods usually fail in SEM since they account for the observations but not the latent variables and their relationships in the structural model. This research introduces a new segmentation approach to variance-based SEM. The iterative reweighted regressions segmentation method for PLS (PLS-IRRS) effectively identifies segments in data sets. In comparison with existing alternatives, PLS-IRRS is multiple times faster while delivering the same quality of results. We believe that PLS-IRRS has the potential to become one of the primary choices to address the critical issue of unobserved heterogeneity in PLS-SEM.

Session 2b: PLS in Marketing/E-commerce

Wednesday, 17 June 2015, 11:10-12:25
Room: Aula 1
Session chair: Judit Simon

Antecedents of word-of-mouth in social network sites: Application of latent class segmentation using FIMIX-PLS

Jorge Arenas-Gaitan, F. Javier Rondan-Cataluña, Patricio E. Ramirez-Correa

The aim of this study is to analyze the antecedents of Word of Mouth (WOM) in a Social Network Site (SNS) context, based on Social Identification Theory. This general objective can be divided into two sub-objectives. Firstly, to measure the relationship between social identity, altruism and perceived encouragement as antecedents of WOM in SNS. Secondly, to study the existence of SNS user segments presenting differentiated behaviors with regard to the proposed model. PLS has been used to analyze both the validity and reliability of the measurement scales and the estimation of the structural model. Secondly, we analyzed the heterogeneity of users of SNS performing a latent class segmentation, using the Finite Mixture Segmentation FIMIX-PLS. Thirdly, to analyze the differences between the behavior of the resulting segments from the proposed structural model, a Multi Group Analysis (MGA-PLS) has been used. Finally, in order to explain better the consequent segments extracted via FIMIX-PLS, we performed an ANOVA for continuous variables, and Chi-square tests for nominal variables.

Is age still valid for segmenting e-shoppers?

Angel F. Agudo-Peregrina, Ángel Hernández-García, Emiliano Acquila-Natale

This study examines the differences in the acceptance and use of electronic commerce by end consumers, segmented in three groups according to their age. The UTAUT2 provides the theoretical framework, with the addition of three constructs from e-commerce literature: perceived risk, product risk, and perceived trust. Responses to an online survey by 817 Spanish Internet shoppers validate the research model. An omnibus test of group differences precedes the assessment of four multigroup analysis methods. Results show that gaps caused by age differences in e-shoppers are narrowing. This paper also identifies the strengths and weaknesses of the different multigroup approaches.

Consumer satisfaction and word-of-mouth in electronic commerce: A possible segmentation method

Ildikó Kemény, Judit Simon, Ákos Nagy, Krisztián Szűcs

Over the last 10 years the B2C online market and its characteristics – for example the perceived electronic service quality (e-SQ) - has become a relevant research area, not only in the Western countries but also in smaller, less-developed countries. Therefore the first aim of this paper is to provide a description of an analysis into how the dimensions of perceived e-SQ relate to satisfaction and WOM intention in Hungary. Secondly, using the results of a PLS-SEM model we show how consumers may be segmented based on their perceptions of quality. According to our research only the dimension of efficiency and responsiveness have a significant positive effect on satisfaction, and the perception of the quality of fulfilment's also significantly influences word-of-mouth intention. Using the relevant latent variable scores a segmentation method was developed in which four significantly different segments were identified.

Session 2c: PLS in Management Research

Wednesday, 17 June 2015, 11:10-12:25
Room: Aula 2
Session chair: Manuel Rey-Moreno

Organizational unlearning and innovativeness: Assessing the moderating role of family firms using SmartPLS

Antonio Luis Leal-Rodríguez, Jaime Ortega-Gutierrez, Ignacio Cepeda-Carrión

There is plenty of literature that suggests the existence of a strong link between knowledge management strategies, organizational learning and firm innovativeness (Sanz-Valle et al., 2010). Innovation is nowadays considered as a key factor on the process of reaching lasting competitive advantages. Our research model, hence, empirically explores the link between organizational unlearning (OU) and innovation outcomes (IO). We furthermore assess the moderating role of the firms' family nature (FAM) on this link.

Quality management practices, knowledge management and key business results in SMEs and large organizations: A multi-group analysis

Arturo Calvo-Mora Schmidt, Antonio Navarro-García, Manuel Rey-Moreno, Rafael Periañez-Cristobal

Following the Total Quality Management philosophy and the knowledge management (KM) approach, this contribution aims to study the influence of process management methodology (PMM) and partner management (PM) on KM, and the relationships between this variable and key business results. The conceptual model is tested on a sample of 225 Spanish companies. PLS-SEM approach was used to test the research model. In order to assess the moderating effects of organisational size, a multi-group approach was adopted using two sub-samples with large companies and small and medium-sized enterprises (SMEs). The findings indicate that the use of PMM and partner involvement are key factors for KM to have a significant impact on the key business results (KBR). Moreover, the organisational size is determinant when analysing the effect of PMM and PM on KM.

Session 2d: PLS in Social Sciences

Wednesday, 17 June 2015, 11:10-12:25
Room: Aula sótano
Session chair: Raimundo Nonato Lima Filho

Social and financial performance of microfinance institutions: Analysis of the mediating effects

Antonio Blanco-Oliver, Ana Irimia-Dieguez

The trade-off between social and financial performances of microfinance institutions (MFIs) is analysed in this paper by applying consistent PLS path modelling. A dataset obtained from MixMarket, with numerous variables of 567 MFIs from different countries referring to 2012, is employed in our empirical study. We find that social and financial performances are negatively related in MFIs, which is in consonance with the recent trend of commercialisation of the microfinance industry. By analysing total, direct, and indirect effects, our results show that this relationship is mediated via the commercial productivity in the provision of service and the quality of the portfolio. The mediated influences are even greater than that provided directly by social performance.

What are criteria influencing on judicious selection of new drug in Iran? An evaluation by SmartPLS method

Amir Viyanchi, Ali Rajabzadeh Ghatari, Hamid Reza Rasekh

Background: To analyze hypotheses underlying the assumption that more criteria about clinical, managerial, and economic assessment have a positive impact on the judicious decisions of new drug coverage in public health insurance. Methods: We developed a structural equation model in which the process components were considered latent constructs and operationalized by a set of proposed criterions. The dependent variable "judicious decision" was defined by the relevance of clinical, economic, and other managerial criteria in new drug appraisal for reimbursement (as opposed to appraisal based on stakeholder lobbying). We conducted a direct and email survey among individuals familiar with coverage decisions of third-party payers in Iran health system in 2013. Data on 14 decision criteria from 8 locations and 202 experts in Iran health system were used for model estimation. Results: Managerial criteria (regression coefficient RC=0.235; p¡0.001) and clinical criteria (RC=0.424; p¡0.001) had a significant influence on the construct of judicious decision. The path from economic criteria to judicious decision was not significant (RC=0.103; p=0.182). For the judicious decision construct, a considerable share of the variance was explained (R^2=0.35). Biases were assessed through sensitivity analyses. Conclusions: Clinical assessment and intense managerial criteria appeared effective in promoting judicious decision making, whereas the influence of economic criteria was not significant.

Metacognitive awareness inventory: Translation and validation from a confirmatory factor analysis

Ricardo José Rocha Amorim, Raimundo Nonato Lima Filho, Adriano Leal Bruni

This study aimed to translate and statistically validate the Metacognitive Awareness Inventory (MAI), a new instrument in Portuguese literature. We collected 1058 responses from students and professionals in the city of Salvador – Bahia, Brazil. In translation we adopted the methodology back translation and it was statistically validated through Confirmatory Factor Analysis using Structural Equation Model. The construct "Metacognitive Awareness" related to MAI has confirmed that the dimensions "Awareness Knowledge Skills and Strategies Metacognitive" and "Awareness of Metacognitive Strategies Setting" presented measures of composite reliability. The discriminant validity corroborates that the correlations between these indicators and their dimensions are stronger than the correlations between dimensions, meaning that the construct "Metacognitive Awareness" meets discriminant validity, which achieves validate the instrument translated.

Session 3a: PLS in Supply Chain Management

Wednesday, 17 June 2015, 12:45-14:00
Room: Salón de Grados
Session chair: Holger Schiele

Managers' risk propensity and destructive behavior in buyer-seller relationships: An application of PLS analysis

Brian Tjemkes, Olivier Furrer, Jörg Henseler

Despite their popularity, buyerseller relationships are often dissatisfying and engender destructive behavior, such as opportunism and exit by one partner. To explain destructive behavior, previous supply chain management studies primarily focused on the influence of situational factors, such as social and economic dissatisfaction, without accounting for managers' risk propensity. Accounting for risk is critical though, because destructive behavior in buyerseller relationships cannot be dissociated from the people who manage them. Drawing on risk and buyerseller literature, the authors develop and empirically test a model that incorporates a moderating effect of the risk perceptions of situational factors on the relationship between a manager's risk propensity and the inclination to exit the relationship and act opportunistically. A survey of purchasing managers indicates that the positive relationship between risk propensity and destructive behavior is strengthened by social dissatisfaction and mitigated by economic dissatisfaction.

Logistics information system adoption and firm performance in the suppliers automotive industry in Spain

Pablo Gonzalo Lazaro, Ruth Mateos de Cabo, Juan Carlos García Villalobos

The aim of this paper is to study the adoption of logistics information systems (LIS) in the automotive supplier industry of Spain and their implications on firm performance. We conducted a survey on more than 200 companies. Using a structural equation model, estimated by the Partial Least Squares (PLS) technique, we find out that the adoption of logistic information systems (LIS) produces a direct positive outcome on firm performance and an indirect one via logistic performance and flexibility.

Replicating and extending empirical research on supplier satisfaction: Inclusion of the preferred customer concept

and an analysis of the impact of economic and relational antecedents on supplier satisfaction in direct and indirect procurement

Frederik Vos, Holger Schiele, Lisa Hüttinger, Niels Pulles

Buying firms are increasingly competing for capable suppliers. A key tactic to gain competitive advantage is to achieve supplier satisfaction and a preferred customer status. Accordingly, we replicate and extent previous empirical research on supplier satisfaction and test the model in the context of direct (n=173) and indirect procurement (n=172). The PLS-PM-analyses indicate that profitability of the relationship is an important new factor and that supplier satisfaction has indeed a positive impact on awarding a preferred customer status, ultimately leading to preferential treatment. Based on these findings from two datasets and additional analyses, we propose a hierarchical model consisting of first, second and third tier antecedents of satisfaction.

Session 3b: PLS in Human Resources

Wednesday, 17 June 2015, 12:45-14:00
Room: Aula 1
Session chair: Bandula Galhena

Linking the intentional unlearning with human capital: Comparative of two models using PLS-SEM

María Dolores Aledo, Eva Martínez, Juan Gabriel Cegarra

The purpose of this paper is to examine the relationship between intentional unlearning and Human Capital. In doing so, this paper has made a comprehensive review of the literature on the concept of unlearning and has developed and validated a model to measure the unlearning in 112 companies listed on the Spanish Stock Exchange, using PLS-SEM.The methodology involved the construction and comparative analysis of two structural models, indicating the findings, that a process for consolidating emergent understandings would appear to be an intermediary step between the forgetting of old knowledge and the creation of Human Capital.

Effects of terrorism fears on job attitudes and turnover intentions: The moderating role of job involvement

Omer Farooq Malik

Based on affective events theory and previous research, a model was developed and tested to analyze the effects of terrorism fears on job attitudes (i.e. job satisfaction and affective commitment) and turnover intentions. The study is based on questionnaire data collected from 201 permanent faculty members of public sector universities in Pakistan. Partial least squares structural equation modeling was used to validate the model and found substantial support for study's hypotheses. The results show that fearing future terrorism negatively influences faculty members' job attitudes, and subsequently leads to their intent to leave. Further, job involvement and job attitudes interact to predict turnover intentions. The paper explores an important but still under-researched area of management and organizational interventions to mitigate the detrimental effects of terrorism fears.

Behavior of e-HRM adoption: Empirical evidence from organizations in developing context

Bandula Galhena

Based on Theory of planned behavior (TPB) and diffusion of innovation theory (DIT), present study developed and empirically tested the integrated model of organizational e-HRM adoption. The model consists of four contextual variables such as innovation, individual, organizational and environmental. Data were collected from 212 firms in Sri Lanka by means self-administered questionnaire. Structural model was tested using Partial Least Square. Results indicate that innovation characteristics (relative advantage and compatibility), environmental characteristics (competition), organizational characteristics (top management support) significantly explain the organizational e-HRM adoption intention. Further, financial resource and top management support significantly determine the extent of operational e-HRM adoption. Moreover, IT expertise is significantly explained the extent of relational and transformational e-HRM adoption.

Session 3c: PLS in International Business

Wednesday, 17 June 2015, 12:45-14:00
Room: Aula 2
Session chair: Francisco Acedo

Export market effectiveness: The role of export commitment, innovativeness and marketing capabilities

Margarida Vicente, Cláudia Seabra, Maria José Antunes

Drawing on the resource-based view, this study investigates the way that export commitment and innovativeness contribute to marketing capabilities development, and the effect of all these factors on export market effectiveness. We use a survey data of 202 exporting manufacturing firms based in Portugal to test the relationships between the constructs analyzed in this study. The findings demonstrate that a high export commitment tends to cultivate a higher degree of innovativeness, which in turn allows firms to develop superior marketing capabilities (i.e., pricing, new product development, marketing communication and distribution capabilities). Export commitment and new product development capability, have a direct impact on export market effectiveness.

Towards an analysis of "banking solutions" from the perspective of exporting companies in Brazil

Mara Mataveli, Juan Carlos Ayala-Calvo, Alfonso J. Gil López

Banks in Brazil play a major role in the internationalization process of companies providing financial products and services. To examine this role, a model containing three concepts are analyzed, being "banking solutions" as dependent variable, "relational capital" and "bank efficiency" as independent variables. Through a variance-based structural equation modeling the outcome of this analysis revealed that both dependent variables have a significant and positive impact on the use of banking solutions especially relevant the banking efficiency. Also, it is found that knowledge barriers to export moderate all proposed relationships in the model. Guidelines for potential future research on the subject are provided.

The evolution of international new ventures: A process study of the short and medium term growth

Francisco Acedo, Olli Kuivalainen, Jose C. Casillas

The literature has characterized INVs with the 'learning advantage of newness' that allow them to reorganize and adapt their strategy quickly in order to achieve better results. However, the post-entry growth is an underdeveloped field that needs further attention. Different studies have focused on the short-term performance and the survival of these types of firms. In this paper we analyse the phenomenon of the post-entry evolution by studying the mediating effect of the short-term activity in the mid-term international development. The evolution of the INVs is measured in both when the focal firms are in new venture and

adolescent phases and consequently a process trajectory can be deduced from this analysis.

Session 3d: PLS in Social Sciences

Wednesday, 17 June 2015, 12:45-14:00
Room: Aula sótano
Session chair: Roya Asadifard

Importance-performance matrix analysis of the factors influencing international students' psychological and sociocultural adaptations using SmartPLS

Azadeh Shafaei, Nordin Abd Razak

With the increase in international mobility in higher education especially in Asia, the issue of cross-cultural adaptation becomes paramount since international students try to overcome challenges and flourish psychologically and socioculturally in a new environment. Therefore, this study is conducted to identify the factors influencing international postgraduate students' psychological and sociocultural adaptations in Malaysian public universities, an emerging education hub in the region. It also further investigates importance-performance matrix analysis (IPMA) of the antecedents for psychological and sociocultural adaptations as the endogenous variables to provide insights and derive recommendations for education policymakers and academic administrators to ensure successful international postgraduate students' cross-cultural adaptation.

Use behavior of marginalized communities and the microfinance schemes in a developing country

Jeyanthi Thuraisingham

In this study, we propose a new integrated theoretical framework for examining the impact of social, environmental and psychological factors on the take-up of microfinance facilities among the Malaysian Indian micro and small businesses. The proposed theoretical framework draws upon institutional, behavioral and innovation diffusion theories to capture the dynamics between adoption of microfinance facilities. The partial least squares structural equation modeling method was used to estimate the proposed model for 300 samples from the target sample of 420 respondents. The preliminary empirical results show that the take-up of microfinance facilities are influenced by the following key factors; price value of

the loan, social influence, incentives and integrity of the microfinance schemes in Malaysia.

Public policy analysis in Iran: The partial least square test

Roya Asadifard

This paper examines relationships among components of Iranian public policy analysis model. This model is a descriptive and qualitative model that created through grounded theory approach then used Partial Least Square for confirmation test and explore of predictability of its. The results confirm that public policy analysis of Iran have three dimension of formulation analysis, implementation analysis and evaluation analysis which these components have direct effects together.

Session 4: Poster Exhibition I

Wednesday, 17 June 2015, 15:30-16:30
Room: Entrance Hall of Salón de Grados

When new products face privacy concerns: A mediation model

Caroline Lancelot Miltgen, Jörg Henseler, Aleš Popovič

Many innovative products can fully deploy their value only if they rely on consumers' personal information. This challenges consumers' confidence in new innovations, and revolutionizes marketing practices. To investigate the role of consumer privacy concerns for marketing management, we replicate Malhotra, Kim, and Agarwal's (2004) work and apply it to acceptance of four pervasive IT innovations that involve various privacy issues. We consistently find that privacy concerns have an adverse effect on consumers' intention to accept an IT innovation. However, this effect is purely indirect, i.e. mediated by trust and risk perceptions. By understanding this mechanism, firms can alleviate the potential downsides of their products and increase the odds of market success.

The Swedish quality award model for private and public organizations: comparing PLS-SEM and CB-SEM for multiple-group path analysis

Hendry Raharjo, Henrik Eriksson

This study aims to validate and further develop the Swedish quality award model for private and public organizations. Looking at all applicants' score data during the last two decades, we would like to answer two questions: 1) whether there is any path in the model that differs between the two sectors? and 2) how can we utilize the information to further develop the model to adapt to a specific sector? Two methods are used to test model invariance for these two groups, namely, the partial least square structural equation modeling (PLS-SEM) and the covariance-based structural equation modeling (CB-SEM). The PLS-SEM method discovered more significant differences among the two groups. However, both methods unanimously found a significant difference in one path (from 'Strategic Planning' to 'Results'). This has a quite interesting practical implication. For public organizations, the performance in 'Strategic Planning' is negatively related to the performance in 'Results'. A good planning may probably lead to a bad result and a bad planning may probably lead to a good result. For private organizations, there does not seem to be any relationship between the two constructs, that is, there is no guarantee that a good planning will lead to a good result.

Metacognitive activities inventory: Translation and validation from a confirmatory factor analysis

Raimundo Nonato Lima Filho, Adriano Leal Bruni, Ricardo José Rocha Amorim

This study aims to translate and statistically validate this Metacognitive Activities (MCAI), innovative instrument in the literature in Portuguese. We collected 1058 responses between students and administration professionals in the city Salvador, Bahia. In the translation we have adopted the back translation methodology and statistical validation was through Confirmatory Factor Analysis using Structural Equation Model. The construct "Metacognitive activity" related to MCAI confirmed that the dimensions "Metacognitive Activity Planning", "Metacognitive Activity Monitoring" and "Metacognitive Activity Assessment" presented composite reliability measures and discriminant validity confirmed that the correlations between these indicators and their dimensions are stronger than the correlations between dimensions; i.e. construct "Metacognitive Activity" gathers discriminant validity, which enables to validate the instrument.

The proposition of a multidimensional theoretical framework: A suggestion for the measurement of effective results for transfer of knowledge

Luciana Penna, Jose Márcio Castro, Adelaide Maria Baeta

A critical issue in the knowledge transfer process regarding its results. Although there is a plentiful discussion on the issue of transfer of knowledge, there is still little understanding of how organizations actually get, or at least evaluate the results achieved with the transfer (Nonaka, Toyama & Konno, 2000). Assuming that only when the recipient firm internalizes knowledge, this may be sufficiently recreated by it and, ultimately, be used in a successful way, this paper proposes a multi-dimensional framework with the central objective of analyzing the effectiveness in results interfirm knowledge transfer, considering the variable internalization as a measure of this effort and possibly shed more light on the subject. Therefore, we developed a comprehensive review of the literature on this subject which results in the identification of variables that pack and moderating the process.

Antecedents of e-marketing orientation in SMEs: An exploratory study

Abdel Monim Shaltoni

An organizations e-marketing orientation (EMO) reflects beliefs and behaviors towards adopting e-marketing and consequently shapes involvement in cyberspace. This effort sheds more light on SMEs adoption of e-marketing through examining EMO and its antecedents in a structural model that specified EMO as a second order formative that consists of three reflective indicators. Based on a survey of SMEs in different sectors and countries, EMO philosophical and behavioral components were validated. It was also found that the degree of EMO is primarily affected by technological contexts factors such as perceived relative advantage and compatibility.

Critical processes of knowledge management and value for the internal and external customers

Ignacio Cepeda Carrion, Silvia Martelo-Landroguez, Antonio Luis Leal-Rodríguez, Antonio Leal Millan

Firms are continually looking for new ways to get the best results. In this study, the focus is on the relationship between absorptive capacity (ACAP) and customer value (CV), proposing a multiple mediation model to analyze this re-

lationship. The study's contribution to the literature is to examine, empirically, the antecedents and determinants of this variable in greater depth. Thus, the research fills a gap in the literature through its analysis of the mediating role of knowledge stock (KS) and the knowledge application (KA). This study applies variance-based structural equation modeling via partial least squares to a sample of 151 branch office managers from the Spanish banking industry. The results show that both the direct effect and indirect effect, through the mediation of KS and KA, are significant in the relationship between ACAP and CV.

Session 5a: PLS in Strategic Management

Wednesday, 17 June 2015, 16:30-18:10
Room: Salón de Grados
Session chair: Carsten Gelhard

Governance heterogeneity and alliance innovation: An illustration of PLS-POS and PLS-PATHMOX

Martin Ratzmann, Siegfried Gudergan, Ricarda Bouncken

Whether and, if so, how the simultaneous pursuit of competition and cooperation affects innovation performance in alliances remains an ambiguous and important matter. This study assesses the conditions under which this might occur. To assess whether form moderation exists, the study draws on the PLS latent interaction effect approach; and to examine whether the strength of the relationships between coopetition and two types of innovations differ depending on a particular condition, it employs the PLS prediction-oriented-segmentation (POS) approach and the PLS PATHMOX approach. In drawing on predictive validation testing, the study compares the insight generated through the three approaches.

A circumplex model of the behavioural antecedents of unintended strategic alliance termination: A PLS-based analysis

Olivier Furrer, Brian Tjemkes, Jörg Henseler

How do firms terminate unsatisfactory strategic alliances? Previous literature on alliance termination has considered exiting an alliance to be a single event. Drawing on circumplex response strategy literature, we propose that alliance termination is part of an integrated system of behavioural responses

to adversity. The findings of a scenario-based experiment, obtained through PLS modelling, demonstrate that alliance termination is part of an integrated structure of response strategies governed by two activepassive and constructivedestructive dimensions, which suggests that intermediate behavioural responses precede alliance termination. The article also shows that alliance termination can occur through two alternative termination paths depending on the nature of the adverse situation. Building on these findings, the article concludes with some guidelines for managers confronted with alliance termination.

Resource mobilization levels and the configuration of the alliance portfolio

Ignacio Castro, Ángeles Gallego, Cristóbal Casanueva

Alliance Portfolio Configuration (APC) conditions access to network resources, however, not all access to partner resources is finally mobilized by the firm. Our paper contributes to the understanding of alliance portfolio performance by examining how an acceptable configuration of the alliance portfolio will be conditioned by the level of resource mobilization that the firm really achieves. A variance-based structural equation modelling (Partial Least Squares) has been applied to a sample from the Top International Airlines database. Results from the data analysis show that the Level of Network Resource Mobilization (LNRM) (a) fully mediate the effect of alliance portfolio configuration on the operating performance; and (b) partially mediate this effect on financial performance of airlines.

The role of strategic and value chain flexibility in achieving sustainability performance: An empirical analysis using conventional and consistent PLS

Carsten Gelhard, Stephan von Delft

We contribute to the clarification of the link between dynamic and operational capabilities by examining how strategic flexibility and value chain flexibility translate into superior sustainability performance. Using survey data of chemical firms in Germany, our structural equation model shows that value chain flexibility fully mediates the relationship between strategic flexibility and sustainability performance. Further, we contribute to the ongoing research on the partial least squares (PLS) approach to structural equation modeling by estimating the proposed research model with both conventional and consistent PLS (PLSc) and outlining a guideline for evaluating and reporting PLSc-related

findings.

Session 5b: PLS in Marketing/Brand Management

Wednesday, 17 June 2015, 16:30-18:10
Room: Aula 1
Session chair: Karla Barajas-Portas

How consumers react to counterfeiting: A PLS predictive oriented segmentation of loyalty toward the legitimate luxury brand

Siham Mourad, Pierre Valette-Florence

A large number of studies on counterfeiting explore consumer's behavior in the consumption of counterfeit articles. But few of them consider luxury brand consumers and counterfeiting. Our study attempts to contribute to this field by studying the reaction of luxury brand consumers. Concerning the methodological facet, we first suggest the measure of consumer's reaction toward counterfeiting, namely insensitivity to counterfeiting. Then, we suggest a PLS model that includes some output variables: brand experience, perceived risk, attitude toward the brand and brand loyalty. Moreover, we perform a segmentation using PLS that demonstrates the existence of three different groups of people: (1) insensitive & attached, (2) sensitive & indifferent and (3) detached.

Antecedents and outcome of brand equity in private healthcare using partial least square

Cheng-Hun Fong, Yen-Nee Goh

This study aims to examine the impacts of the antecedents and the outcome on brand equity. Data obtained from 271 completed self-administered questionnaires from hospital consumers in the Penang state were analyzed with SPSS and PLS. Results revealed that perceived quality, brand loyalty and brand attitude have significant impact on private hospitals' brand equity and brand equity is positively significant to hospital customers purchase intention towards health services of private hospitals. The findings of this study contributes to healthcare service marketers in building, improving, and sustaining service brand equity through hospital consumers loyalty and purchase intention.

Asymmetrical emotions to wine PDO Rioja and consumer behavior: Age acts as moderator variable?

Agustín V. Ruiz Vega, Alfonso J. Gil López, Consuelo Riaño Gil

This research quantifies the influence of positive and negative emotions towards consumer satisfaction and buying intentions of protected designations of origin (Rioja) wine consumers. The fieldwork was made in on-trade distribution channels to real consumers when they were consuming wine. Results suggest that both positive and negative emotions have a significant effect in consumer satisfaction but also in future buying intentions; in addition, the stronger influence of positive emotions highlight the fact that consumers search more pleasure when taste wine (and may be foods and drinks en general). Surprisingly, age does not act as moderator variable in this market.

Interaction and brand experience as a path for brand love: a PLS-SEM marketing application

Karla Barajas-Portas

Interaction through online social networking sites is one of the most relevant topics nowadays. In the other hand, brand experience has become a powerful for marketers also creating an important bond. Considering both constructs, we propose to analyze the effect of them as a path of the brand love. We analyze the effect of interaction and brand experience on brand love, or that purpose we conducted a path analysis using PLS-SEM. This paper explores a new way for marketers to improve the engagement with consumers. These interactions between consumers and their brands make stronger the relationship among them.

Session 5c: PLS in Innovation Research

Wednesday, 17 June 2015, 16:30-18:10
Room: Aula 2
Session chair: José Luis Roldán

Competitive intelligence among SMEs: Assessing the role of entrepreneurial attitude orientation on innovation performance

Ainul Abdul Mohsin, Hasliza Abdul Halim, Noor Haslina Ahmad

Competitive intelligence is key in today's unstable global environment because it leads to creation of ideas and innovation. Two popular areas of study on

competitive intelligence are defining what competitive intelligence is and assessment on the organisation's intelligence capability. However, research on competitive intelligence as the foundation of strategic management is very much lacking. Furthermore, research on competitive intelligence practice among the SMEs is also scanty. Thus, the intention of this study is to review the literature on entrepreneurial attitude orientation, competitive intelligence and innovative performance and to investigate the relationships of these three variables within the Malaysian SME context with empirical evidence.

R & D dynamic capabilities in a changing regulatory context

John E. Ettlie

We tested five hypotheses probing an extension of the current version of the dynamic capabilities model (Teece, 2009) in the context of a highly dynamic and complex context: the global automotive sector. This industry is undergoing significant change to improve sustainable performance (e.g., alternative power train technologies that deliver low polluting, better energy performance) and changing locus of innovation (i.e., suppliers investing more in R & D). Using a comparative, validated sample of 104 R & D projects in the U.S. and China we found support for a variety of elements associated with the reconfiguration stage of Teece's (2009) theory.

Linking market orientation, innovation, unlearning and performance: A multiple mediation model

Antonio Luis Leal-Rodríguez, Jaime Ortega-Gutierrez, José Luis Roldán

Many studies uphold market orientation as a key factor in creating and sustaining a firm's competitive advantage. The present research model explores this topic further by including within the model the links between organizations' innovation outcomes, its process of organizational unlearning and business performance. In particular, the model empirically tests the mediating role of innovation outcomes and organizational unlearning in the relationship between market orientation and business performance. The present study uses a sample of 145 firms from the Spanish automotive components manufacturing sector and employs partial least squares (PLS) in order to test the research hypotheses.

Session 5d: PLS in Tourism Research

Wednesday, 17 June 2015, 16:30-18:10
Room: Aula sótano
Session chair: Elena Carvajal-Trujillo

A competitive success model in the hotel industry

M. Rosario González-Rodríguez, José Luis Jiménez-Caballero, Rosario Martín-Sámper

The aim of the paper focus on identifying those factors involved in the competitive success of hotel companies and the interrelations between them, taking into account the socio-economic influence that these companies might have on Andalusian region and the few studies carried out in tourism sector so far. The study tries to specify an econometric model that may include factors that appear as mechanisms for the generation of competitive advantage. The research model allows us to identify the relative impact of the "industry factor" and the company's own specific factors, "hotel intangible resources", on competitive success.

Entrepreneurial orientation in the hotel establishments

Felipe Hernández Perlines, Benito Yáñez Araque

In this paper we analyze the influence of entrepreneurial orientation (integrated approach) and dimensions (individual approach) in the performance of the hotels. We propose a model of structural equations through the Smart PLS 3.1.7 with the data obtained through a questionnaire sent by mail to 102 directors of hotels, between January to June 2014. The most important contribution of this work is that the greater the effect of entrepreneurial orientation from an integrated approach (the three dimensions acting together) since an individual approach. This result has important implications for the management of the hotels.

Using PLS in public marketing and management: The relationship between place attachment and personal use of public local services

Daniel Belanche Gracia, Luis Vicente Casaló Ariño, Carlos Flavián Blanco, Carlos Orús Sanclemente

This study analyzes citizens' attachment to place and its consequences for the use of public local services. Specifically, focusing on the city of Zaragoza

(Spain), we test the relationships between citizens' socio-demographic characteristics, place attachment, attitude and the personal use of public local services. Results show that the effect of place attachment on the personal use of public services is indirect via attitude, and that age and educational level affect place attachment. Additionally, this study also serves to introduce Partial Least Squares (PLS) to research on public marketing and management; and to review in-depth how to validate formative constructs.

The moderating effects of personal and situational characteristics on the image, satisfaction and future behavioral intention with ports of calls

Elena Carvajal-Trujillo, Silvia Sanz Blas

The aim of this study is to examine the moderating effects of cruise passengers' gender, age, education and prior experiences on a Mediterranean port of call. We will analyze the process of image formation and the influence that image and satisfaction has on behavioral intentions. Partial least square technique (PLS) has been applied on a 492 cruise passenger's sample. Our findings have shown that (1) gender, age, education and experience have a moderating influence on the image of ports of call, on satisfaction and on future behavioral intentions derived from satisfaction; (2) prior experience has a moderating influence on the port of call image formation.

Session 6: Keynote Talk II

Wednesday, 17 June 2015, 18:30-19:20
Room: Salón de Actos
Session chair: Christian M. Ringle

Keynote Talk II: "PLS and CB SEM: a weary look but also a fresh look at presumed antagonists"

Theo K. Dijkstra

I discuss some old issues and controversies concerning CB SEM versus PLS, and hope to put them to rest. This is the weary part of the presentation. But more importantly, I outline an implementation of the key principle of PLS, essentially a rank one constraint on off-diagonal covariances, that allows one to see PLS and versions of CB SEM as striving for the same goal via different routes. I argue for a pragmatic stance in covariance modeling, and suggest to design predictive tests via combinations of contenders based on different philosophies.

Social Event I: Visit of the Alcazar and Welcome Cocktail

Wednesday, 17 June 2015, 20:30-23:30
Venue: El Real Alcázar de Sevilla, Patio de Banderas, s/n, 41004 Sevilla
In the evening of Wednesday, 17 June 2015, we will have a visit and a welcome cocktail in "El Real Alcázar de Sevilla," a UNESCO world heritage.

The welcome cocktail includes a buffet and drinks and is covered by the conference fee.

Main Conference Day 2

Schedule

Time	Event
09:00-09:30	Keynote Talk III (Wynne W. Chin): On partial least squares variance-based SEM (VBSEM) vs. covariance-based SEM (CBSEM) for confirmatory analysis: It's all about the components and variance explained
09:30-10:30	Featured paper session: Christian Ringle: Never use PLS! Really? Jörg Henseler: Confirmatory composite analysis
10:30-10:50	*Coffee break*
10:50-12:30	Parallel paper sessions: Session 8a: Method Assessments (p. 36) Session 8b: PLS in Marketing (p. 38) Session 8c: PLS in Management Research (p. 40) Session 8d: PLS in Corporate Social Responsibility (p. 42)
12:30-12:50	*Coffee break*
12:50-14:00	Software presentations: - SmartPLS 3.1 - ADANCO 1.1
14:00-15:30	*Lunch break*
15:30-16:25	Poster Exhibition II (see p. 45)
16:25-17:40	Parallel paper sessions: Session 11a: Methodological Advancements (p. 47) Session 11b: Predictive Modeling (p. 48) Session 11c: PLS in Business Research (p. 50) Session 11d: PLS in Higher Education (p. 51)
17.40-18:00	*Coffee break*
18:00-19:15	Panel Session: The Future of PLS (see p. 53) Discussants: Edward E. Rigdon, Theo K. Dijkstra, Galit Shmueli Moderator: Jörg Henseler
19:15-19:30	Closing Ceremony
20:00-21:30	*Personal time and transfer to Metropol Parasol*
21:30-...	*Gala Cocktail at Metropol Parasol*

Session 7: Keynote Talk III & Featured Papers

Thursday, 18 June 2015, 09:00-10:30
Room: Salón de Actos
Session chair: José Luis Roldán

Keynote Talk III: On partial least squares variance-based SEM (VBSEM) vs. covariance-based SEM (CBSEM) for confirmatory analysis: It's all about the components and variance explained

Wynne W. Chin

Partial least wquares path modeling (i.e., PLS) is now a standard tool among Information Systems (IS) researchers since the introduction of PLS-Graph by Chin in 1990 and presentations at the International Conference in Information Systems in Vancouver and Brisbane (1994, 2000). Recently, a new group of naysayers have begun to write papers questioning the value and use of this technique and argued for using CBSEM. In contrast to other disciplines (e.g., chemometrics and genomics), the IS discipline seems unaware of the ontological, epistemological, and pragmatic aspects of PLS. In this talk, the emphasis will be on the role of variance explained in assessing the value of a model and the usefulness of PLS component scores.

Confirmatory composite analysis

Jörg Henseler

This talk suggests that whenever constructs are artifacts and abstractions thereof, users should model them as composites instead of factors. It introduces confirmatory composite analysis as a statistical approach to test theories containing composites. A special class of theories involves emergence, which involves the question whether the whole is greater than the sum of its parts. Finally it presents the outcomes of two small simulation studies, which demonstrate that confirmatory composite analysis can discriminate between well-specified and ill-specified models – measurement models as well as structural models.

Never use PLS! Really?

Christian M. Ringle

Partial least squares structural equation modeling (PLS-SEM) has become a very visible methodological approach in business research. Several review studies document its increasing use across a variety of disciplines providing a

clear indication of the importance of PLS-SEM for research and practice. As with any development in research, the proponents and critics of PLS-SEM sometimes have heated debates on the method's advantages and disadvantages, disagreeing on whether it should be increasingly used or be applied at all. Such debates are fruitful as long as they do not develop a ritualistic adherence to dogma and do not advocate one technique's use as generally advantageous in all situations. Against this background, this presentation reviews some of the past criticism, addresses some issues regarding the proper use of PLS-SEM, and discusses directions of future PLS-SEM developments.

Session 8a: Method Assessments

Thursday, 18 June 2015, 10:50-12:30
Room: Salón de Grados
Session chair: Christian Nitzl

Mirror, mirror on the wall: A comparative evaluation of new and established structural equation modeling methods

Kai Thiele, Marko Sarstedt, Christian Ringle

Structural equation modeling (SEM) has become a quasi-standard in research when it comes to analyzing the cause-effect relationships between latent variables. Recent research has brought forward a variety of different methods for estimating structural equation models, which have not been researched in-depth. We extend prior research by (1) examining a broad range SEM methods such as covariance-based SEM, partial least squares (PLS), extended PLS, consistent PLS, generalized structured component analysis, and sumscores, (2) analyzing null relationships in the structural model, (3) considering measurement model results, and (4) reporting additional performance measures that allow a nuanced assessment of the results.

Evaluation of partial least squares parameter recovery

Frances Chumney

The purpose of this study was to evaluate the performance of Partial Least Squares under less-than-ideal conditions selected to imitate real-world data. A simulation study with a 3×3×2×2 design was conducted. The design and data features of interest were sample size (50, 300, 1000), number of items per latent

variable (3, 5, 7), degree of model misspecification (correctly specified, misspecified), and nature of the relationships between items and latent variables in the measurement models (reflective, formative). Bias of model parameter estimates, and bias and accuracy of standard error estimates were examined to evaluate the performance of PLS for each experimental condition.

On the effect of measurement model misspecification in PLS Path Modeling: the reflective case

Simona C. Minotti, Tomas Aluja, Giuseppe Lamberti, Antonio Ciampi

The specification of a measurement model as reflective or formative is the object of a lively debate. Part of the existing literature focuses on measurement model misspecification. This means that a true model is assumed and the impact on the path coefficients of using a wrong model is investigated. The majority of these studies is restricted to Structural Equation Modeling (SEM). Regarding PLS-Path Modeling (PLS-PM), a few authors have carried out simulation studies to investigate the robustness of the estimates, but their focus is the comparison with SEM. The present paper discusses the misspecification problem in the PLS-PM context from a novel perspective. First, a real application on Alumni Satisfaction will be used to verify whether different assumptions for the measurements models influence the results. Second, the results of a Monte-Carlo simulation study, in the reflective case, will help to bring some clarity on a complex problem that has not been sufficiently studied yet.

Partial least squares structural equation modelling (PLS-SEM) in management accounting research: Critical analysis, advances, and future directions

Christian Nitzl

In recent years, methods for analyzing data in management accounting research have grown more sophisticated. Despite the steadily growing acceptance of Partial Least Squares Structural Equation Modelling (PLS-SEM) in different business areas, relatively little and only indirect attention has been directed towards assessing its use in management accounting research. Reviewing eleven top-ranked management accounting journals through the end of 2013, 37 articles are identified that use PLS-SEM. These articles are analyzed with respect to multiple relevant criteria, including reasons for using PLS-SEM, data characteristics, model characteristics, model evaluation and reporting. There are several critical aspects of PLS-SEM use for future management accounting research re-

lated to these criteria. The review offers recommendations to avoid common pitfalls and provides guidance for the advanced use of PLS-SEM in management accounting research. It also became evident that the capabilities of PLS-SEM are only rarely utilized to the full extend. However, especially these not far exploited characteristics of PLS-SEM, like the strength of handling even complex research models can be very useful for future research conducted in the field of management accounting research.

Session 8b: PLS in Marketing

Thursday, 18 June 2015, 10:50-12:30
Room: Aula 1
Session chair: Jaime Romero

Customer equity and predictive CLV: New metrics from relationship marketing in telecommunication services of Spain

José Ramón Segarra-Moliner, Miguel Ángel Moliner-Tena

Recent studies in various sectors in the U.S.A., Brazil, China, South Korea, and Australia provide evidence of the antecedents of customer equity (value, brand, and relationship equity) and their influence on behavior intentions and customer lifetime value (CLV). The aim of this study is to incorporate relationship marketing, the multidimensionality of perceived value, and simplicity into the prediction of economic results. The sample comprises customers who have contracts with telecommunications operators in Spain. We use PLS to develop a predictive model with which to analyze the sector, and to assess the comparability of the three main competing companies. The results show the importance of emotional and social value in building relationship quality and in the brand equity, and reveal intentional loyalty as a precursor of future economic results.

The influence of market heterogeneity on customer loyalty: A multigroup analysis

Araceli Picón, Carolina Ruíz, Ignacio Castro

Loyalty is configured as one of the main determinants of firm performance. Many works have proposed models that analyze the relationship between loyalty and its main determinants: the Perceived Customer Value (PV), their level of Satisfaction and their Perceived Switching Costs (PSC). Thus, the aim of this

study is to validate a model that gathers the relationships between these variables and analyze the influence of customer characteristics – propensity towards switching and customer involvement – on these relationships in the insurance industry. The results show that (a) for the whole sample, perceived value, satisfactions and switching costs are set as antecedents of loyalty; (b) however, for customers with high tendency to switch, the path to a loyalty behavior is only mediated by the influence of their perceived value in their satisfaction; and finally (c) for these individuals, the strength of the relationship between satisfaction and loyalty is lower than customers with low tendency to switch.

Exploring customer engagement behavior: Construct proposal and its antecedents

Jaime Romero, Shintaro Okazaki

Customer engagement behavior (CEB) receives increasing attention from both academics and practitioners, as it represents one of the key customer profitability determinants. This study attempts to provide a holistic view of CEB by (1) proposing an instrument to measure CEB, and (2) its antecedents. Based on the existent literature, we conceptualize CEB as a formative construct consisting of word-of-mouth (WOM), loyalty program participation, customer interaction, and co-creation, which are determined by relationship quality, rewards, self-enhancement, learning, social integration, and company identification. In attempt to test these propositions, an online survey is conducted with 466 respondents. Our results provide empirical support for our proposed CEB construct, while corroborating five out of the six hypothesized antecedents. In closing, theoretical as well as managerial implications are discussed, while important limitations are recognized and future research directions are proposed.

Customer experiential knowledge management competence: A third order construct estimation & predictive power testing

Dhouha Jaziri Bouagina, Abdelfattah Triki

This paper defines a new construct labeled CEKMC (i.e. customer experiential knowledge management competence), which is supported by the theoretical and managerial gaps. It draws on the customer experiential knowledge management approach (CEKM) that connects the customer knowledge management theory to that of customer service experience. CEKMC is a hierarchical and specified as mixed with three layers. In order to develop a valid measurement

index, this paper aims to estimate CEKMC while testing its predictive power toward the experiential innovation performance. A quantitative research dealt with 47 senior managers of Tunisian thalassotherapy centers. Hence, PLS-SEM was performed by SmartPLS3 and the two-stage approach analysis is used. 66 items are retained to measure the construct. The results of hypotheses which involve CEKMC, financial and marketing performance of experiential innovation as well as managerial implications are discussed.

Session 8c: PLS in Management Research

Thursday, 18 June 2015, 10:50-12:30
Room: Aula 2
Session chair: José Luis Roldán

The corporate culture for supply chain integration improvement

Maarten Snijders, Holger Schiele, Petra Hoffmann

This quantitative research paper aims at identifying the role of an organisation's corporate culture within the integration of internal and external supply chains. The purpose of the study is to identify those corporate culture aspects that are most appropriate for supply chain management integration. And by doing so, getting supply chain management practices more applicable in general. Survey data suggest that a clan culture positively influences internal supply chain integration and that an adhocracy culture positively influences supplier- and customer integration. The examination of the corporate culture values within an organisation can help to understand its contributions in a supply chain performance relationship.

Deriving a holistic cognitive fit model for an optimal visualization of data for management decisions

Lisa Falschlunger, Othmar Lehner, Elisabeth Grabmann, Heimo Losbichler

Research shows that managerial decision making is directly correlated to both, the swift availability, and subsequently the ease of interpretation of the relevant information. Visualiza-tions are already widely used to transform raw data into a more understandable format and to compress the constantly growing amount of information produced. However, research in this area is highly fragmented and results are contradicting. This paper proposes a preliminary model

based on an extensive literature review incl. top current research on cognition theory. Furthermore an early stage validation of this model by experimental research using structural equation modeling is presented. The authors are able to identify predicting and moderating variables for information perception of visual data.

Effect of competitive tactics on performance: The case of the pharmaceutical industry

Julen Castillo Apraiz, Jesús Matey de Antonio

Competitive tactics play a key role explaining organizations' different levels of performance since they are seen as linkers between strategy formulation and implementation. The paper focuses on the two main competitive tactics, namely Quality Orientation Competitive Tactic (Quality) and Cost Orientation Competitive Tactic (Cost), which are the ones that are closely related to Porter's generic competitive strategies. Apart from that, we will analyse two other important tactics, Innovation Orientation Competitive Tactic (Innovation) and Marketing Orientation Competitive Tactic (Marketing) which will mediate the relationship between the main tactics and performance. Hence we try to adopt an integrative posture by viewing competitive tactics in the pharmaceutical industry as inextricably linked, forming the fundamental pillars on which sustainable competitive advantage could be established.

Information systems capabilities and organizational agility: Understanding the mediating role of absorptive capacity when influenced by a hierarchy culture

José Luis Roldán, Antonio L. Leal-Rodríguez, Carmen M. Felipe

Organizational agility (OA), as a key dynamic capability, is a firm's ability to enable sensing environmental changes and responding efficiently and effectively to them. This study explores this topic further by analyzing the part played by the information systems capabilities (ISC) variable as an antecedent of OA, and absorptive capacity (AC) as a mediator construct. Furthermore, we test the negative moderating role of hierarchy culture (HC) in the ACOA link. Using partial least squares (PLS) and the PROCESS macro, we find evidence of these relations proposed, and the existence of a conditional mediating situation generated by HC.

Session 8d: PLS in Corporate Social Responsibility

Thursday, 18 June 2015, 10:50-12:30
Room: Aula sótano
Session chair: Ramayah Thurasamy

Social responsibility and competitive success of firms in the Lisbon metropolitan region

M. Isabel Sanchez-Hernandez, Teresa Costa, Luisa Carvalho, Dolores Gallardo-Vazquez

Social Responsibility is considered a crucial issue to enhance a long-term competiveness in firms because it has been demonstrated the causal relationship with several strategic business variables. This paper develops a conceptual model and applies Structural Equations Modeling technique to a sample of 91 firms from the Lisbon Metropolitan Region in order to understand the link between Social Responsibility and competitive success. The model provides a simple guidance for upgrading competitive success in firms operating in Portugal. We consider this work as a starting point to develop a more accurate model for Portuguese economic reality in the near future.

Stakeholder salience and social responsibility: Study of small businesses in Malaysia

Mehran Nejati, Azlan Amran, Noor Hazlina Ahmad

This study empirically examined the role of stakeholders' influence on social responsibility practices of small businesses in Malaysia, and analyzed the importance and current attention of small firms to these stakeholder groups using the Importance-Performance Matrix Analysis (IPMA). Findings of this study revealed that community's influence and customers' influence had significant positive impact on the social responsibility practices of small firms. Moreover, the results of IPMA for the social responsibility construct indicated that community's influence had the highest importance for small businesses and was given the highest level of attention by the firms. In contrast, customer's influence was given lower attention by small firms despite its high level of importance for social responsibility practices of the firm.

Is environmental orientation dynamic at the automobile industry? Predicting future behavior based on past attitude

using the PLS analysis

Angel Peiro-Signes, Marival Segarra-Oña, Ana Payá-Martínez

In this paper, the PLS method is used to analyze the eco-innovative dynamism of the automobile industry. Previous studies identified product-orientation, process-orientation and market information sources as the variables affecting the eco-innovative orientation of firms within the industry and classified companies as belonging to an eco-blind, eco-marketer or eco-balanced group. We deploy a panel analysis to see to which point past behavior influences future decisions. Results show that environmental orientation drivers do not evolve over a short period of time while in the longer-term theres an evolution. We prove that carry-over effects have a great impact on the future behavior of the firms, showing that the evolution of organizations environmental behavior is a long-range matter. Managerial implications arise from this paper's conclusions as the decision-making process is clarified.

Managing eco-design for reverse logistics

Kuan Siew Khor, Ramayah Thurasamy

This study explored the relationships between eco-design, reverse logistics, design for disassembly, and business performance outcomes (environmental outcome and profitability). The partial least square (PLS) based structural equation modelling tool was used to empirically test the data collected from 98 electrical and electronic (E&E) manufacturing firms which were IS0 14001 certified. The findings suggest that reverse logistics is positively associated with environmental outcome and profitability while eco-design does not. Additionally, we found that design for disassembly influenced eco-design, which in turn influenced reverse logistics. This study also showed that environmental outcome is associated with the profitability of reverse logistics.

Session 9: Software Presentations

Thursday, 18 June 2015, 12:50-14:00
Room: Salón de Actos
Session chair: Gabriel Cepeda Carrión

SmartPLS 3.1

Christian M. Ringle

`http://www.smartPLS.com`

ADANCO 1.1

Jörg Henseler

`http://www.composite-modeling.com`

Session 10: Poster Exhibition II

Thursday, 18 June 2015, 15:30-16:25
Room: Entrance Hall of Salón de Grados

Relationship quality antecedents and consequences: An empirical investigation in the banking context

Lăcrămioara Radomir

Relationship quality is a key concept in the relationship marketing literature. Nevertheless, scarce interest has been shown to investigate both transactional marketing and relationship marketing constructs in an integrated model. The current paper proposes and tests a model which hypothesizes that service quality, relationship investment and relationship quality lead to a positive response on behalf of customers. Using structural equation modelling on data collected among Romanian bank customers, we show that bank customers' attitudinal loyalty is most influenced by two of the three relationship quality dimensions, namely relationship commitment and relationship satisfaction.

How transformation expectation leads consumers to immediate gratification: A PLS approach

Yiqing Yu, Qinghua Zhu

This study explores the mechanism which triggers consumer's immediate gratification behavior. It is proposed that consumer's expectation of meaningful life transformation by acquisition of a product causes her perception of product hedonic and utilitarian value, which can further predict immediate gratification. The positive impact of perception of hedonic value on immediate gratification can be mediated by price sensitivity and moderated by materialism. The structural model is established for further empirical analysis with PLS-SEM approach. The model suggests different domain of transformation expectation may have conflicting impact on immediate gratification.

Comparing CB-SEM and PLS-SEM results: An empirical example

Suzanne Amaro, Cláudia Seabra, José Abrantes

Many scholars view PLS-SEM as less rigorous than CB-SEM, namely due to is less restrictive assumptions. The main objective of this research is to compare the results of both approaches, for a given model, to examine if there

are, indeed, noteworthy differences. The study shows that the results obtained in both approaches are very similar. These findings provide useful insights to researchers.

The influence of organizational structure on international purchasing success

Tabea Tressin, Nicole Richter, David Midgley

International purchasing is one of the most important strategic topics for managers and attracts more and more interest among researchers. Yet, research often lacks strong theoretical and systematic insights on the intricacies of purchasing success and does not make enough use of advanced empirical methods. We apply a structural equation modeling technique to better research into the intricacies of higher or lower purchasing performance owing to different organizational design choices. We build our model on the resource-based view and on transaction cost economics and make use of survey data of purchasers engaging in international sourcing activities. We find four important drivers of purchasing performance, namely specialization, configuration, standardization and centralization. The importance of these drivers seems to be contingent on the sourcing environments, namely on the characteristics attributed to high cost and low cost countries.

Heterogeneity, diversity and complementary in strategic alliances and alliance portfolio

Mar Cobeña, Ángeles Gallego, Cristóbal Casanueva

Strategic alliances provide network resources to develop competitive advantages. A company must find complementary resources to avoid an imitable combination. Frequently, a firm establishes more than only alliance simultaneously to expand its network resource endowment. Previous works have paid attention to connect alliance partners heterogeneity or alliance portfolio diversity with network resources complementary. In this paper, we define these items and we study the direct and indirect relations among them and firm performance.

The relationship between customer satisfaction and loyalty: New insights into the role of customer heterogeneity

Christian M. Ringle, Nadine A. Schirmer, Matthias S. G. Feistel

The relationship between customer satisfaction and loyalty is of key interest to both researchers and practitioners. However, specific theoretical models

of these relationships and their empirical results differ considerably. To some extent, this distortedness may be rooted in shortcomings regarding accounting appropriately for the different distinct customer segments. Neglecting this crucial issue may cause invalid outcomes. We therefore used the partial least squares structural equation modeling (PLS-SEM) method and industry-specific survey data to estimate these relationships. Further, we addressed the critical heterogeneity issue by FIMIX-PLS path modeling and PLS multigroup analysis to uncover (un)observed heterogeneity. We found that customers' level of education best characterizes the discovered latent segments. Results revealed significant differences between the customer relationships of poorly and highly educated customer groups.

Session 11a: Methodological Advancements

Thursday, 18 June 2015, 16:25-17:40
Room: Salón de Grados
Session chair: Paulo Duarte

A tutorial on the use of PLS path modeling in longitudinal studies: The example of a study on users' acceptance of battery electric vehicles in corporate fleets

Ellen Roemer

The aim of this paper is to provide a guideline for researchers and practitioners who want to apply Partial Least Squares modelling based on data from a longitudinal study. This kind of modelling becomes particularly important when latent variables are measured and shall be compared at different points in time. Two main model types are identified depending on the research question to be answered. We provide guidelines for these model types using the example of a longitudinal study on the acceptance of users of Battery Electric Vehicles (BEV) in corporate fleets. In this study, we collected data at two points in time: Before the initial use of a BEV and three months after the first use. Academics and practitioners will benefit from these guidelines by getting an overview of the different model types, to make a choice regarding the most suitable model and to apply PLS in longitudinal studies.

Question order effects in partial least squares path modelling: an empirical investigation

Jan Hendrik Schreier, Niels Biethahn, Frank Drewes

Effects of question order in surveys have been extensively researched. In light of partial least squares path modeling, only few studies exist. Within this study we compare effects of question order with data from two years of a satisfaction study. The positioning of area performance questions and randomization of detailed performance questions was changed between the two waves. Our results confirm previously described positive effects on R^2 values if area performance is asked after attribute performance. This rise in R^2 values does not lead to an improved model performance on explaining overall satisfaction. This poses a risk as area performance asked first can cover a lack of completeness of questions by producing artificially high R^2 values. Hypotheses regarding halo effects from attribute on area performance ratings and differences in average area performance satisfaction were rejected.

Guidelines for modelling and assessing reflective-formative second order constructs in PLS: An application of the innovations diffusion theory

Suzanne Amaro, Paulo Duarte

Second order constructs are becoming more and more popular in the PLS-SEM literature. However, research has mainly focused on second order constructs with a reflective measurement. Indeed, there is limited research with guidelines on how to estimate and assess formative second order constructs. Therefore, this paper strives to help researchers by providing a comparison of the different approaches typically used to estimate a formative second order construct (repeated indicators, two stage and hybrid aproaches) with an empirical example. This empirical example is also used to provide guidelines on how to assess the model. The findings from this study provide useful insights for academics and researchers deciding how to estimate a second order formative construct and how to assess formative second order constructs.

Session 11b: Predictive Modeling

Thursday, 18 June 2015, 16:25-17:40
Room: Aula 1
Session chair: Marko Sarstedt

The PLS agent: Predictive modeling with partial least squares and agent-based simulation

Sandra Schubring, Iris Lorscheid, Matthias Meyer, Christian M. Ringle

Partial least squares structural equation modeling (PLS-SEM) is a widespread multivariate analysis method that is used to measure variance-based structural equation models. However, the results generated from PLS-SEM are static and cannot provide any information as to what might happen if one influential factor changed over time. The combination of two modeling methods, agent-based simulation (ABS) and PLS-SEM, allows us to make PLS-SEM results dynamic. We contribute to existing research by introducing the PLS Agent, which uses the static path model and PLS-SEM results to determine the settings of the dynamic ABS modeling method. Besides presenting the conceptual underpinnings of the PLS Agent, this research includes an empirical application of the new approach to the well-known technology acceptance model.

Predictive modeling with structural equation models

Joerg Evermann, Mary Tate

Structural equation models are traditionally used for theory testing applications. With the increasing importance of predictive analytics, and the ability of structural equation models to maintain theoretical plausibility in the context of predictive modeling, it is important to identify when and how the use of partial least squares path modeling (PLSPM) for predictive applications is appropriate and superior to other methods. This paper presents the design of two simulation studies that will evaluate the performance of PLSPM on prediction from structural equation models. Study 1 will examine all-reflective models using blindfolding and the Q^2 statistic. Study 2 will examine mixed formative-reflective models using cross-validation and the RMSE statistic. Various PLSPM methods will be compared to maximum likelihood (ML) and a-theoretical predictive methods. Recommendations to guide researches in the choice of appropriate prediction method will be developed.

Predictive model selection in PLS-SEM

Pratyush Nidhi Sharma, Marko Sarstedt, Galit Shmueli, Kevin H. Kim

Predictive model selection metrics are used to select, among a set of models, the one with highest out-of-sample predictive power. R^2 and related metrics, which are heavily used in PLS-SEM, are often mistaken as predictive metrics. We introduce Information Theoretic model selection criteria that are designed for out-of-sample prediction and illustrate their use in PLS-SEM modeling. These

metrics do not require creating a holdout sample for purposes of model selection. Using a Monte Carlo study, we compare the performance of currently used and information theoretic model selection criteria in selecting the best model among a set of competing models in terms of out-of-sample predictions, under various conditions of sample size, effect size, loading patterns, and data distribution. We identify appropriate model selection criteria for PLS-SEM and, thus, enhance the method's applicability in both theory and practice.

Session 11c: PLS in Business Research

Thursday, 18 June 2015, 16:25-17:40
Room: Aula 2
Session chair: Jos Schijns

The mediating effects of observable indicators of quality on customer's desertion in banking industry

Nuria Reguera-Alvarado, Antonio Blanco-Oliver

This paper analyzes the moderator effects of quality observable attributes on the customer's desertion in a Spanish saving bank. For this, we employ consistent PLS path modeling on a primary dataset obtained through an online survey made to almost one thousand customers. Our results suggest that the quality observable attributes that provide the saving bank such as clarity, certainty and flexibility are negatively related with the customer's desertion of this institution. However, we also find that this relationship is mediated via customer perception of quality and the level of use of e-bank performed by the customers. For the customers that have psychologically internalized the physical and observable quality attributes and for those who have not detected high quality observable attributes in their physical meetings with their bank, the use of e-banking reduce significantly the customers' desertion. Therefore, we suggest that the technology (i.e. the use of the e-bank) is a powerful instrument to retain customers in banking industry.

A proposal of a research model on internalization of quality standards using PLS

Jorge Pereira-Moliner, Juan José Tarí, José F. Molina-Azorín, María D. López-Gamero

This paper proposes a structural model to analyze the relationships between drivers of internalization of quality standards, internalization of quality

standards, and performance in the Spanish tourism industry. First, the paper proposes hypotheses based on previous studies about internalization of quality standards and then measures to test the research model using partial least squares (PLS) path modelling are presented.

Measuring and managing perceived service quality in physical activity and sports centres (PSCs)

Jos Schijns, Joska Le Conte

With stabilizing sport participation on the one hand and decreasing membership rates on the other hand, Physical Activity and Sport Centres (PSCs) face low capacity utilization and increased competition. In a milieu which becomes increasingly competitive, service quality is suggested to be a crucial factor. The aim of this study is to examine the drivers for service quality and the impact service quality has on customer loyalty, in particular in PSCs. PLS-SEM is used to test a comprehensive model in which service quality leads to satisfaction, trust, and ultimately loyalty. Data were collected from members of two PSCs in the Netherlands. Three quality dimensions appeared significant in determining perceived service quality, with staff having the strongest influence. The findings also indicate that service quality is an important general driver of customer loyalty in a PSC.

Session 11d: PLS in Higher Education

Thursday, 18 June 2015, 16:25-17:40
Room: Aula sótano
Session chair: Patrícia Valle

Graduates' awareness of competences: the case of auditing services

Rafael Bautista Mesa, Horacio Molina Sanchez, Jesus Nicolas Ramirez Sobrino

The purpose of our research is to assess what competences are of highest interest for Business and Management undergraduates. Recently, competence-based learning appears to be highly relevant in universities as a consequence of the European Higher Education Area. Our research uses the case of auditing services to show the design of a competence-based training activity that combines current professional needs with teaching methodologies underpinned by recent

research. As a result, this paper explores a workplace simulation activity and empirically assesses what competences initially attract students' interest on it. While communication skills are not initially considered as a key competence by students, their awareness of the need for an appropriate leadership behavior and a deeper technical knowledge is a key factor influencing students' interest to enroll a workplace simulation.

Exploring the impact of Internet addiction on academic engagement: A preliminary study on undergraduates

Jasmine A. L. Yeap, Ramayah Thurasamy, Hasliza Abdul Halim, Noor Hazlina Ahmad, Sherah Kurnia

Previous studies have routinely reported negative associations between Internet addiction and academic performance. However the ways in which such addictive Internet use disrupts student learning has not been researched in detail. For one, not much is known about the effect of Internet addiction on students' engagement with their studies. This study explores the impact of Internet addiction on three aspects of academic engagement namely dedication, absorption and vigor among university students, a population segment that has high propensity of developing Internet addiction. Data was collected from 175 undergraduates in a public university in Malaysia through self-administered questionnaires. Partial least squares structural equation modeling was used to analyze the data. The analysis revealed that the measurement items used in this study were psychometrically valid and reliable. The analysis also showed that Internet addiction has a significant, negative impact on vigor. Interestingly, Internet addiction was not found to have any impact on dedication and absorption. The implications of the findings are accordingly discussed along with some suggestions for future research.

Uncovering unobserved heterogeneity in the ECSI model: An application in higher education in tourism

Sofia Eurico, Patrícia Valle, Catarina Marques, João Silva

This research explores the European Consumer Satisfaction Index model applied to higher education in tourism by accounting for unobserved heterogeneity. In particular, it intends to identify segments of High Education Institutions (HEI)' consumers based on the structural model estimates of the European Consumer Satisfaction Index (ECSI), enlarged with the employability construct. A model-based segmentation approach using FIMIX in PLS path modelling is

used. The ECSI was properly adjusted to the educational framework and has shown its effectiveness when assessing students' satisfaction regarding the attended HEI. Two distinctive graduates' segments were identified using a sample of 166 HEIs' consumers. Results confirm the assumption of heterogeneity as the relationships differ across segments and the need for HEIs to differently target those segments in such a competitive context.

Session 12: Panel Discussion & Closing Ceremony

Thursday, 18 June 2015, 18:00-19:30
Room: Salón de Actos
Session chair: Jörg Henseler

Panel discussion: The future of PLS

Edward E. Rigdon, Theo K. Dijkstra, Galit Shmueli, Wynne W. Chin
(Moderator: Jörg Henseler)

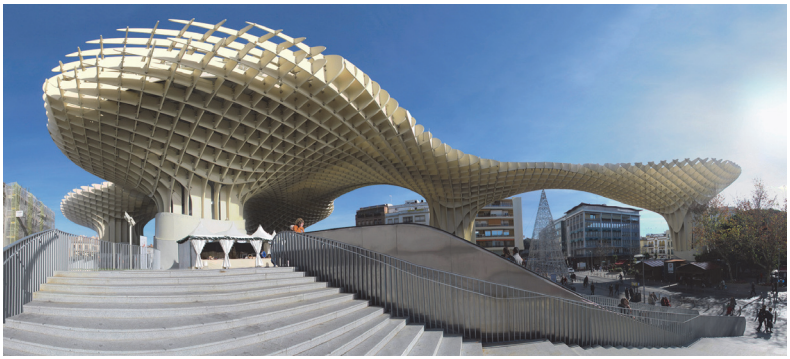
Best Paper Award; Closing Ceremony

Social Event II: Gala Cocktail

Thursday, 18 June 2015, 21:30-. . .

In the evening of Thursday, 18 June 2015, we will have a gala cocktail with tapas at Metropol Parasol. This event includes drinks and tapas and is covered by the conference fee. Venue:

Metropol Parasol, Plaza de la Encarnación, s/n, 41003 Sevilla (see page 5), Entrance from "Puerta Este" (East Door), `https://goo.gl/maps/mtFqI`



Post-conference Workshop

Schedule

Time	Topic
08:00-09:00	*Registration*
09:00-10:30	Prediction-oriented segmentation
10:30-10:50	*Coffee break*
10:50-12:15	Advanced topics in PLS-SEM results assessment and prediction
12:15-12:35	*Coffee break*
12:35-14:00	Confirmatory composite analysis using PLS
14:00-16:00	*Lunch break*
16:00-17:25	Consistent PLS (PLSc)
17.25-17:45	*Coffee break*
17:45-19:10	Measurement invariance of composite models (MICOM)

Practical Information

Venue:
Metropol Parasol, Plaza de la Encarnación, s/n, 41003 Sevilla (see page 5),
Entrance from "Puerta Este" (East Door), `https://goo.gl/maps/mtFqI`

Notes:

- Please bring your own laptop with you.
- You should have SmartPLS installed. SmartPLS can be obtained for free from `http://www.smartpls.com`.
- You should have ADANCO installed. ADANCO can be obtained for free from `http://www.composite-modeling.com`.

List of Authors

1. José Abrantes, Polytechnic Institute of Viseu (Portugal), `jlabrantes@estv.ipv.pt`, Poster Exhibition II
2. Francisco Acedo, Universidad de Sevilla (Spain), `fjacedo@us.es`, Session 3c
3. Emiliano Acquila-Natale, Universidad Politécnica de Madrid (Spain), `emiliano.acquila@upm.es`, Session 2b
4. Angel F. Agudo-Peregrina, Universidad Politécnica de Madrid (Spain), `af.agudo@upm.es`, Session 2b
5. Noor Haslina Ahmad, Universiti Sains Malaysia (Malaysia), `hazlina@usm.my`, Sessions 5c, 8d, 11d
6. María Dolores Aledo, UPCT (Spain), `mdaledo@hotmail.com`, Session 3b
7. Tomas Aluja, Universitat Politécnica de Catalunya (Spain), `tomas.aluja@upc.edu`, Session 8a
8. Suzanne Amaro, Polytechnic Institute of Viseu (Portugal), `samaro@dgest.estv.ipv.pt`, Session 11a, Poster Exhibition II
9. Ricardo José Rocha Amorim, University of State of Bahia (Brazil), `amorim.ricardo@gmail.com`, Session 2d, Poster Exhibition I
10. Azlan Amran, Universiti Sains Malaysia (Malaysia), `azlan_amran@usm.my`, Session 8d
11. Maria José Antunes, Instituto Politécnico de Viseu (Portugal), `maria.jose.l.antunes@gmail.com`, Session 3c
12. Jorge Arenas-Gaitan, Universidad de Sevilla (Spain), `jarenas@us.es`, Session 2b
13. Roya Asadifard, Tarbiat Modares University (Iran), `roya.asadifard@yahoo.com`, Session 3d
14. Juan Carlos Ayala-Calvo, Universidad de La Rioja (Spain), `juan-carlos.ayala@unirioja.es`, Session 3c
15. Adelaide Maria Baeta, UNIFEMM (Brazil), `adelaide.baeta@unifemm.edu.br`, Poster Exhibition I
16. Karla Barajas-Portas, Universidad Anahuac Mexico Norte (Mexico), `karla.barajas@anahuac.mx`, Session 5b
17. Rafael Bautista Mesa, Universidad Loyola Andalucía (Spain), `rbautista@uloyola.es`, Session 11d
18. Jan-Michael Becker, University of Cologne (Germany), `j.becker@wiso.uni-koeln.de`, Session 2a (2×)

19. Daniel Belanche Gracia, Universidad de Zaragoza (Spain), belan@unizar.es, Session 5d
20. Niels Biethahn, Institut für Automobil Forschung (IAF) (Germany), n.biethahn@automobil-forschung.org, Session 11a
21. Antonio Blanco-Oliver, Universidad de Sevilla (Spain), aj_blanco@us.es, Sessions 2d, 11c
22. Ricarda Bouncken, University of Bayreuth (Germany), ricarda.bouncken@uni-bayreuth.de, Session 5a
23. Adriano Leal Bruni, Federal University of Bahia (UFBA) (Brazil), albruni@gmail.com, Session 2d, Poster Exhibition I
24. Elena Carvajal-Trujillo, University of Huelva (Spain), nale1515@gmail.com, Session 5d
25. Luisa Carvalho, Aberta University (Portugal), luisam.carvalho@uab.pt, Session 8d
26. Luis Vicente Casaló Ariño, Universidad de Zaragoza (Spain), lcasalo@unizar.es, Session 5d
27. Cristóbal Casanueva, Universidad de Sevilla (Spain), crocha@us.es, Session 5a, Poster Exhibition II
28. Jose C. Casillas, Universidad de Sevilla (Spain), casillas@us.es, Session 3c
29. Julen Castillo Apraiz, UPV/EHU (Spain), julen.castillo@ehu.eus, Session 8c
30. Ignacio Castro, Universidad de Sevilla (Spain), icastro@us.es, Sessions 5a, 8b
31. Jose Márcio Castro, PUC Minas (Brazil), josemarcio@pucminas.br, Poster Exhibition I
32. Juan Gabriel Cegarra, UPCT (Spain), juan.cegarra@upct.es, Session 3b
33. Gabriel Cepeda-Carrión, Universidad de Sevilla (Spain), gabi@us.es, Conference Co-chair, Sessions 1, 9, 12, Pre-conference Workshop
34. Ignacio Cepeda-Carrión, Universidad de Sevilla (Spain), icepeda@us.es, Session 2c, Poster Exhibition I
35. Wynne W. Chin, University of Houston (United States of America), wchin@uh.edu, Sessions 7, 12
36. Frances Chumney, University of West Georgia (United States of America), fchumney@westga.edu, Session 8a

37. Antonio Ciampi, McGill University (Canada), antonio.ciampi@mcgill.ca, Session 8a
38. Mar Cobeña, Universidad de Sevilla (Spain), mcobena@us.es, Poster Exhibition II
39. Teresa Costa, Polytechnic Institute of Setúbal (Portugal), teresa.costa@esce.ips.pt, Session 8d
40. Rafael Periañez-Cristobal, Universidad de Sevilla (Spain), rafacris@us.es, Session 2c
41. Stephan von Delft, University of Amsterdam (Netherlands), s.vondelft@uva.nl, Session 5a
42. Theo K. Dijkstra, University of Groningen (Netherlands), t.k.dijkstra@rug.nl, Sessions 6, 12
43. Frank Drewes, Harris Interactive AG (Germany), fdrewes@harrisinteractive.de, Session 11a
44. Paulo Duarte, University of Beira Interior (Portugal), pduarte@ubi.pt, Session 11a
45. Henrik Eriksson, Chalmers University of Technology (Sweden), henrik.eriksson@chalmers.se, Poster Exhibition I
46. John E. Ettlie, Rochester Institute of Technology (United States of America), jettlie@saunders.rit.edu, Session 5c
47. Joerg Evermann, Memorial University of Newfoundland (Canada), jevermann@mun.ca, Session 11b
48. Sofia Eurico, School of Tourism and Maritime Technology (Portugal), sofia.eurico@ipleiria.pt, Session 11d
49. Lisa Falschlunger, University of Applied Sciences Upper Austria (Austria), lisa.falschlunger@fh-steyr.at, Session 8c
50. Omer Farooq Malik, COMSATS Institute of Information Technology (Pakistan), omer_farooq@comsats.edu.pk, Session 3b
51. Matthias S. G. Feistel, Capcellence (Germany), matthias.feistel@capcellence.com, Poster Exhibition II
52. Carmen M. Felipe, Universidad de Sevilla (Spain), carmenfelipe73@gmail.com, Session 8c
53. Carlos Fernandez-Jardón, Universidade de Vigo (Spain), cjardon@uvigo.es, Session 5c
54. Raimundo Nonato Lima Filho, University of State of Bahia (UNEB) (Brazil), rnlfilho@gmail.com, Session 2d, Poster Exhibition I

55. Carlos Flavián Blanco, Universidad de Zaragoza (Spain), cflavian@unizar.es, Session 5d
56. Cheng-Hun Fong, Universiti Sains Malaysia (Malaysia), ptshopgr@yahoo.com, Session 5d
57. Olivier Furrer, University of Fribourg (Switzerland), olivier.furrer@unifr.ch, Sessions 3a, 5a
58. Bandula Galhena, University of Agder (Norway), blgalhena2@gmail.com, Session 3b
59. Dolores Gallardo-Vazquez, University of Extremadura (Spain), dgallard@unex.es, Session 8d
60. Ángeles Gallego, Universidad de Sevilla (Spain), maga@us.es, Session 5a, Poster Exhibition II
61. Juan Carlos Garcia Villalobos, Universidad San Pablo CEU (Spain), garvil@ceu.es, Session 3a
62. Carsten Gelhard, University of Twente (Netherlands), c.gelhard@utwente.nl, Session 5a
63. Ali Rajabzadeh Ghatari, Tarbiat Modares University (Iran), alirajabzadeh@gmail.com, Session 2d
64. Alfonso J. Gil López, University of La Rioja (Spain), alfonso.gil@unirioja.es, Sessions 3c, 5b
65. Yen-Nee Goh, Universiti Sains Malaysia (Malaysia), gohyennee@gmail.com, Session 5b
66. M. Rosario González-Rodríguez, Universidad de Sevilla (Spain), rosaglez@us.es, Session 5d
67. Pablo Gonzalo Lazaro, Universidad San Pablo CEU (Spain), pablo.gonzalolazaro@ceu.es, Session 3a
68. Elisabeth Grabmann, University of Applied Sciences Upper Austria (Austria), elisabeth.grabmann@fh-steyr.at, Session 8c
69. Siegfried Gudergan, The University of Newcastle (Australia), siggi.gudergan@newcastle.edu.au, Session 5a
70. Jaime Ortega-Gutierrez, Universidad de Sevilla (Spain), joguti@us.es, Sessions 2a, 5c
71. Joseph F. Hair, Jr., Kennesaw State University (United States of America), jhair3@kennesaw.edu, Pre-conference Workshop
72. Hasliza Abdul Halim, Universiti Sains Malaysia (Malaysia), haslizahalim@usm.my, Session 5c, 11d

73. Jörg Henseler, University of Twente (Netherlands), `j.henseler@utwente.nl`, Conference Co-chair, Sessions 1, 3a, 5a, 7, 9, 12, Poster Exhibition I, Post-conference Workshop
74. Ángel Hernández-García, Universidad Politécnica de Madrid (Spain), `angel.hernandez@upm.es`, Session 2b
75. Felipe Hernández Perlines, Universidad de Castilla-La Mancha (Spain), `felipe.hperlines@uclm.es`, Session 5d
76. Petra Hoffmann, Universiteit Twente (Netherlands), `p.hoffmann@utwente.nl`, Session 8c
77. Lisa Hüttinger, Volkswagen AG (Germany), `lisa.huettinger@volkswagen.de`, Session 3a
78. Ana Irimia-Dieguez, Universidad de Sevilla (Spain), `anairimia@us.es`, Session 2d
79. Dhouha Jaziri Bouagina, ARBRE Laboratory - ISG Tunis (Tunisia), `dhouhajaziri@gmail.com`, Session 8b
80. José Luis Jiménez-Caballero, Universidad de Sevilla (Spain), `jjimenez@us.es`, Session 5d
81. Ildikó Kemény, Corvinus University of Budapest (Hungary), `ildiko.kemeny@uni-corvinus.hu`, Session 2b
82. Kevin H. Kim, University of Pittsburgh (United States of America), `khkim@pitt.edu`, Session 11b
83. Olli Kuivalainen, University of Laaperanta (Finland), `olli.kuivalainen@lut.fi`, Session 3c
84. Sherah Kurnia, The University of Melbourne (Australia), `sherahk@unimelb.edu.au`, Session 11d
85. Giuseppe Lamberti, Universitat Politécnica de Catalunya (Spain), `giuseppelamb@hotmail.com`, Session 8a
86. Antonio Leal Millan, Universidad de Sevilla (Spain), `aleal@us.es`, Poster Exhibition I
87. Antonio Luis Leal-Rodríguez, Universidad Loyola Andalucía (Spain), `alleal@uloyola.es`, Sessions 2c, 5c, Poster Exhibition I
88. Joska Le Conte, KNMV (Netherlands), `superjoska@hotmail.com`, Session 11c
89. Othmar Lehner, University of Oxford (United Kingdom), `othmar.lehner@sbs.ox.ac.uk`, Session 8c
90. Sara Leroi-Werelds, Hasselt University (Belgium), `sara.leroiwerelds@uhasselt.be`, Session 2a

91. María D. López-Gamero, Universidad de Alicante (Spain), `md.lopez@ua.es`, Session 11c
92. Iris Lorscheid, Hamburg University of Technology (TUHH) (Germany), `iris.lorscheid@tuhh.de`, Session 11b
93. Heimo Losbichler, University of Applied Sciences Upper Austria (Austria), `heimo.losbichler@fh-steyr.at`, Session 8c
94. Catarina Marques, ISCTE (Portugal), `cmvamarques@gmail.com`, Session 11d
95. Silvia Martelo-Landroguez, Universidad de Sevilla (Spain), `smartelo@us.es`, Poster Exhibition I
96. Rosario Martín-Sámper, Universidad de Sevilla (Spain), `rmartin@us.es`, Session 5d
97. Eva Martínez, UPCT (Spain), `eva.martinez@upct.es`, Session 3b
98. Mara Mataveli, Universidad de La Rioja (Spain), `maramataveli@gmail.com`, Session 3c
99. Ruth Mateos de Cabo, Universidad San Pablo CEU (Spain), `matcab@ceu.es`, Session 3a
100. Jesús Matey de Antonio, UPV/EHU (Spain), `jesus.matey@ehu.eus`, Session 8c
101. Matthias Meyer, Hamburg University of Technology (TUHH) (Germany), `matthias.meyer@tuhh.de`, Session 11b
102. David Midgley, INSEAD (Germany), `david.midgley@insead.edu`, Poster Exhibition II
103. Caroline Lancelot Miltgen, Audencia School of Management, Nantes (France), `clancelot@audencia.com`, Poster Exhibition I
104. Simona C. Minotti, Università degli Studi di Milano-Bicocca (Italy), `simona.minotti@unimib.it`, Session 8a
105. Ainul Abdul Mohsin, Universiti Sains Malaysia (Malaysia), `ainabdulmohsin@hotmail.com`, Session 5c
106. Horacio Molina Sanchez, Universidad Loyola Andalucía (Spain), `hmolina@uloyola.es`, Session 11d
107. José F. Molina-Azorín, Universidad de Alicante (Spain), `jf.molina@ua.es`, Session 11c
108. Miguel Ángel Moliner-Tena, Universitat Jaume I of Castellón (Spain), `amoliner@uji.es`, Session 8b
109. Manuel Rey-Moreno, Universidad de Sevilla (Spain), `mrmoreno@us.es`, Session 2c

110. Siham Mourad, Grenoble Alpes University (France), sihammourad@gmail.com, Session 5b

111. Ákos Nagy, University of Pécs (Hungary), nagya@ktk.pte.hu, Session 2b

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177. Benito Yáñez Araque, Universidad de Castilla-La Mancha (Spain), benito.yanez@uclm.es, Session 5d

178. Jasmine A. L. Yeap, Universiti Sains Malaysia (Malaysia), jasmineyeap810@gmail.com, Session 11d

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Importance-Performance Matrix Analysis of the Factors Influencing International Students' Psychological and Sociocultural Adaptations Using SmartPLS

Completed Research Paper

1st Azadeh Shafaei
School of Educational Studies,
Universiti Sains Malaysia (USM)
Penang 11800, Malaysia

2nd Nordin Abd Razak
School of Educational Studies,
Universiti Sains Malaysia (USM)
Penang 11800, Malaysia

Abstract

With the increase in international mobility in higher education especially in Asia, the issue of cross-cultural adaptation becomes paramount since international students try to overcome challenges and flourish psychologically and socioculturally in a new environment. Therefore, this study is conducted to identify the factors influencing international postgraduate students' psychological and sociocultural adaptations in Malaysian public universities, an emerging education hub in the region. It also further investigates importance-performance matrix analysis (IPMA) of the antecedents for psychological and sociocultural adaptations as the endogenous variables to provide insights and derive recommendations for education policymakers and academic administrators to ensure successful international postgraduate students' cross-cultural adaptation.

Keywords: *Cross-cultural adaptation, psychological adaptation, sociocultural adaptation, Importance-Performance Matrix Analysis (IPMA), internationalization of higher education*

1. Introduction

International students mobility has become an important aspect of the global education for more than 10-15 years (Verbik & Lasanowski, 2007). It is worth noting that international students' mobility to other countries for the purpose of getting the best education can contribute significantly to the financial, social, cultural and academic growth of the host countries. Thus, governments have paid notable attention to education internationalization in order to grow their countries economic by making improvements in universities academic work and national development (Porter & Vidovich, 2000). This fact has led to a worldwide competition among educational institutions to develop knowledge-based economy through training the best brains especially in Asia (Arokiasamy, 2010).

Malaysia is one of these countries emerged to be an education hub in the region (Verbik & Lasanowski, 2007). UNESCO has ranked Malaysia as the 11th country in the world by holding 2.5% of global international students (Ministry of Higher Education Malaysia, 2009). According to the statistics, 80,750 international students enrolled in Malaysian universities in 2009 while this number increased to 111,939 in 2011 (Cheng, Mahmood, & Yeap, 2013). Education internationalisation not only develops the global knowledge network but it also grows business in Malaysia (Cheng et al., 2013). Particularly, education sector in Malaysia contributed 4 per cent to the Malaysian Gross National Income (GNI) and it is expected to be doubled by 2020 (PEMANDU, 2010).

Apart from the economic growth and benefits of education mobility for Malaysia, challenges to adjust to a new culture together with rigorous academic demands might put international students at the risk of challenging and stressful adjustment. Dissimilarity between the international students' ethnic culture norms and the new culture (Yang & Clum, 1994) and lack of knowledge about new cultural norms and values often leads to a significant amount of life stress for international students which can bring about negative consequences for international students as well as the host society (Sumer, 2009). Nonetheless, if international students overcome their difficulties and problems, they can successfully adapt to the new environment and the negative consequences of norms and its related stereotypes would be avoided (Molinsky, 2007). Consequently, tremendous attention has been paid to the issue of cross-cultural adaptation by researchers in various contexts. Review of the existing literature on cross-cultural adaptation shows that the emphasis of the researchers has been on the identification of crucial factors which could facilitate or hinder the process of individuals' adaptation to a new cultural environment (e.g., Li & Gasser, 2005; Tonsing, 2013). However, further examination of the factors influencing cross-cultural adaptation considering the importance and performance of each factor has remained relatively unexplored in the literature.

In an effort to identify the factors influencing international postgraduate students' cross-cultural adaptation, this study aims to empirically examine the relationship between several individual factors (i.e. English language proficiency, and acculturation attitude) and situational factors (i.e. perceived social support, and perceived stereotype image) with international postgraduate students' psychological and sociocultural adaptations in Malaysian public universities. Besides, identifying and investigating the crucial factors influencing international postgraduate students' cross-cultural adaptation in Malaysia through measuring the importance and performance of each factor with the criterions of psychological and sociocultural adaptations provides practical, managerial and empirical contributions.

2. Cross-Cultural Adaptation

Since the focus of this study is to provide empirical insights about the factors influencing cross-cultural adaptation, first the conceptualization of cross-cultural adaptation is discussed followed by its antecedents namely; individual factors and situational factors.

The notion of cross-cultural adaptation refers to the dynamic change process which occurs to individuals when they move to a new environment (Kim, 2001). Particularly, functional fitness, psychological health and intercultural identity development are the three facets of cross-cultural adaptation (Kim, 2001). Similarly, based on the definition suggested by Ward and colleagues cross-cultural adaptation refers individuals' psychological and sociocultural adaptation to a new society (Ward & Kennedy, 1994). Accordingly, the two terms proposed by Ward and colleagues as psychological adaptation and sociocultural adaptation respectively coincide with psychological health and functional fitness proposed by Kim (Wang & Sun, 2009). These two mentioned concepts have been the basis to measure cross-cultural adaptation in most of the prior relevant studies (e.g., Li & Gasser, 2005; Tonsing, 2013)

2.1 Psychological adaptation

Psychological adaptation has been largely referred to as internal psychological state of the individual and individuals' ability in handling life stressor which results in negative and positive consequences (Lazarus & Folkman, 1984). The negative effect of psychological adaptation would be depression, social alienation, identity confusion, anxiety and psychosomatic symptoms (Berry & Sam, 1997). However, clear sense of personal and

cultural identity, high self-esteem, good mental health, and the attainment of efficient cultural and social skills are considered as the positive effects of psychological adaptation (Sumer, 2009). Unlike common existing conceptualizations, Tonsing (2013) defined psychological adaptation as both psychological distress and life satisfaction because the absence or presence of the psychological distress does not necessarily mean life satisfaction and vice versa. Therefore, in this study psychological adaptation refers to international postgraduate students' ability in coping with psychological distress caused to them in a new environment as well as their satisfaction with life and their self-esteem in Malaysia in line with Tonsing's (2013) suggestion.

2.2 Sociocultural adaptation

Sociocultural adaptation is mainly defined as the external and objective psychological outcome that links individuals to their new context, such as the ability to deal with daily problems especially family life, work and school and the ability to "fit in" the new culture (Ward & Kennedy, 1999). Since the notion of sociocultural adaptation refers to the various skills of individuals to manage personal and social life in a new environment with less difficulty, this study, in line with the previous studies, operationalizes sociocultural adaptation as the international postgraduate students' ability to handle daily life and fit into Malaysian society.

3. Antecedents of Cross-Cultural Adaptation

According to Lewin's field theory (Lewin, 1951), a person's behaviours occur within a psychological field which is called the 'life-space' (Schultz & Schultz, 2004). The 'life-space' refers to every forces in the field both from the inner and outer environment that shapes up the individual such as the places an individual goes, the people the individual meets and the feelings the individual has about the places or people. As Lewin believed understanding the relations of all factors in one's life-space is crucial because those are the elements which play important roles in helping or blocking people from accommodating to the new environment (Sorrentino, 2013). Therefore, Lewin (1951) proposed the equation for life-space as "B = f (P, E)" which indicates that the individuals' behaviour (B) can be explained by considering both the person (P) and their environment (E). The environment here does not refer to the physical environment but the psychological environment perceived by the person (Sorrentino, 2013). Additionally, the person and the environment are interdependent and that creates a dynamic and complex field of interaction which help individuals learn more about themselves and their environment (Daniels, 2003). Therefore, Lewin (1951) regarded the field as a continuous state of adaptation. In convergence with the concepts of the filed theory the antecedents of cross-cultural adaptation have been categorized as the individual and situational factors.

3.1 Individual factors

The individual factors refer to the person related factors which is defined as general life situation in Lewin's (1951) field theory. It generally includes a person's psychological life-space and background factors (Chak, 2002). Furthermore, every factor which is related to the person or individual decision in facilitating cross-cultural adaptation is categorized as the individual factors.

3.1.1 English language proficiency

Language is a vital tool in learning and acquiring new cultural skills and also one of the key elements in adaptation process. To interact with local people in the host country and to

better understand local culture and values, international students need to have a good command of language proficiency (Mahmud, Amat, Rahman, & Ishak, 2010). Kim (1988) mentioned that the factor of effective social communication is believed to be the key of successful adaptation and this communication is done through language. According to Ward (2004, p. 190) "Language skills are important because they affect the quality and quantity of intercultural interactions". Thus, it is hypothesized:

H1: English language proficiency positively influences international postgraduate students' psychological adaptation.

H2: English language proficiency positively influences international postgraduate students' sociocultural adaptation.

3.1.2 Acculturation attitude

The conflict between preserving the ethnic identity (keep) and developing a new identity consistent with the norms and behaviours of host society (adopt) has always been an important issue for immigrants and sojourners (Berry, Segall, & Kagitcibasi, 1999). Based on the evidence from earlier studies, having any of keep or adopt attitudes can influence individuals' adaptation differently. For example, higher psychological and sociocultural adaptations are related to both keep and adopt, but higher sociocultural adaptation is related to adopt (Ward & Kennedy, 1994). Moreover, through communicating with the host nationals, individuals improve their quality of interaction and learn more about the new environment which facilitates better cross-cultural adaptation. Therefore, it is hypothesized:

H3: Adjustment attitude significantly influences international postgraduate students' psychological adaptation.

H4: Adjustment attitude significantly influences international postgraduate students' sociocultural adaptation.

H5: Attachment attitude significantly influences international postgraduate students' psychological adaptation.

H6: Attachment attitude significantly influences international postgraduate students' sociocultural adaptation.

3.2 Situational factors

Situational factors are defined as the factors which are at the environmental level. In Lewin's (1951) field theory, it refers to the perceived psychological environment. In other words, it refers to the individuals' perception of their psychological environment.

3.2.1 Perceived social support

Social support is defined as the support networks of co-national and host national friends that are formed by sojourners in order to manage academic, social and emotional problems (Alazzi & Chiodo, 2006). There are three main sources of social support (i.e. family, friends and others) (Chirkov, Safdar, De Guzman, & Playford, 2008). In the case of international students, others include university staffs, academic staffs, international office, international students club and academic services and the larger community are also important to provide support because international students might approach them when they face challenges or difficulties (Zhou, Frey, & Bang, 2011). Additionally, higher levels of anxiety and depression are associated with lack of social support (Sumer, Poyrazli, & Grahame, 2008). Hence, social support is an important determinant of cross-cultural adaptation by reducing stress and anxiety and increasing international students' knowledge and understanding of the host culture (Safdar, Struthers, & van Oudenhoven, 2009). Accordingly, the following hypotheses are advanced:

H7: Social support provided from different sources (family, friends and university academic and non-academic staffs) positively influences international postgraduate students' psychological adaptation.
H8: Social support provided from different sources (family, friends and university staffs) positively influences international postgraduate students' sociocultural adaptation.

3.2.2 Perceived stereotype image

Stereotype is defined as individuals' beliefs about members of some social groups which involves generalizations about their typical characteristics (Jussim, Nelson, Manis, & Soffin, 1995). It also refers to people's social categorical judgment of the members of other groups (Hean, 2009). The stereotype made in a country by the dominant group can significantly influence the stereotyped groups' behaviours and attitudes (O'Sullivan & Durso, 1984). In line with the social identity theory, the stereotype image can result in positive or negative relations with the host nationals which can affect sociocultural adaptation (Tajfel & Turner, 1986). Additionally, negative stereotype could increase individuals' stress and anxiety which can affect individuals' psychological health and ultimately result in unsuccessful psychological adaptation. Thus, it is hypothesized:

H9: Perceived stereotype image can significantly influence international postgraduate students' psychological adaptation.

H10: Perceived stereotype image can significantly influence international postgraduate students' sociocultural adaptation.

Considering the equation of life-space in the field theory which emphasizes the role of individual and situational factors, the proposed model in this study is developed. As shown in Figure 1, individual and situational factors are the exogenous variables which influence international postgraduate students' psychological and sociocultural adaptations (i.e. endogenous variables).

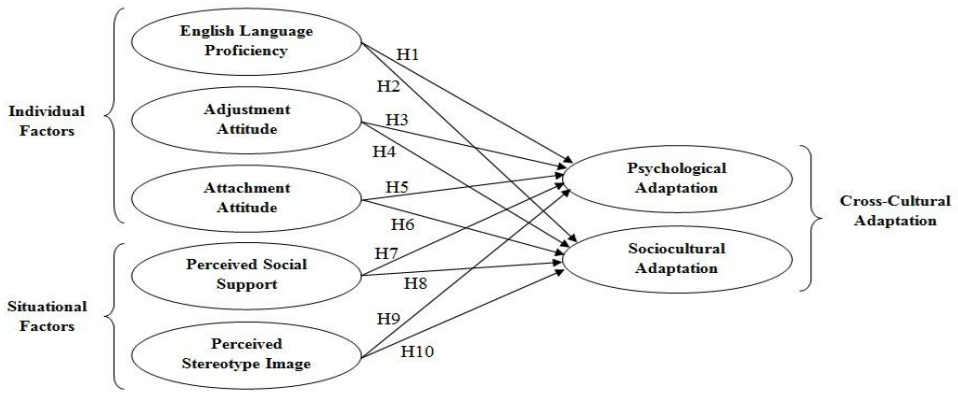

Figure 1: Research Model

4. Design of the Empirical Study

An online questionnaire, validated through pilot test, was emailed to all the postgraduate students (i.e. 5372) in Malaysian public universities. To ensure the ethical considerations in this study, the purpose of the study was explained clearly in the email sent to each international postgraduate student. The participants were also ensured that all their responses would remain anonymous and confidential and the information provided from them would be merely used for the purpose of the research. The questionnaire was in English, as the medium of instruction is English for international students in Malaysian universities. The responses of

the participants were recorded on a 6-point Likert scale. Table 1 illustrates the instruments measurement scales adapted to measure each construct, number of items, the measurement model and the sources of the scales.

Table 1: Constructs Measurement Scales

Construct	Instrument	Number of Items Adapted	Measurement Model	Source
English Language Proficiency	Language Proficiency Scale ELP	ELP: 4 items	Reflective	- Kwak (1991)
Adjustment Attitude	Adopt Scale	AdjA: 5 items	Reflective	Swaidan, Vitell, Rose, and Gilbert (2006)
Attachment Attitude	Keep Scale	AttA: 5 items	Reflective	Swaidan et al. (2006)
Social Support	Multidimensional Scale of Perceived Social Support (MSPSS)	MSPSS: 9 items	Formative	Zimet, Dahlem, Zimet, and Farley (1988)
Perceived Stereotype Image	Stereotype Image Scale	PSI: 5 items	Reflective	(Carpenter, 1995)
Psychological Adaptation	- Depression Anxiety and Stress Scale (DASS) - Life Scale (SWLS) - Self-Esteem Scale (SES)	DASS: 6 items (Depression) SWLS: 5 items SES: 6 items	Formative	- Lovibond and Lovibond (1995) - Diener, Emmons, Larsen, and Griffin (1985) - Rosenberg (1965)
Sociocultural Adaptation	Sociocultural Adaptation Scale (SCAS)	SCAS: 10 items	Reflective	Ward and Kennedy (1999)

Among the emails sent to the international postgraduate students, total of 1023 responses were received; however 818 of them were included in this study since they were fully completed. The participants of this study included 818 international students enrolled in a postgraduate level (i.e. master or PhD) in the public universities in Malaysia. Specifically, 42% of the participants were master students while 58% were PhD students. About 68 % of the participants were male while 32% female. The largest group of participants were in the age group of 25-30 years old (37%), followed by the 31-35 age group (27%). Besides, 8% of respondents were below 25 years old. Among the participants, 57% were married. Participants came mainly from the two Asia (48%) and Middle East (31%) with 22% from Africa.

4.1 Assessment of the path model

The research model was tested through Partial Least Square path modelling technique using SmartPLS version 3.0 (Ringle, Wende, & Becker, 2014) due to two main reasons; (a) this study is exploratory in nature, and (b) there are formative constructs in the research model. Thus, this technique is appropriate, since the hypothesized relationships among the variables have not been tested before, indicating the exploratory nature of the research (Ainuddin, Beamish, Hulland, & Rouse, 2007). Moreover, given the perceived difficulties in formative models, the most suitable and capable technique in handling both formative and reflective constructs in a research model is SmartPLS (Hair, Black, Babin, & Anderson, 2010).

A two-step process was applied; outer model assessment (i.e. measurement model) and the inner model assessment (i.e. structural model) in SmartPLS version 3.0 (Henseler, Ringle, & Sinkovics, 2009). The measurement model is concerned with the assessment of reliability and validity of the variables while the structural model evaluates the significance of the path coefficients in the research model. Figure 2 presents the path model in SmartPLS.

4.1.1 Assessment of the reflective measurement model

For the reflective measurement model assessment, item loadings, average variance extracted (AVE), composite reliability (CR) were assessed for the following constructs; 'English language proficiency', 'adjustment attitude', 'attachment attitude', 'perceived stereotype image' and 'sociocultural adaptation'. Factor loadings are above the ideal threshold of 0.70 except for a few items which fall below 0.70 (i.e. above 0.603); however, they do not cause any problem and the fit remains high, and the average variance extracted (AVE) of all the reflective constructs are above the threshold of 0.5 (Fornell & Larcker, 1981; Hair et al., 2010). Besides, composite reliability indices of all the constructs are close to 0.9 which is higher than the cut-off value of 0.7 (Hair, Black, Babin, Anderson, & Tatham, 2009) indicating satisfactory reliability.

In addition, the discriminant validity of the reflectively measured constructs was assessed using the heterotrait-monotrait ratio (HTMT) proposed by Henseler, Ringle, and Sarstedt (2015). Since Fornell and Larcker (1981) criterion and cross loadings are insufficiently sensitive to detect problems with discriminant validity, it is suggested to assess the heterotrait-monotrait ratio (HTMT) of the correlations that refers to the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct) (Henseler et al., 2015). All the values of HTMT are below the threshold of 0.85 (Clark & Watson, 1995; Kline, 2011) confirming the establishment of discriminant validity of the reflectively measured constructs.

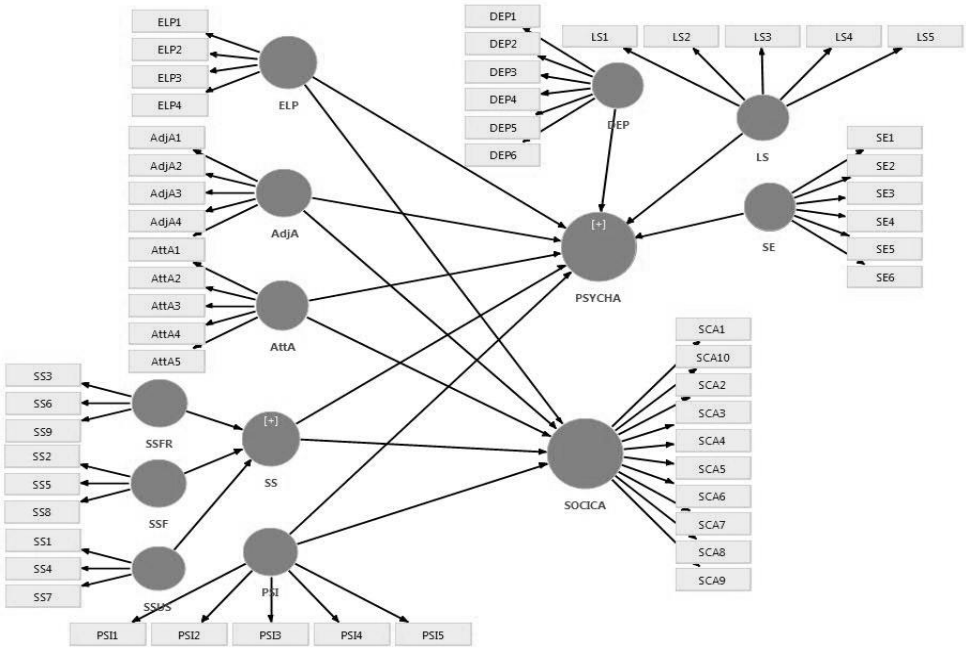

Figure 2: Path Model

4.1.2 Assessment of the formative measurement model

For the formative measurement model, weight significance of each indicator and multi-collinearity (variance inflation factor VIF) were assessed for 'psychological adaptation (PSYCHA)' and 'social support (SS)'. All the indictors' weights are significant (two-sided $p<0.01$) [PSYCHA: (depression, weight: 0.430, t-value: 27.23; life satisfaction, weight: 0.378, t-value: 23.72; self-esteem, weight: 0.488, t-value: 27.65) and SS: (social support from family, weight: 0.273, t-value: 8.73; social support from friends, weight: 0.414, t-value: 31.35; social support from university staffs, weight:0.627, t-value: 19.41)]. Additionally, the highest VIF values for both formative constructs' indicators is 1.845 which is below the cut-off value of 3 suggested by Hair et al. (2009) confirming that multi-collinearity is not a

problem. Overall, both reflective and formative measurement models are confirmed before assessing the structural model.

4.1.3 Assessment of the structural model

For assessing the structural model, repeated indicator approach (Lohmöller, 1989) was applied since there are two reflective-formative constructs in the research model (i.e., social support an exogenous variable and psychological adaptation an endogenous variable). Due to having a formative hierarchical latent variable in an endogenous position (i.e. psychological adaptation) using all the three approaches (i.e. two-stage, repeated and hybrid) are suitable (Becker, Klein, & Wetzels, 2012). Besides, the essential criterion to assess the structural model is the coefficient determination of R square (R^2). For 'psychological adaptation' and 'sociocultural adaptation' the R square values are 0.310 and 0.344 respectively which lie at the satisfactory range since in studying human behaviour (e.g., psychology) R square value is lower than 50% (Frost, 2013). The inner model path analysis shows that among the 10 hypotheses advanced in this study, only one (i.e. AttA → PSYCHA) is not supported. In particular, the paths between AdjA → PSYCHA, AdjA → SOCICA, AttA → SOCICA, ELP → PSYCHA, ELP → SOCICA, PSI → PSYCHA, PSI → SOCICA, SS → PSYCHA, SS → SOCICA are all statistically significant at $p<0.05$ confidence level (One-sided) and thus the respective hypotheses are supported.

4.2 Importance-performance matrix analysis

In the last step, the analysis of importance-performance matrix of path modelling was carried out in order to identify the possible areas that need to be addressed and improved with management activities. Specifically, by assessing IPMA the impact of latent variables with a relatively high importance and relatively low performance on a particular endogenous latent variable would be identified (Hock, Ringle, & Sarstedt, 2010). Subsequently, IPMA results provide managerial insights to address and improve the identified areas with high importance and low performance (Hock et al., 2010; Schloderer, Sarstedt, & Ringle, 2014). Table 2 illustrates the results of IPMA and Figure 3 visualizes the IPMA results for the two criterions of 'psychological adaptation' and 'sociocultural adaptation'.

Table 2: IPMA Results

Latent Variable	Psychological Adaptation		Sociocultural Adaptation	
	Total Effect (Importance)	Index value (Performance)	Total Effect (Importance)	Index value (Performance)
English Language Proficiency	0.130	71.903	0.124	71.903
Adjustment Attitude	0.155	68.221	0.214	68.221
Attachment Attitude	0.029	73.525	-0.074	73.525
Social Support	0.268	58.221	0.158	58.221
Perceived Stereotype Image	0.209	69.897	0.328	69.897

It is evident from the importance-performance analysis map that for both criterions (i.e. psychological adaptation and sociocultural adaptation) the two highest performances belong to attachment attitude and English language proficiency. However, the variables with the highest importance for psychological and sociocultural adaptations are different. For psychological adaptation, the top three important variables are social support, perceived stereotype image and adjustment attitude with the lowest performance in social support. On the other hand, for sociocultural adaptation, the top three priorities belong to perceived stereotype image, adjustment attitude and social support with the lowest performance in social support. It is worth noting here that, although the three variables show the highest importance for both criterions, their order for each criterion is different. Specifically, for psychological

adaptation, social support is the most important variable while for sociocultural adaptation perceived stereotype image is the highest priority. Overall, the three most important variables for both psychological and sociocultural adaptations are social support, perceived stereotype image and adjustment attitude.

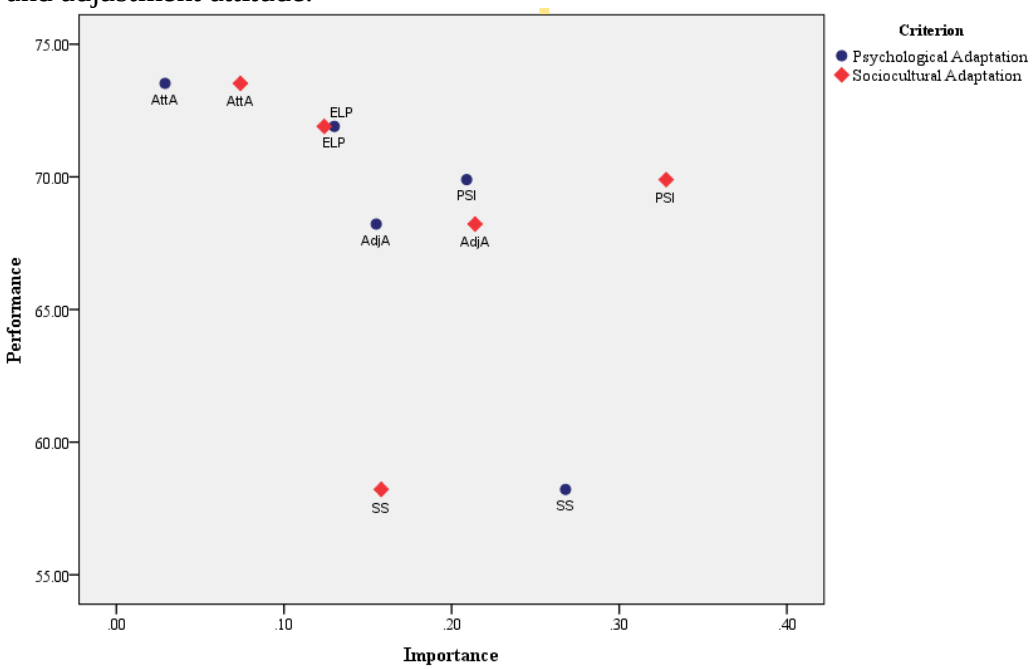

Figure 3: Importance-Performance Matrix Analysis Map

5. Findings and Conclusions

Further investigation into the path model analysis using importance and performance of the identified exogenous variables with the criterions of psychological and sociocultural adaptations suggests practical insights about the vital areas which need improvement with regards to international postgraduate students. Particularly, social support is the most important factor for international postgraduate students to be psychologically adapted to the Malaysian environment while perceived stereotype image is highest priority for them to achieve better sociocultural adaptation in Malaysian context. This is understandable since social support acts as a buffer against the stress or challenges faced by international students (Lee & Ciftci, 2014) and as proven in several prior studies, social support from host-nationals reduces individuals' stress while is leads to psychological well-being and adaptation (Furnham & Shiekh, 1993). Additionally, stereotype image as the positive or negative beliefs about some members of a society, influences their interaction. As Cooley (1992), the American sociologist, introduced the looking-glass self-concept that refers to the process of person's self-growth through society's interpersonal interactions and the perceptions of others. Thus, people's success in any society is very much associated with their neighbours' and equals' favour and their good opinion which is stereotype image or reputation. Consequently, the stereotypes which are formed in the society can lead to positive or negative reflections in interactions with host nationals that influence sociocultural adaptation.

Therefore, it is the responsibility of the countries that accept international students to understand and address the key variables influencing cross-cultural adaptation process in order to ensure international students can flourish and bring about social, cultural and financial benefits to their academic institutions and countries. Since this study identifies social support, perceived stereotype image and adjustment attitude as the most important variables which need to be considered and addressed with regards to international postgraduate

students, it can provide valuable practical and managerial implications for the education policymakers as well as academic administrators. Rather than academic and administrative support, international students need psychological and emotional support in the host countries. Particularly, international offices in each university can provide a support network for the international students by listening to their problems and guiding them on how to solve them promoting better psychological adaptation. Besides, host nationals especially university staffs by equally treating international students from different countries can help minimize the threat of stereotyping or discriminating which is a crucial factor for achieving sociocultural adaptation. Additionally, by organizing more cultural events, where international students can learn about the host and other countries' cultures, adjustment attitude will be promoted leading to both psychological and sociocultural adaptations. As a result, focusing on the three mentioned variables is the stepping stone for the Malaysian authorities in the education sector to pave the way towards a brighter prospect in being an education hub in the region by attracting more international students.

The findings of this study have empirical contributions by employing importance-performance matrix analysis to further investigate and interpret the variables of cross-cultural adaptation in the context of international students. This paper not only examined the relationships between the antecedents and cross-cultural adaptation of international students, but it also further determined among the significantly supported variables which one possesses the highest priority to be focused on. By shedding some light on the application of IPMA in the areas of education and psychology, new directions for future studies will be opened up. The study considered international postgraduate students from public universities in Malaysia; therefore, the findings cannot be generalized to the private universities or other countries. Due to the diverse nature of cross-cultural studies, other antecedents might be identified concerning different groups of people such as migrants, refugees, and expatriates.

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Public Policy Analysis in Iran: The Partial Least Square Test

Completed Research Paper

Roya Asadifard
Tarbiat Modares University (TMU)
roya.asadifard@yahoo.com

Abstract

This research tests Iranian public policy analysis model. This model is a descriptive and qualitative model that created through grounded theory approach and then used Partial Least Square for confirmation test and explore predictability of it. The results confirm that public policy analysis model of Iran have three dimension of formulation analysis, implementation analysis and evaluation analysis which these components have influence together sequently.

Keywords: *Public Policy, Public Policy Analysis, Grounded Theory, Partial Least Squares.*

1. Introduction

During the last decades public policy making system of Iran has been tried to apply and contextualize multidisciplinary public policy sciences. Accordingly public policies analysis running in based on traditional customs and tools now. Therefore it is obvious public policy analysis occurs in that manner and with tacit knowledge or even common sense, for example when a Representative of the public asks a question from the Minster about implementation of the policy in Islamic Assembly Majlis, she/he carries out public policy analysis in practice. Given these current circumstances of public policy making entails existence of a scientific framework for public policy analysis in Iran. Thus at first this research designed to finding out a public policy analysis framework. As in the discovery stage Grounded Theory methodology has been used. In the next step our purpose is confirmation and explanatory power and prediction test of obtained framework through GT. As if the research objective is prediction and theory development, then the appropriate method is PLS-SEM. Conceptually and practically, PLS-SEM is similar to using multiple regression analysis (Hair et al., 2011). Another powerful feature of PLS path modeling is that it is suitable for prediction-oriented research (Henseler et al., 2009). The because of this possibilities of PLS this research have used Partial Least Square method by use of SmartPLS software(Ringle et al., 2005) for confirmation and theory development of Iranian public policy analysis model which is created via grounded theory. Thus after a brief review of literature on public policy analysis, Iranian public analysis model is introduce. Then path model is present which indicates results of PLS tests.

2. Literature Review and Research Hypotheses

2.1. Public Policy Analysis

The term policy analysis covers many different activities. It may mean examining the component of the policy making process, such as policy formulation and implementation, or studying substantive public policy issues. Most often policy analysis refers to the assessment of policy alternatives. So policy analysis is not intended to make policy decisions but rather to inform the process of public deliberation and debate (Kraft and Furlong, 2011: 98). In one hand Policy analysis can never be reduced to a formula for solving public problems, but it can bring valuable information to both policy makers and the public (Ibid:99). In other hand Policy analysis and programs evaluation are distinct, although related activities (Wiemer and Vining, 2011:343). Policy analysis is an art. Its subjects are public problems that must be solved at least tentatively to be understood (Wildavsky, 1979). Policy analysis is an approach to public policy that aims to integrate and contextualize models and research from those disciplines which have a problem and policy orientation(Parsons, 2005:xv) and consists in the study of the action of public authorities within society(Knoepfel et al., 2007: 3). Policy analysis is a process of multidisciplinary inquiry designed to create, critically assess, and communicate information that is useful in understanding and improving policies (Dunn, 2007: 1). And what governments do, why they do it, and what difference it makes (Dye, 2008:1). In other word policy analysis is a technique which uses data or takes decisions about it, estimate and measure public policy consequences (Sapru, 2010: 45). Furthermore these definitions some authors introduce models to study and practice of public policy analysis which we consider these main approaches in continue.

2.2. The process of integrated policy analysis

Dunn (2007) defines policy analysis based on policy relevant information and transformation of that information which carries out by analysis methods as he has called. In this framework policy analysis address five types of questions: what is the problem for which a solution is sought?, what course of action should be chosen to solve the problem?, what are the outcomes of choosing that course of action?, Does achieving theses outcomes help to solve the problem?, what future outcomes can be expected if other course of action are chosen?. Thus answers to these questions require five types of policy-relevant information, or what we may call policy-informational components. These components request information about policy problem, policy performance, expected policy outcomes, preferred policies, and observed policy outcomes. The five types of policy-relevant information are independent and the five types of information are produced and transformed by using methods of policy analysis. These methods include monitoring (description) produces information about observed policy outcomes. Forecasting (prediction) produces information about expected policy outcomes. Evaluation (appraisal) produces information about the value of observed and expected policy outcomes. Recommendation (prescription) produces information about perfected policies. Problem structuring (definition) produces information about what problem to solve (Dunn, 2007: 3-6).

2.3.Public policy analysis phases

The proposed method of policy analysis by Knopefel and his colleagues (2007) lay on three definitive analytical areas that is, the interaction between public and private actors, public problems and comparative analysis, and they divide public policy process to 5 phases and analyst should be follow main questions in phases: *emergence of problem*: how is an awareness of the problem reached? (1st phase). *Agenda setting*: what are the factors that will make the government act in response to the problem? (2nd phase). *Formulation and adoption of the policy programs*: what are the solutions proposed and accepted by the government and parliament? On the basis of which process are these solutions formulated? (3rd phase). *Policy implementation*: have the decisions of legislature and the government been implemented? (4th phase). *Policy evaluation*: what are the direct and indirect effects of the policy? (5th phase)(Knopefel et al., 2007:31).

2.4.Rationalist Mode of Analysis

Wiemer and Vining (2011) provide a perceptual picture of the policy analysis process. It divides the process into two major components- problem analysis and solution analysis- both of which are vital. Problem analysis consists of three major steps :(P1) understanding the problem, (P2) choosing and exploring relevant policy goals and constraints, and (P3) choosing a solution method. Solution analysis consists of (S1) choosing impact categories for goals, (S2) concretely specifying policy alternatives, (S3) predicting impacts of alternatives, (S4) valuing impacts of alternatives, (S5) assessing and recommending to conveying useful advice to clients. Also Kraft and Furlong (2011:100-101) propose rational model to policy analysis. They argue the most common approach to policy analysis is to picture it as a series of analytical steps or stages, which are the elements in rational problem solving. According to models of rational decision making, one defines a problem, indicates the goals and objectives to be sought, considers a range of alternative solutions, evaluate each of the alternatives to clarify their consequences, and the recommends or chooses the alternative with the greatest potential for solving the problem.

2.5.Public policy analysis model in Iran

Public policy analysis model in Iran created through Grounded Theory approach which obtained 792 theoretical codes in open coding phase by interviews with policy makers which includes: Representatives of people in the parliament, current and in time, and experts of Research Center of Parliament (as formulators and legislators of policies), Ministers and Vise ministers(current and in time as implementers of policies), and managers of General Inspection Organization and Guardian Council members(as evaluators of policies). This procedure of sampling was carried out to occupy perspectives of all of public policy makers to create a public policy analysis model. In sum 40 interviews have been taked during two years (2010-2012). these codes cumulated around four axial codes that is formulation analysis, implementation analysis, evaluation analysis and public policy analysis criteria and sequently concepts of "adjustment", "commitment to implementation", "evaluation system" and "realness" are selective categories of formulation analysis, implementation analysis, evaluation analysis and public policy analysis criteria which constitute operational variables of indicators and constructs of the lower abstraction level of model. At the step one this model is descriptive, integrated, fact-finding, policy based process, functional, longitudinal analysis and snapshot analysis and applicable to different policy areas. It describes how to do public policy analysis function and indicate start and end point of analysis to continue analysis for policy learning, improvement and termination. As states that Public policy analysis process in Iran has three dimensions which are: 1. Formulation analysis; 2. Implementation analysis; 3. Evaluation analysis and a semidimension as public policy analysis criteria. To reminder public policy analysis criteria are not policy making necessities or even policy evaluation criteria (Dunn, 2007:354; Kraft and Furlong, 2010:154) these criteria use to analysis process and in this model are: realness, social justice, public interest, national interest, the public satisfaction, cost-benefit/effectiveness analysis, feasibility. During distribution of questionnaires to participants of research, one of them emphasize to a criteria in public policy analysis and believed this criteria should be considered in all stages of analysis process so because of Glaser (2002) advises that "one is enough if it is significant" and one concept can contribute to the emerging theory, concept of 'cultural and Islamic values and ethics' considered in the final conceptual research model. Also this model has concepts that are not parts of public policy analysis factors but are prerequisites' of public policy making systems and influence to public policy analysis which are 'active participation of related groups', 'intelligent information' and 'policy research' that have been mentioned by participants of the research. Figure 1 indicates components of this model that will be tested using PLS. As this study tests significance of dimensions and cause-effect relationships between research model dimensions and its semidimensions to examine exploratory and predictive power of our qualitative model by empirical test and to theory confirmation test.

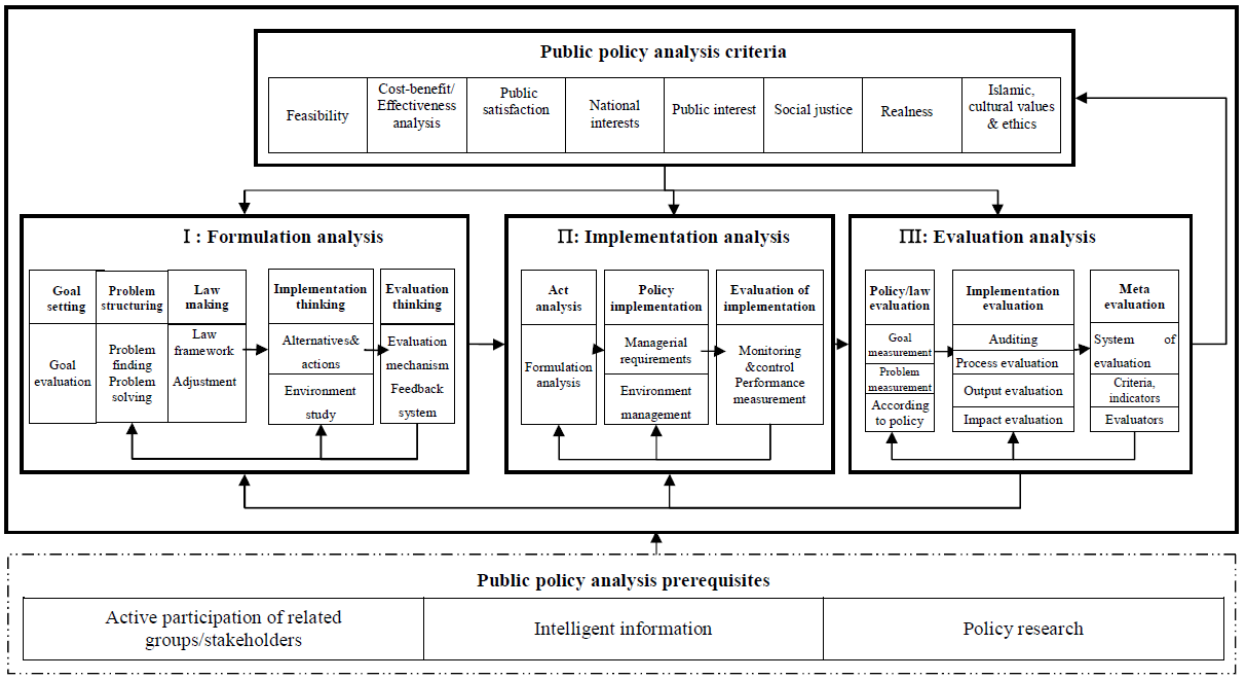

Figure 1: Public policy analysis model in Iran

Thus in the base of theoretical model we can assume these hypotheses:

H_1: Public policy analysis model have three significant dimensions of 'Formulation analysis', 'Implementation analysis' and 'Evaluation analysis'.
H_2: Formulation analysis has influence on Public policy analysis.
H_3: Formulation analysis has influence on Implementation analysis.
H_4: Formulation analysis has influence on Evaluation analysis.
H_5: Implementation analysis has impact on Public policy analysis.
H_6: Implementation analysis has impact on Evaluation analysis.
H_7: Evaluation analysis has effect on Public policy analysis.
H_8: Criteria have impact on Formulation analysis.
H_9: Criteria have impact on Implementation analysis.
H_{10}: Criteria have impact on Evaluation analysis.
H_{11}: Prerequisites have influence on Public policy analysis.

These hypotheses reflect our conceptual framework for empirical test. In other word we transfer descriptive and qualitative public policy analysis model to statistical hypotheses which is test in the next section of this paper.

3. PLS path model analysis

3.1.Design of data gathering

To test the model, questionnaires designed (5 point likert scale) and presented among 145 policy makers and academicians (65 academicians and the rest policy actors) in order to confirmation of validity of the model and test of the proposed model. Only fully answered questionnaires- 90 from 145 - were included in the PLS analysis of the causal model.

3.2.Evaluation of Measurement Model

Applying the PLS algorithm requires an extensive model evaluation. Specifically, the extent to which a specified model is appropriate for describing the effects between the constructs under investigation needs to be demonstrated. So we should simplisize and draw path model scheme of qualitative public policy analysis model at first. The path model in Figure 2 summaries the Partial Least Square (PLS) path model. In this path model we have inner model and outer model: The inner model specifies the relations between unobserved or latent variables, while the outer model specifies the relations between a latent variable and its observed indicators or manifest variables.

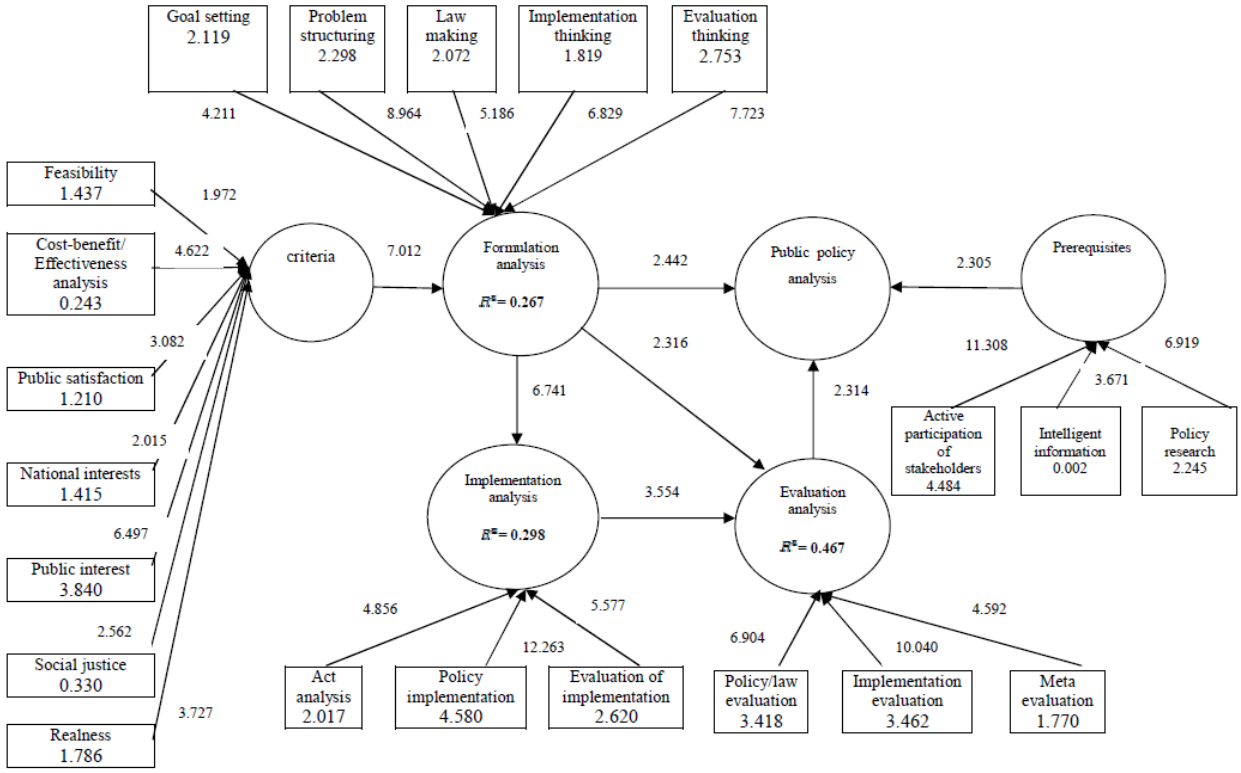

Figure 2: Path model (R^2 , Weights, Path coefficients)

Based on theoretical considerations our model imply to formative indicators because formative indicators are assumed to cause a latent as a proxy for the latent construct (Götz et al., 2010:697; Hair et al., 2011) and indicators determine the structural model and changes in those indicators cause to changes in the structural model (Hanafizade and Rahmani, 2010:51). Then designing formative model of public policy analysis in SmartPLS software environment is use for structural measurement model test. By examining different designs try to draw the measurement model which can be explain most amounts of *R2*. Then "PLS algoritms" are implement.

3.3 Evaluation of the Structural Model

We start by looking at the R-squares for each dependent LV (Latent Variable) in the structural model provided by PLS. *R2* values express the proportion the endogenous latent variables' explained variance. In the structural model, *R2* values of 0.75, 0.50, or 0.25 for endogenous latent variables can be regarded as substantial, moderate or weak (Hair, et al, 2011). As explained variance of constructs indicate public policy analysis variance explained by %26 by formulation analysis, %29 by implementation analysis, %46 by evaluation analysis which are weak, weak and moderate. Thus we can result that evaluation analysis have most prediction power on public policy analysis. Then tests perform for loading and weights. For formative items, the magnitude and significance of the weight indicate the importance of the contribution of the associated latent variable. Bootstrapping test carried out for path coefficients structural model. Paths of 'Formulation Analysis -> Implementation Analysis' and 'Implementation Analysis -> Evaluation Analysis' have highest weight (6.741), (3.554) and both evidence to high significant at 0.001 level. Thus these results imply to acceptance of H_3 , H_6 research hypotheses. Paths of 'Formulation Analysis -> Policy Analysis' and 'Formulation Analysis -> Evaluation Analysis' have weight of (2.442) and (2.3.16) and are significant at level of 0.05 , thereby hypotheses of H_2 , H_4 are confirm. Path of 'Evaluation Analysis -> Policy Analysis' has weight and t-value of (2.314) and (1.677) so we can confirm H_7 research hypothesis at the significant level of 0.1 . Among all impact path of Criteria to constructs of the model only path of 'Criteria -> Formulation Analysis' with high weight of (7.012) and evidence to high significant level of 0.001 which show to confirmation of H_8. Also path of 'prerequisites -> Policy Analysis' is significant at the 1.65 level and we can confirm H_{11} research hypothesis and conclude that prerequisites of public policy making have impact on public policy analysis. All constructs have significant effect on policy analysis except 'Implementation Analysis -> Policy Analysis' which have not significant t-values. Then by omit of this causal effect, we compute effect size f^2 for 'implementation analysis'.

$$f^2 = \frac{R^2\text{included} - R^2\text{ excluded}}{1 - R^2\text{ included}}$$

values of 0.02, 0.15, and 0.35 can be viewed as a gauge for whether a predictor latent variable has a small, moderate, or large effect at the structural level. Value of f^2 is 0/0192 that is a small value. Of course it is important to understand that a small f^2 does not necessarily imply an unimportant effect (Wilson, 2010:643).

Indicator reliability in the assessment of formative measurement models compare each indicator's weights by means of the PLS approach. One could thus determine which indicators contribute most substantially to the construct ("indicator relevance"). Formative constructs' valid indicators can reveal positive, negative or no correlations. Consequently, the different indicators' weights are not interpreted as factor loadings, but should rather be compared to

determine their relative contribution to the relevant construct (Götz et al., 2010:698). The results of this test in PLS exhibit that indicator variable of 'evaluation thinking' has highest weight (2.753) in the construct of 'Formulation analysis' in respect to formative measurement structural model and furthermore all its indicators evidence high significant at the $p<0.001$ level. Indicator variable of 'policy implementation' has highest weight (4.580) in the construct of 'Implementation analysis' and all indicators of it evidence high significant at the $p<0.001$ level. Indicator variables of 'implementation evaluation' and 'policy/law evaluation' have highest weight of (3.462) and (3.418) in the construct of 'evaluation analysis' and all indictors of this construct imply to high significant at the $p<0.001$ level. Among indicator variables of 'Criteria', 'public interest' has highest weight (3.840) and indicates to high significance at $p<0.001$ level but all of other indicators are significant at $p<0.05$ level. Prerequisite of 'active participation of stakeholders' has highest weight (4.484) in the prerequisites construct of structural model and other indicators show to high significant at $p<0.001$ level.

Furthermore in PLS there is a critical criterion for analyzing segment-specific FIMIXPLS results. This criterion indicates the degree of all observations' classification and their estimated segment membership probabilities *Pik* on a case-by-case basis and subsequently reveals the most appropriate number of latent segments for a clear-cut segmentation:

$$EN\kappa = 1 - \frac{[\sum_i \sum_k - Pi\kappa \ln(Pi\kappa)]}{I \ln(\kappa)}$$

(Ringle et al., 2010a: 32-33; Ringle et al., 2010b:200). Since amount of EN is more than 0.5 (0.597319) in the FIMIX-PLS test, segmentation of samples that is policy makers and academicians have a clear segmentation for results estimation.

4. Conclusion

As results explain the purposes of this research that is confirmation of public policy analysis model of Iran confirmed and in this base we can predict that public policy analysis considers three dimensions of analysis according policy stages and proceeds it, as 'Formulation analysis' and 'Implementation analysis' and 'Evaluation analysis' compose dimension of public policy analysis model and 'Evaluation analysis' have high (weight) importance in public policy analysis decisions. Also this research found out relationships between public policy analysis model effects that these are: "formulation analysis" have direct effect on "public policy analysis" and 'implementation analysis' but "implementation analysis" and "evaluation analysis" sequently affects public policy analysis, that is, formulation analysis makes effect on implementation analysis and then implementation analysis have effect on evaluation analysis and eventually evaluation analysis have effect on public policy analysis. Also formulation analysis influences evaluation analysis. The results also confirm effect of policy making system's prerequisites on public policy analysis. Also cause-effect relationship indicates effect of public policy analysis criteria on formulation analysis. Other results demonstrate significance and effects of indicators of each constructs of model that these indicators based on their importance (weight) in public policy analysis sequently are: 'Evaluation thinking', 'Problem structuring', 'Goal setting', 'Law making', and 'Implementation thinking' which have influence on *Formulation Analysis*. Indicators of 'Policy implementation', 'Evaluation of implementation' and 'Act analysis' have effect on *Implementation Analysis*. Indicators of 'Implementation evaluation', 'Policy/law evaluation', and 'Meta evaluation' have impact on *Evaluation Analysis*. Indictors of 'Public interest', 'Realness', 'Feasibility', 'National interests', 'Public satisfaction', 'Social justice' and 'Cost-benefit/Effectiveness analysis' compose indicators of Criteria construct and have effect on

Formulation Analysis. Indicators of 'Active participation of stakeholders', 'Policy research' 'intelligent information' comprise Prerequisites construct which have effect on policy analysis. This research assumed policy cycle as a frame of analysis and has moved forward public policy analysis concentration two steps ahead, that is, implementation analysis and evaluation analysis in detail to complete analysis cycle. Also this model because of functional approach to policy analysis and extract most important factors of policy analysis in all stages is a new approach. It indicates that a policy for measurability acquires to analysis of whole of a policy stages and analysis starts from *formulation analysis*, if policy implemented or is implementing, carries out *implementation analysis* and finally evaluation *analysis* carries out for implemented policies. Thus we can define: public policy analysis is a function which carries out through process of formulation analysis, implementation analysis and evaluation analysis with use of multidisciplinary sciences.

5. Acknowledgment

I am grateful for all helps and comments to this research.

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Competitive Intelligence Among SMEs: Assessing the Role of Entrepreneurial Attitude Orientation on Innovation Performance.

Completed Research Paper

1st Ainul Mohsein Abdul-Mohsin
Univerisiti Sains Malaysia
amam11_man095@student.usm.my

2nd Hasliza Abdul-Halim
Universiti Sains Malaysia
haslizahalim@usm.my

3rd Noor Haslina Ahmad
Universiti Sains Malaysia
hazlina@usm.my

Abstract

Competitive intelligence is key in today's unstable global environment because it leads to creation of ideas and innovation. Yet, research on competitive intelligence as the foundation of strategic management is very much lacking. Furthermore, research on competitive intelligence practice among the SMEs is also scanty. Thus, the intention of this study is to review the literature on entrepreneurial attitude orientation, competitive intelligence and innovative performance and to investigate the relationships of these three variables within the Malaysian SME context with empirical evidence.

Keywords: *Competitive intelligence, Entrepreneurial attitude orientation, Innovative performance, SME.*

1. Introduction

In recent years, the Malaysian SME sector has soared in accordance with the global business development. The government continues to provide various support in the form of development programmes and funding to escalate the SMEs productivity (PEMANDU, 2010). Nevertheless, the SMEs contributes to only 32.5% of the country's GDP (Star Business, 2013). The 2014-2015 Competitive Index chart ranked Malaysia at twentieth in terms of competitiveness and at thirty-third on the 2014 Global Innovation Index for innovativeness. From these rankings it is obvious that the Malaysian organisations lack innovativeness. Therefore, for them to sustain, they need to enhance on their innovativeness, creativity and entrepreneurship.

In the western hemisphere and East Asia, competitive intelligence (CI) is being heavily utilised by large and smaller organisations (Adidam, Banerjee, & Shukla, 2012; Priporas, Gastoris, & Zacharis, 2005) as a source for competitive advantage and innovativeness (Smith & Kossou, 2008; Wright, 2011). A review of the literature also shows a positive relationship between CI and innovative performance and CI also leads to the creation of innovativeness in small businesses (Hussein, Farzaneh, & Amiri, 2011; Tanev & Bailetti, 2008). Hence, to compete effectively, SME must practice CI in their day-to-day business activities. However, far too little researches have centred on the entrepreneur's attitude orientation, CI and innovative performance. Given the fact that CI is important to the SMEs innovativeness, this paper argues that it is essential to understand the entrepreneurial attitude orientation relationships to CI and innovative performance in their day-to-day business

practices. Therefore, the purpose of this paper is to investigate the relationships of entrepreneurial attitude orientation, competitive intelligence and innovative performance among the Malaysian SMEs with empirical evidence.

2. Literature Review and Research Hypotheses

2.1 Entrepreneurial Attitude Orientation

Attitude is an evaluation of an object of thought. Attitude objects can comprise of anything a person may hold in mind, ranging from the mundane to the abstract, including things, people, groups, and ideas (Bohner & Dickel, 2011). Attitude exists at the general level and also at a very specific level for many objects and because of this, attitude needs to be matched by measurement specificity (Ajzen, 1988; Ajzen & Madden, 1986). Robinson, Stimpson, Huffner, and Hunt (1991) summarise that attitude towards achievement in general (general object) is not the same as attitude towards achievement in an entrepreneurial setting (specific object). Thus, the Entrepreneurial Attitude Orientation (EAO) incorporates an attitude scale to predict entrepreneurial activity (Robinson et al., 1991). Furthermore, EAO is more domain-specific and increases the correlation with the actual behaviour and reduces unexplained variability (Gibson, Walker, & Harris, 2010).

The EAO model is based on four theories which are needs for achievement (McClelland, 1961), innovativeness (Kirton, 1984), locus of control (Levenson, 1973), and self esteem (Crandall, 1973). In EAO, the interpretation of achievement, innovativeness, personal control and self esteem can be interpreted as the business accomplishment and undertakings, creativity in handling a business, self-influence over the business destiny and the self-confidence in running a business. However, studies have shown that only three dimensions are commonly identified with business motivation. These dimensions are needs for achievement(NfA), locus of control (LoC) and innovativeness (Qiu,2008; Krauss et al., 2005; Ramsey & Ibbotson, 2005). In this study, only three dimensions of the EAO are applied. Fishbein and Ajzen (1977) suggest that the attitudinal factor signals a person's judgmental attitude towards a behaviour and a normative belief signal a person's perceived social pressures to act or not to act on a specific behaviour. Thus, EAO constructs such as NfA, LoC and innovativeness may envisage entrepreneur behaviour towards CI.

2.2 Innovative Performance

Innovation is defined as the adoption of an idea or behaviour that is new to an organisation (Daft, 1978; Damanpour & Evan, 1984). The adoption of innovation is described as a process that includes generation, development and implementation of new ideas or behaviours. Innovation is not only an adoption but also an adaptation of new information and practices which lead to the ability to create new ideas and apply them to improvise new products, services, processes and procedures (Bates & Khasawneh, 2005). The definition of innovation has evolved into different categories which include products, production methods and technologies, markets, services and organisational structure and an assumption is made that the source of information varies between different types of innovation (Freel & de Jong, 2009; Tödtling, Lehner, & Kaufmann, 2009). Innovation can either be radical which is revolutionary and original (Green, Gavin, & Aiman-Smith, 1995) or incremental which are small improvements on an established process, products or services. Innovation is practiced by all types of organisations regardless of size because it is proven that organisations that are innovative has higher profits and market share (Prajogo & Ahmed, 2006). For the purpose of

this study, innovative performance is defined as incremental product, service and process innovation because SME's innovation activities are more likely to be ad hoc or project driven (Hoffman, Parejo, Bessant, & Perren, 1998). Furthermore, SMEs are likely to focus on incremental innovation as posit by Oke, Burke, and Myers (2007).

2.3 Competitive Intelligence

Intelligence is defined as the collective value-added benefits obtained from the intangible assets such as knowledge from the employees, management, stakeholders, and customers (Liebowitz, 2006). Knowledge and experience go hand in hand in developing intelligence. The difference between information and intelligence is; information is factual and intelligence is information that has been screened, distilled and analysed (Drucker, 1988; Kahaner, 1996). Interestingly, CI is a product and also a process (Priporas et al., 2005). CI process includes the constructs of planning, collection, analysis, communication, and organisational awareness for decision makers in deciding action (Saayman et al., 2008; Strauss & du Toit, 2010). CI is a product when the intelligence produced assists the decision makers in formulating a strategy and in making a choice. CI is an ongoing process of analysing data and information into intelligence by applying psychological techniques and new technology to develop competitive edge (Fuld, 2010).

3) Research Framework

Many literature argue that CI is only popular among the larger organisations but there are several empirical evidences that indicate CI is also applied by SMEs to improve their ability to assess the risk awareness and risk prevention (Zha & Chen, 2009). Canadian and Iranian small businesses are also involved in CI to increase their innovative performance (Hussein et al., 2011; Tanev & Bailetti, 2008; Tarraf & Molz, 2006) and regards CI as crucial to their business success. SMEs in the European Union also have direct support from their governments to support the use of CI by raising awareness campaign and assisting in skill development (Larivet, 2009; Smith, Wright, & Pickton, 2010). For SMEs to be able to be innovative, Wright, Bisson, and Duffy (2012) advocate SMEs to invest in and practise CI.

Based on the afore-mentioned literature review, the proposed framework (figure1) and the hypotheses are depicted below. EAO constructs are represented by needs for achievement, innovativeness, and locus of control are viewed as possible predictors of competitive intelligence application and innovative performance. Competitive intelligence is also a predictor of innovative performance. CI is also empirically proven to increase innovative performance in SMEs. Given that the role played by the attitudinal factor can signal a person's judgmental attitude towards a behaviour, it then can be anticipated that:

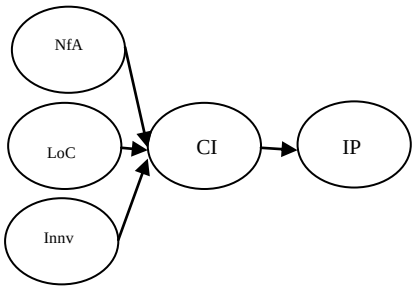

Figure 1: Research Framework

Hypothesis 1: There will be a positive relationship between NfA and CI.
Hypothesis 2: There will be a positive relationship between LoC and CI.
Hypothesis 3: There will be a positive relationship between innovativeness and CI.
Hypothesis 4: There will be a positive relationship between CI and innovative performance.

4) Methodology

This study is quantitative in nature and the scope focuses on the SMEs that are registered with the SME Corporation Malaysia either in the manufacturing or services sectors. Since this study focuses on SME entrepreneurs, the definitions of SMEs provided by Small and Medium Industries Development Corporation (SME Corps, 2014) Malaysia will be used to identify appropriate businesses for inclusion in the study. A survey instrument was developed by adapting items from previous literature which are reliable and validated to evaluate the relationships between the EAO constructs and CI and also on innovative performance.

Prior to conducting this study, a pre-testing on the instrument is conducted. Eight entrepreneurs who met the study's prerequisite participated in this pre-testing. The respondents were asked for their feedbacks on the questionnaire face and content validity, content relevance, readability, and to proofread the comprehensiveness, syntax errors and the general format layout. The feedbacks received from these entrepreneurs are compiled and constructively examined before making amendments to the instrument.

Since many SMEs entrepreneurs in Malaysia are comfortable in answering in the Malay language the instrument is also translated into the Malay language. The translation in this study applied the extended parallel translation procedure known as collaborative translation. By applying this technique the equivalence in meaning and the intended sense of statement is captured (Limpanitgul & Robson, 2009). Again, the translated questionnaire is being pretested by the respondents to ensure the questions are alike between the English and Malay version questionnaire.

Data is collected by means of mail survey where the questionnaires are distributed to 1000 companies in all states of Malaysia. The respondents are business owners cum entrepreneurs of SMEs. This study is a cross-sectional type of inquiry. Two screening questions are used to check the sample for any form of response bias (Podsakoff, MacKenzie, & Podsakoff, 2012). A total of 191 replies are received. Twenty-four questionnaires are not usable because they are partially completed and do not meet the screening questions criteria. Therefore, only a sample size of N=167 is used for this study resulting in a response rate of 16.7 percent. This response rate is considered satisfactory because it is a common scenario in Malaysia to obtain a standard response rate of between 15-20% from the SMEs (Othman, Abdul-Ghani, & Arshad, 2001). Furthermore, a priori power analysis using the G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that an N of approximately 119 is needed for an effect size of 0.15.

5) Findings and Discussion

The model is tested by using the SmartPLS Structural Equation Modeling (SEM) procedure which is developed by Ringle, Wende, and Will (2010). The first step is to test for the convergent validity. Hair et al. (2010), suggested using the factor loadings, composite

reliability and average variance extracted to measure the convergence validity. Hair, Hult, Ringle, and Sarstedt (2014) state that outer loadings of 0.7 is acceptable because it is considered close enough to 0.708. Nevertheless, Hair et al. (2014) caution social sciences researchers to initially analyse the impact of deleting indicator between 0.40 and 0.70 on AVE and composite reliability. If by deleting the outer loading does not increase measure above the threshold, the reflective indicator should be retained. However, indicators with outer loading below 0.40 should always be eliminated from the scale (Hair, Sarstedt, Pieper, & Ringle, 2012). The loadings after deleting some of the items exceeded the recommended value of 0.7 (Hair et al. 2010) as depicted in Table I. The Composite Reliability as depicted in Table 1 ranged from 0.880 to 0.959 which exceeded the recommended value of 0.7 (Hair et al., 2010). The average variance extracted, which reflects the overall amount of variance in the indicators accounted for by the latent construct, was in the range of 0.587 and 0.776 which also exceeded the recommended value of 0.5 (Hair et al., 2010).

Table 1
Result of the measurement model

Construct	Item	Loadings	AVE	CR	Item(s) deleted due to low loadings
Competitive Intelligence	CI2	0.761	0.624	0.959	Item CI
	CI3	0.745			Item CI5
	CI4	0.762			Item CI15
	CI6	0.767			
	CI7	0.842			
	CI8	0.842			
	CI9	0.752			
	CI10	0.783			
	CI11	0.850			
	CI12	0.850			
	CI13	0.775			
	CI14	0.842			
	CI16	0.743			
	CI17	0.727			
Innovative performance	IP1	0.800	0.587	0.895	
	IP2	0.799			
	IP3	0.792			
	IP4	0.653			
	IP5	0.766			
	IP6	0.788			
EAO	NFA1	0.891	0.776	0.933	
	NFA2	0.875			
	NFA3	0.878			
	NFA4	0.880			
	LOC5	0.859	0.710	0.880	Item LOC7
	LOC6	0.799			Item LOC9
	LOC8	0.868			Item LOC10
	Innv11	0.793	0.618	0.889	
	Innv12	0.720			
	Innv13	0.848			
	Innv14	0.844			
	Innv15	0.715			

Note: Loadings > 0.7, AVE>0.5, CR>0.7

The next step is to measure the discriminant validity to check if the construct is exclusive from the other constructs by empirical standard (Hair et al., 2014). As shown in Table 2, the correlations for each construct is less than the square root of the average variance

extracted by the indicators measuring that construct, indicating adequate discriminant validity. In total, the measurement model demonstrates adequate convergent validity and discriminant validity.

Table 2
Discriminant Validity of Construct

	CI	INNV	IP	LOC	NFA
CI	**0.790**				
INNV	0.486	**0.786**			
IP	0.651	0.462	**0.766**		
LOC	0.426	0.705	0.452	**0.842**	
NFA	0.346	0.429	0.300	0.671	**0.881**

Note: Diagonals represent the square root of the AVE while the off diagonals represent the correlations.

To test the hypotheses, an evaluation on the structural model is conducted. The analysis for the hypotheses is performed using the bootstrapping method. This method takes a large number of cases from the original sample with replacement (Hair, Black, Babin, & Anderson, 2010). Bootstrapping procedure is to test the coefficients for their significance. Table 3 shows that H1, H3 and H4 are supported. NfA and innovation are positively related to competitive intelligence. CI is positively related to innovative performance. From Figure 1, the innovative performance R^2 value is 0.423 which suggests that 42.3% of the variance in the dependent variable is explained by CI. The CI R^2 value is 0.260 which suggests 26.0% of the variance in the CI is explained by the EAO constructs which are NfA, LoC and innovativeness.

Table 3
Hypothesis testing

Hypotheses	Relationship	BETA	Std Error	T Value
H1	NFA -> CI	0.139	0.087	1.607*
H2	LOC -> CI	0.063	0.102	0.618
H3	INNV -> CI	0.381	0.078	4.683***
H4	CI -> IP	0.650	0.041	16.050***

Note: * p<0.10 (1.28), ** p<0.05 (1.645),*** p<0.01(2.33) one tail. Hypotheses are supported.

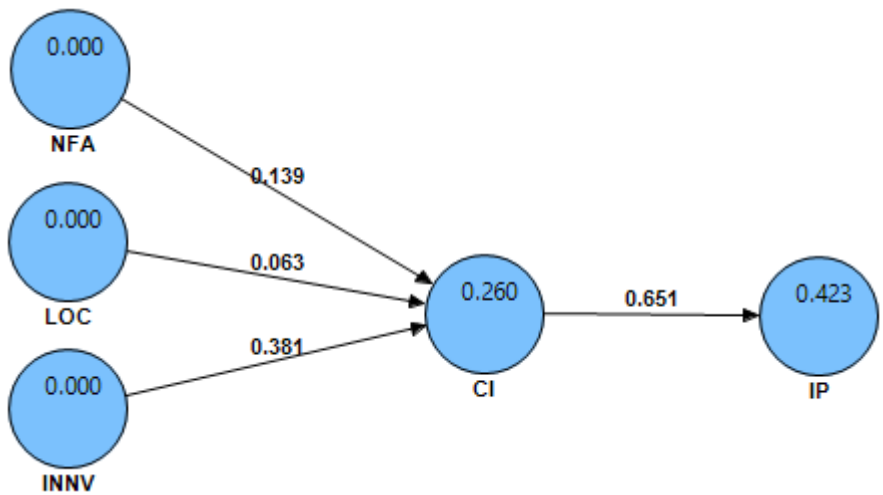

Figure 2. Structural Model

NfA is positively related to innovative performance with a beta value of 0.139, t-value of 1.607 and ρ<0.10 significance level. Many scholars have argued that NfA has a positive correlation with the *psychological needs*. Due to their desire to succeed, entrepreneurs are able to predict new initiative that will contribute to the development of their venture success. (Phelan & Alder, 2005; Spence, Gherib, & Biwolé, 2011). Critically, McClelland (1961) work also emphasises that entrepreneurs with high NfA will find ways to maximise their economic achievement. This view implies that entrepreneurs NfA are more critical than the economic conditions supporting their potential innovations (de Beer, Sowa, & Holman, 2014). Therefore, there is some evidence that an entrepreneur with high NfA also has a tendency to embrace CI to create innovation to maximise his economic achievement.

Innovativeness is also positively related to CI with a beta value of 0.381, t-value of 4.683 and ρ<0.01 significance level. Innovativeness is defined as a person's willingness to venture into a new product or service (Goldsmith & Hofacker, 1991). Given that innovation has financial, imitation (Escribano & Giarratana, 2011) and success risks (Cormican & O'Sullivan, 2004) entrepreneurs are more robust in accessing about the innovation potential (Dereli & Altun, 2013). Thus, the result suggests a strong link exists between innovativeness and CI as it may lead to innovation intelligence.

Rotter (1966) made a significant contribution to the psychological field with the development of locus of control construct. According to him an individual perceives the outcome of an event as being either within or beyond his or her personal control and understanding. An internal LoC is one that believes he has influence over the outcomes through his ability, effort or skills. On the other hand, external LoC means those forces from outside control the individual and determine the outcomes. Scholars have argued that internal LoC orientation is a prerequisite for entrepreneurs to take action (Krueger, 1993; Mueller & Thomas, 2001). Contrary to expectation, this study result shows that the relationship between LoC and CI is not statistically significant. This rather contradictory result may be due to cultural differences. Malaysia shows a strong endorsement of being a high power distance and a collectivistic society (Arrindell et al., 1997; Hofstede, 1983; Kühnen et al., 2001) where decisions are made by members of a group rather than individuals. Thus this result is no surprise because it is expected that an internal LoC orientation would be less prevalent in collectivistic cultures than in individualistic cultures.

CI is positively related to innovative performance with a beta value of 0.650, t-value of 16.050 and ρ<0.01 significance level. This result corroborates the findings by Hussein et al. (2011) and Tanev and Bailetti (2008) that CI leads to innovativeness, creation of ideas and increase in innovative performance among the SMEs. This also leads to a strong support to the reasoning by Petrişor and Străin (2013), Jaworski, Macinnis, and Kohli (2002) and Krücken-Pereira, Debiasi, and Abreu (2001) that CI is a tool for innovation that supports an organisation's business strategy, market penetration, and development and product innovation. Therefore, competitive intelligence is a tool that assists in the development of an innovative performance of an organisation.

6) Conclusion and Implication

The objective of this study is to examine the EAO constructs, CI and innovative performance relationship in the Malaysian SMEs context. This study makes several contributions to the literature on strategic management. Firstly, this study extends the pool of literature by examining the EAO, CI and innovative performance. Secondly, it is vital for the

Multinational companies (MNC) to understand the SMEs attitude orientation of an Asian emerging country because of its unique historical background, religious beliefs and practices, philosophical influences, political systems and cultures. MNC in Malaysia is known to outsourcing many non-core businesses to SMEs. From this study, the result is in agreement with Hofstede's cultural dimensions theory that the effects of a society's culture on the values of its members plays an important role in influencing the entrepreneur behaviour. It seems clear that this study acknowledges that EAO and CI are positively related to innovative performance but only NfA and innovativeness exhibit significant relationship with competitive intelligence. Finally, competitive intelligence is also confirmed as a tool to boost innovative performance.

The findings from this study clearly show that CI is indeed important for Malaysian SME economic success. The success of the Malaysian SMEs is very much affected by the entrepreneurs' attitude in engaging new techniques to accelerate innovative performance. From this study, there is a consensus that the entrepreneur attitude is the decisive factor in engaging CI. This study's empirical evidence also indicates that CI boosts innovative performance. Thus, entrepreneurs must have the right mindset when undertaking innovative development and competitive intelligence is able to accelerate this concern. SMEs are advised to embrace a new way of increasing innovative performance or they are at risk of being left behind in today's borderless market place. They must make use of formal techniques in gathering intelligence about their surroundings. Nevertheless, it is important for the SMEs to have a mindset that recognises the fact that innovativeness can be achieved by adopting new techniques and changing the deep-rooted system. The study also confirms that EAO is an antecedent of CI; and it may be useful not only to the entrepreneurs but also for employees in the private and public sectors to inculcate the EAO to achieve a culture of innovative performance. Government agencies can initiate awareness campaign to promote CI among the SMEs. They can also identify SMEs that show potential growth and offer CI programmes at both the start up and growth stages. In addition, collaborations can also be established between the universities and the SMEs through partnerships to encourage the use of CI.

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Export Market Effectiveness: The Role of Export Commitment, Innovativeness and Marketing Capabilities

Completed Research Paper

Margarida Vicente
Instituto Politécnico de Viseu
margarida@estv.ipv.pt

Cláudia Seabra
Instituto Politécnico de Viseu
cseabra@estv.ipv.pt

Maria José Antunes
Instituto Politécnico de Viseu
maria.jose.l.antunes@gmail.com

Abstract

Drawing on the resource-based view, this study investigates the way that export commitment and innovativeness contribute to marketing capabilities development, and the effect of all these factors on export market effectiveness. We use a survey data of 202 exporting manufacturing firms based in Portugal to test the relationships between the constructs analyzed in this study. The findings demonstrate that a high export commitment tends to cultivate a higher degree of innovativeness, which in turn allows firms to develop superior marketing capabilities (i.e., pricing, new product development, marketing communication and distribution capabilities). Export commitment and new product development capability have a direct impact on export market effectiveness.

Keywords: *Export commitment; Innovativeness; Marketing capabilities; Export market effectiveness.*

1. Introduction

Understanding the drivers of export market effectiveness is fundamental to explain firms' international competitiveness (Morgan, Katsikeas, & Vorhies, 2012). According to the resource-based view (RBV), firms' internal resources and capabilities are critical to achieve a sustainable competitive advantage and thus a greater market performance (Barney, 1991; Newbert, 2007; Wernerfelt, 1984).

In this context, distinctive marketing capabilities have proven to be key drivers for financial and market export performance (e.g., Morgan et al., 2012; Rust, Ambler, Carpenter, Kumar, & Srivastava, 2004). They are a strategic response to competitive environment (O'Cass & Weerawardena, 2010), enabling firms to anticipate and respond to market needs, and thus outperform the competition (Day, 1992, 1994). This link between marketing capabilities and export market performance is important, however, it is also important to explain the mechanisms leading to marketing capabilities creation and development (Merrilees, Rundle-Thiele, & Lye, 2011). So, how exporting firms may develop their marketing capabilities?

There has been a substantial debate in the strategic marketing literature about the link between innovativeness and marketing capabilities (e.g., Kerin, 1992; Weerawardena, 2003). Firms pursuing an innovation-based strategy create specific capabilities that enable them to respond in a more effective way to technological and customers' changes (Rizzoni, 1991). Innovativeness influences marketing capabilities development, especially for firms who compete in dynamic markets (O'Cass & Weerawardena, 2010). In addition, past research reflects a growing interest in the influence of the firms' level of resources in the development of innovativeness (e.g., Amabile, Conti, Coon, Lazenby, & Herron, 1996; Hurley & Hult, 1998). Accordingly, resources commitment to exporting generate a culture of innovativeness within the firm (Jong & Hartog, 2007), which in turn leads to the development of internal capabilities (McGrath & Ming-Hone, 1996), such as marketing capabilities.

These insights guide the theoretical foundation for the current study, which links export commitment, innovativeness and marketing capabilities to performance in export markets. We demonstrate how specific marketing capabilities (i.e., pricing, new product development, marketing communication and distribution capabilities) may be improve through the firm's export commitment and its degree of innovativeness. In this research, we adopt the RBV to examine export commitment as a resource, specifically the level of resources committed to exporting, that can generate a superior performance in export markets (Barney, 1991). We empirically test the direct impact of export commitment, innovativeness and marketing capabilities on export market effectiveness. In addition, considering that different marketing capabilities may have different strengths based on their context (Zahra, Sapienza, & Davidsson, 2006), we examine the relative contribution of each marketing capability towards export market effectiveness.

2. Literature Review and Research Hypotheses

In the exporting field, the RBV is one of the most widely accepted theories to explain why firms perform differently (e.g., Kaleka, 2012; Lages, Silva, & Styles, 2009). According to the RBV (e.g., Barney, 1991; Newbert, 2007; Wernerfelt, 1984), firms with valuable, rare, inimitable and non-substitutable resources and capabilities can generate sustainable competitive advantage by implementing strategies that improve their efficiency and effectiveness (Barney, 1991). Export commitment, innovativeness and marketing capabilities are complex bundles of resources, skills and collective learning, based on knowledge that is tacit and difficult to copy for competitors (Krasnikov & Jayachandran, 2008). These resources

and competences cannot be simply traded or imitated because they are deeply embedded in organizational routines and processes (Day, 1994; Prahalad & Hamel, 1990). Consequently, they are idiosyncratic firms attributes, relevant to achieve a superior performance in export markets (cf., Barney, 1991).

Innovativeness is a characteristic of organizational culture that encompasses the ability to generate and implement new and creative ideas within a firm (Amabile et al., 1996; Calantone, Cavusgil, & Zhao, 2002; Jong & Hartog, 2007; Zhao, Tong, Wong, & Zhu, 2005).

Export commitment is the degree to which a firm allocates managerial and organizational resources to the export venture (Lages, Jap, & Griffith, 2008; Lages & Montgomery, 2004). The consequently ongoing effort to improve products and services provided in export market, creates a new mindset or attitudes that stimulate the implementation of new and useful ideas as a part of an innovativeness culture (Hurley & Hult, 1998). Through increasing levels of managerial, financial and human resources committed to exporting, and the assignment of dedicated people, a firm demonstrates a greater receptivity to new ideas and concepts, which makes it more willing to engage in innovativeness (Jong & Hartog, 2007). According to this, we propose the following hypothesis:

Hypothesis 1. The firm's export commitment positively influences innovativeness.

Marketing capabilities are defined as the firm's ability to understand and forecast customer's needs and to effectively link its offerings to these needs (Katsikeas, 1994; Sousa & Lages, 2011).

A firm with a higher degree of innovativeness demonstrates a greater hability to generate creative marketing skills and suitable products and services to reach the target market effectively (Nath, Nachiappan, & Ramanathan, 2010; O'Cass & Weerawardena, 2010). So, innovativeness contributes for the development of distinctive marketing capabilities, enabling a firm to improve price, product, communication and distribution capabilities, and adapt them to the particularities of each export market (Navarro, Losada, Ruzo, & Díez, 2010). In line with the above, we propose the following hypotheses:

Hypotheses 2. The firm's innovativeness positively influences:

H2a. pricing capability, H2b. new product development capability, H2c. marketing communication capability, and H2d. distribution capability.

Commitment is related to the allocation of greater resources to the venture, enabling a firm to achieve its exporting goals (Lages & Montgomery, 2004; O'Cass & Julian, 2003). The more committed the firm, the greater is its engagement in planning and the allocation of managerial, financial and human resources to the export venture, which in turn results in a better export venture performance (e.g., Lado, Martínez-Ros, & Valenzuela, 2004; Navarro, Losada, et al., 2010). Thus, we propose the following hypothesis:

Hypothesis 3. The firm's export commitment positively influences export market effectiveness.

Innovativeness conditions the entire organization with an innovative culture that allows the firm to respond to the competitiveness and adapt to changes that occur in the business environment (Akman & Yilmaz, 2008; Hult, Hurley, & Knight, 2004; Zhao et al., 2005). Thereby, innovativeness is critical to achieve superior market effectiveness (e.g., Calantone et al., 2002; Hult et al., 2004; Rhee, Park, & Lee, 2010). According to this, we propose the following hypothesis:

Hypothesis 4. The firm's innovativeness positively influences export market effectiveness.

Through their marketing capabilities, firms create and maintain strong bonds with customers and channel members (Nath et al., 2010; Song, Benedetto, & Nason, 2007), increasing knowledge about foreign customers' needs, competitive behaviors and market trends (Day, 1994). This enable them to satisfy customers additionally, even more than their competitors (Weerawardena & O'Cass, 2004), and thus to obtain a greater performance in the

export market (e.g., Murray, Gao, & Kotabe, 2011; Vorhies & Morgan, 2005). In line with the above, we propose the following hypotheses:

Hypotheses 5. The export market effectiveness is positively influenced by:

H5a. pricing capability, H5b. new product development capability, H5c. marketing communication capability, and H5d. distribution capability.

3. Methodology

Data for this study was collected in 2012, using a sample of Portuguese exporting manufacturers. The study focuses exclusively on exporter manufacturing firms (e.g., Morgan, Kaleka, & Katsikeas, 2004), with more than 20 employees (e.g., Lisboa, Skarmeas, & Lages, 2011), and who had been active in exporting for at least five years. We selected a random sample of 3000 firms from the Trade & Investment Agency (AICEP Portugal Global) government database. An online questionnaire was the basis of the data used to test the model. We obtained 202 valid questionnaires.

4. Results

We assessed the measurement model proprieties and analyzed the structural equation model using partial least squares (PLS) with the statistics package SmartPLS 2.0 (Ringle, Wende, & Will, 2005). We opted for the PLS approach because it is the most suitable when the sample size has between 100 and 250 observations (Reinartz, Haenlein, & Henseler, 2009). The evaluation of PLS model follows a two-step process (Hair, Hult, & Ringle, 2014). First, we evaluate the measurement model and then we evaluate the structural model.

Table 1 presents the final constructs, items, and scale reliabilities.

Table 1: Construct Measurement

Construct/items	Standardized loadings	t-value
Export commitment (α=0.88, ρvc(n)=0.81, ρ=0.93) (adapted from Navarro, Acedo et al., 2010)		
Scale: 1-very low; 7-very high		
1. The level of time and effort our firm's management commits to export activity is:	0.91	42.56*
2. The level of financial resources committed to the export activity is:	0.92	39.57*
3. The level of human resources committed to the export activity is:	0.87	26.61*
Innovativeness (α=0.87, ρvc(n)=0.79, ρ=0.92) (adapted from Calantone et al., 2002)		
Scale: 1-strongly disagree; 5-strongly agree		
1. Our company frequently tries out new ideas	0.88	43.65*
2. Our company seeks out new ways to do things	0.93	56.38*
3. Our company is creative in its methods of operation	0.87	34.78*
Pricing capability (α=0.75, ρvc(n)=0.65, ρ=0.85) (adapted from Zou et al., 2003)		
Scale: 1-strongly disagree; 5-strongly agree (relative to major export market competitors)		
1. We respond quickly to competitors' pricing tactics	0.87	8.38*
2. We use pricing skills to respond quickly to any customer change	0.69	4.96*
3. We communicate pricing structures and levels quickly to customers	0.85	11.49*
New product development capability (α=0.84, ρvc(n)=0.67, ρ=0.89) (adapted from Zou et al., 2003)		
Scale: 1-strongly disagree; 5-strongly agree (relative to major export market competitors)		
1. We develop new products for export to exploit R&D investment	0.75	11.91*
2. We speedily develop and launch new products for export	0.85	30.03*
3. We manage overall new product development systems for export market well	0.85	34.55*
4. We successfully launch new products for exports	0.83	28.07*
Marketing communication capability (α=0.97, ρvc(n)=0.94, ρ=0.98) (adapted from Zou et al., 2003)		
Scale: 1-strongly disagree; 5-strongly agree (relative to major export market competitors)		
1. We skillfully use marketing communications	0.97	151.61*
2. We use marketing communication skills and processes well	0.98	222.01*
3. We effectively manage marketing communication programs	0.95	72.37*
Distribution capability (α=0.95, ρvc(n)=0.82, ρ=0.96) (adapted from Zou et al., 2003)		
Scale: 1-strongly disagree; 5-strongly agree (relative to major export market competitors)		
1. We attract and retain the best distributors	0.86	29.09*
2. We satisfy the needs of distributors	0.92	51.97*
3. We add value to distributors' businesses	0.93	77.44*
4. We are close in working with distributors/retailers	0.89	37.52*
5. We provide high level of support to distributors	0.92	65.52*
Export market effectiveness (α=0.90, ρvc(n)=0.77, ρ=0.93) (adapted from Morgan et al., 2006)		
Scale: 1-much worse than competitors; 5-much better than competitors		
1. Export venture's market share growth	0.90	45.74*
2. Growth in export venture sales revenue	0.92	68.07*
3. Acquiring new export venture customers	0.86	35.18*
4. Increasing sales to current export customers	0.84	26.60*

α=internal reliability; ρvc(n)= variance extracted; ρ=composite reliability.
*p<0.01 (2-tailed)

Indicator reliability was assessed examining the standardized loading of the individual item or indicator in the respective constructs. All the standardized loadings are greater than 0.708, which is the minimum value to accept an indicator as part of a construct (Hair et al., 2014).

Internal consistency reliability was assessed using traditional Cronbach's alpha. All constructs meet the generally agreed minimum limit of 0.7 (Robinson, Shaver, &

Wrightsman, 1991). As an additional indicator of internal consistency, composite reliability (Bagozzi, 1980) was also calculated for each construct. All constructs meet the suggested minimum acceptable level for composite reliability of 0.7 (Nunnally & Bernstein, 1994).

Convergent validity was assessed by calculating the average variance extracted (AVE) (Fornell & Larcker, 1981). All values are greater than 0.5, indicating convergent validity (Hair et al., 2014).

Discriminant validity was assessed by using Fornell-Larcker criterion (Fornell & Larcker, 1981). Table 2 provides an overview of the means, standard deviations, and correlation matrix among the constructs. Adequate discriminant validity is evident since the square root of AVE between any two constructs (diagonal) is greater than the correlation between those constructs (off-diagonal).

Table 2: Correlations between constructs[a]

Construct	1	2	3	4	5	6	7
1. Export commitment	**0.90**						
2. Innovativeness	0.33	**0.89**					
3. Pricing capability	0.11	0.21	**0.81**				
4. New product development capability	0.24	0.63	0.31	**0.82**			
5. Marketing communication capability	0.17	0.39	0.40	0.51	**0.97**		
6. Distribution capability	0.10	0.39	0.28	0.47	0.46	**0.91**	
7. Export market effectiveness	0.21	0.23	0.21	0.39	0.23	0.23	**0.88**

[a] The diagonal (in bold) shows the square roots of the average variance extracted.

After the evaluation of measurement model, we proceed with the evaluation of the structural model in order to determine how well empirical data support the proposed model.

In order to assess the possible existence of collinearity, we compute the tolerance variance inflation factor (VIF) for each set of predictor constructs. All VIF values are below the cut-off value of 5, indicating that collinearity is not an issue in this study (Hair et al., 2014).

Following Hair, Hult and Ringle (2014) recommendations, to evaluate the significance of parameter estimates, we used 5,000 bootstrap samples. We used the individual sign change option to obtained standard errors and t-values. Figure 1 presents results of the PLS estimation, including the standardized path coefficients (β), and t-values.

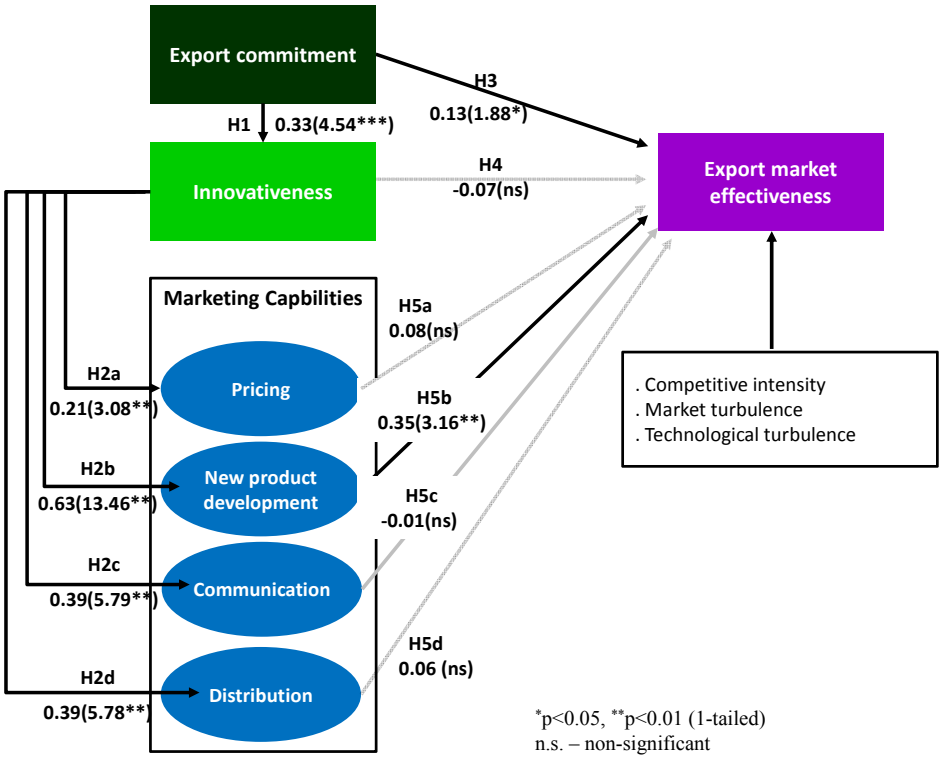

Figure 1: Testing results

Consistent with H1, export commitment positively influences innovativeness (β=0.33, t-value=4.54). In line with H2a, H2b, H2c and H2d, innovativeness has a significant positive impact on pricing capability (β=0.21, t-value=3.08), new product development capability (β=0.63, t-value=13.46), marketing communication capability (β=0.39, t-value=5.79), and distribution capability (β=0.39, t-value=5.78). In support of H3, export commitment has a significant positive impact on export market effectiveness (β=0.13, t-value=1.88). Contrary to expectations, no significant relation is found between innovativeness and export market effectiveness (β=-0.07, n.s.), so H4 is rejected. Likewise, no significant association is found between pricing capability and export market effectiveness (β=0.08, n.s.), thus H5a is rejected. Consistent with H5b, new product development capability has a significant positive impact on export market effectiveness (β=0.35, t-value=3.16). Finally, no significant relation is found between marketing communication and export market effectiveness (β=-0.01, n.s.), and between distribution and export market effectiveness (β=0.06, n.s.), so H5c and H5d are rejected.

The analytical results also allow us to draw conclusions about the relative importance of the predictor variables used in the model. For the four endogenous variables that constitute marketing capabilities, the findings establish that innovativeness has a stronger impact on new product development capability (β=0.63), than on marketing communication capability (β=0.39), and on distribution capability (β=0.39), that is equal, and greater than the impact of innovativeness on pricing capability (β=0.21). Thus, innovativeness contributes more strongly to the new product development capability.

Regarding the endogenous variable export market effectiveness, only two of the five predictor variables are significant. New product development capability has a stronger impact on export market effectiveness (β=0.35), than export commitment (β=0.13). Therefore, new product development capability contributes more strongly to export market effectiveness. In total, these variables explain 18% of the variance in export market effectiveness (R^2=.18), with a predictive ability (Q^2) of 0.14.

We also included three environmental variables, derived from Kaleka (2012), as control

variables (i.e., competitive intensity, market turbulence and technological turbulence). It should be noted that none of them has significant impacts on export market effectiveness.

In addition, the indirect effect of innovativeness on export market effectiveness is positively statistically significant (β=0.26). Despite the non-significant direct impact of innovativeness on export market effectiveness, the total effects remain significant (β=0.19, p<0.01).

5. Discussion and Implications

The study offers two important contributions to the international marketing literature. First, it gives an extended and integrated vision of the role of export commitment and innovativeness in marketing capabilities development. Second, it increases the comprehension of the RBV in export markets, by empirically examining the impact of export commitment, innovativeness and marketing capabilities on export market effectiveness.

As predicted, export commitment directly leads to a higher degree of innovativeness and indirectly to the development of superior marketing capabilities. The allocation of important resources to export venture encourages the development of innovative behaviors within firms, like frequently try out new ideas, seek new ways to do things, and being creative in operation methods. This, in turn, allows companies to develop innovative price, product, communication and distribution capabilities in order to better forecast customers' needs and competitors' actions (cf., McGrath & Ming-Hone, 1996).

This way, we add understanding to marketing capabilities development, by demonstrating that such development indirectly depends on firms' resources committed to export activity and directly on their level of innovativeness. In consequence, we argue that managers need to invest ample time and effort, and also allocate the appropriate financial and human resources to export activity, to achieve a greater innovativeness, and thus to develop superior marketing capabilities (cf., Lado et al., 2004).

We adopted the RBV to examine export commitment as a resource. We focused on export commitment as the level of resources committed to exporting, and we tested its impact on export market effectiveness. The results support the argument that export commitment enables firms to obtain superior export market effectiveness, whether directly or indirectly through innovativeness and marketing capabilities. This is consistent with previous research, that point out that resources committed to export venture act as a determinant of managers' satisfaction with the achievement of their objectives in the export market (e.g., Cavusgil & Zou, 1994; Lages et al., 2008; Navarro, Losada, et al., 2010). Through the application of the RBV, we provide theoretical contributions for the importance of export commitment as a critical resource for firms to achieve superior performance in export markets. Furthermore, we demonstrate the importance of innovativeness in transforming these resources committed to exporting into valuable outcomes for the export markets.

The analysis of the influence of marketing capabilities on export market effectiveness demonstrates that new product development capability has a significant and positive impact on export market effectiveness. The findings show that firms with new product development capability can successfully develop and launch new products for export markets, which allow them to meet the customers' needs in a more effective way (e.g., Eng & Spickett-Jones, 2009).

Surprisingly, pricing, marketing communication and distribution capabilities have no effects on export market effectiveness. This can happen due to the not always significant influence of many marketing capabilities on export market effectiveness, as evidenced by the literature (e.g., Eng & Spickett-Jones, 2009; Zou, Fang, & Zhao, 2003). Also surprisingly, we

did not confirm the existence of a significant relation between innovativeness and export market effectiveness. This is probably because firms' innovativeness must be associated with the development of new products for export markets, as well as the ability to communicate and manage marketing programs to these markets. Innovativeness by itself does not translate in market share and sales revenue growth, in the acquisition of new customers, or in increased sales to existing customers. Instead, the effectiveness of innovativeness depends on how it operates in new product development capability.

Overall, our results support the RBV (e.g., Barney, 1991; Newbert, 2007) linking resources and capabilities, specifically export commitment and new product development capability, directly to export market effectiveness. The findings demonstrate that the magnitude of the effect of new product development capability on export market effectiveness is almost three times higher comparatively to the size of the impact of export commitment on export market effectiveness. This suggests that managers need especially to improve new product development capability in order to enhance performance in export markets. However, when managers develop new products to enhance export market performance effectively, they should also develop export commitment and innovativeness to excel in the international market competition.

6. Limitations and Future Research

This study presents some suggestions for future research concerning the theoretical and methodological limitations.

Longitudinal data may improve this type of investigation, analyzing how changes in firms' export commitment, innovativeness, marketing capabilities, and business environment can affect export market effectiveness. The cross-sectional data used in this study may not be adequate in identifying fundamental relationships among the constructs.

Future studies based on samples from various countries are encouraged, since only firms based in Portugal were surveyed.

Other factors may be considered as antecedents of marketing capabilities, innovativeness, export commitment or export market effectiveness itself, such as market orientation (e.g., Murray et al., 2011; Navarro, Acedo, Robson, Ruzo, & Losada, 2010; Trainor, Rapp, Beitelspacher, & Schillewaert, 2011), learning orientation (e.g., O'Cass & Weerawardena, 2010), and entrepreneurial intensity (e.g., Weerawardena & O'Cass, 2004).

Other types of marketing capabilities and their effects on export market effectiveness may be considered for future research, like channel management and post-sale service (e.g., Morgan et al., 2012), customer relationship management (e.g., Morgan, Slotegraaf, & Vorhies, 2009), and brand management (e.g., Trainor et al., 2011).

Finally, we used three control variables (competitive intensity, market turbulence and technological turbulence) which can be treated as potential moderating factors in future studies, concerning the role of environmental context in the deployment of firms' resources and capabilities to achieve superior performance in export markets.

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Social Responsibility and competitive success of firms in the Lisbon Metropolitan Region.

Completed Research Paper

M. Isabel Sánchez-Hernández
University of Extremadura
isanchez@unex.es

Teresa Costa
Polytechnic Institute of Setubal
teresa.costa@esce.ips.pt

Luisa Carvalho
University Aberta
luisam.carvalho@uab.pt

Dolores Gallardo-Vázquez
University of Extremadura
dgallard@unex.es

Abstract

Social Responsibility is considered a crucial issue to enhance a long-term competiveness in firms because it has been demonstrated the causal relationship with several strategic business variables. This paper develops a conceptual model and applies Structural Equations Modeling technique to a sample of 91 firms from the Lisbon Metropolitan Region in order to understand the link between Social Responsibility and competitive success. The model provides a simple guidance for upgrading competitive success in firms operating in Portugal. We consider this work as a starting point to develop a more accurate model for Portuguese economic reality in the near future.

Keywords: *Social Responsibility, Innovation, Performance, Competitive Success, Lisbon.*

1. Introduction

Social Responsibility (SR) in Europe is a trending area in management and both, academics and practitioners are developing new models to understand and to measure the concept and how to get competitive advantage by responsible business behavior. In the particular case of Portugal, SR could be understood as a way to overcome the economic crisis. SR has been previously empirically related with competitive success in other countries and contexts (Weber, 2008; Vilanova *et al*., 2009; Gallardo-Vázquez and Sánchez-Hernández, 2012; Marín *et al.*, 2012; Boluta and Pitelis, 2014). In this paper the question we seek to answer is: What is the effect of SR on Portuguese business competitive success? To explore this question we start by reviewing SR evolution and the existing research in Portugal. In next sections we develop a structural equation model to analyze the causal effect of SR to other variables including competitive success because, furthermore to our knowledge, no research has explicitly examined these relationships. As a result, last section offer some remarks and complementary future lines of research.

2. Literature Review, Method and Research Hypotheses

2.1. Approaching SR in specific regional context

The literature review concerning SR is very rich. It is possible to find some important contributions from before the fifties (Barnard, 1938; Clarks, 1939). However it was after this

period during the called “modern era” of SR that a proliferation of studies around the SR appeared. According with Carroll (1999), this modern era started with the contribution of Bowen (1953), and the publication of its book “social responsibilities of the businessman”. The topic sparked interest and during the following decades many studies, concerning SR, have been published.

During the sixties more profound approaches tried to define SR (Frederick, 1960; MacGuire and Walton, 1963). On the seventies a boom of definitions and approaches to SR occurred. At this time many references to "corporate social performance" begun to emerge and the term SR gains greater projection (Johnson, 1971; Eells and Walton, 1974; Sethi, 1975; Preston and Post, 1975; Carroll, 1977; 1979). In the eighties, the focus is no longer the tentative definition of SR but the deepening of alternative themes in particular required on business ethics and stakeholder management, SR and profitability, responsibility, responsiveness and social issues (Jones, 1980; Tuzzolino and Armandi, 1981; Dalton and Cosier, 1982; Strand, 1983; Drucker, 1984; Cochran and Wood, 1984; Aupperle *et al.*, 1985; Epstein, 1987). In the nineties, other alternative themes were developed (such as corporate citizenship) but come few additional inputs to the definition of SR. In 1991 Carroll revisited its four-part SR definition (Carroll, 1991) and proposed that the discretionary component of SR is called philanthropic and suggests that the four components are introduced into a pyramid, the base of which is economic responsibility. According to Carroll, the socially responsible company makes profits, obey the law, ethics is behaves as a corporate citizen through charitable activities. Between 2000 and 2005 appeared a set of national and international organizations dedicated to ethics and SR. And, mechanisms of institutionalization of ethics and SR began to develop. Arise ethics codes, training in ethics, directors and managers responsible for SR, audits in ethics and SR and develop the reports of sustainability.

Also from the nineties until today arise inputs to determine what needs to be considered to assess corporate social performance. Nowadays firms are encouraged to work actively for SR because not only it is a business opportunity for them in today’s world, but in many cases it is a reflection of the expectations of their customers, employees, society, and other stakeholders (MarkHerbert and Von Schantz, 2007). Recently, the European Commission has put forward a simpler definition of SR as “the responsibility of enterprises for their impacts on society” (EU, 2011: 7) and outlines what a business should do to meet that responsibility. In this European framework, we share with Van der Heijden *et al.* (2010:1787) the conceptualization of the internal process of SR “as an organizational sense-making process that involves creating and sharing a unique meaning of Corporate Social Responsibility”.

Given the SR importance, and to examine the extent to which business practice actually is a reflection of what is accepted in theory, we focus on a specific research project that was designed for firms in a Regional Community in Spain, the Autonomus Community of Extremadura, to measure their orientation towards CSR with respect to other management’s strategic variables (Gallardo-Vázquez and Sánchez-Hernández, 2012, 2013, 2014). It is understood that without measurement instruments it is impossible to situate firms in the space of the various actions that comprise socially responsible behaviour. While various studies in the literature have defined measurement scales considering specific aspects or dimensions of SR, one can find none that provides a satisfactory measure of the degree of a firm’s orientation to SR in its entire extent. Neither are there any scales that can explain the causal relationships of SR with other important corporate strategic variables at a regional level. With this purpose we have considered necessary to test whether the previous scale defined for

Extremadura is able to cover the different dimensions of SR e social, economic, and environmental at a specific regional level, different from the first study, to deal with the variety of situations that a firm might have to address to gain a label of being socially responsible. The Lisbon metropolitan region has been the object of study in this work.

2.2. The study contextualization

In Portugal, in recent years, SR has gained increasing importance. With reference to the European Commission Green Paper published in 2001, appeared in Portugal a number of organizations/associations in order to promote new management philosophies grounded in concepts that emerge from the Social Responsibility and Sustainable Development. Organizations, such as, Group Discussion and Support for Corporate Citizenship (GRACE), CSR Europe and ERS Portugal, BCSD Portugal, Portuguese Association for Business Ethics (APEE), have been active in the development and implementation of these new themes in organizational context. Initially, social responsibility was adopted by large companies and multinationals, but currently it is assumed as a strategy that allows improved competitiveness also in small and medium businesses, and according with Kastenholz *et al.* (2004) a growing number of companies are adopting codes of conduct is higher, seeking environmental certification and/or pursue social goals.

Studies from Rego *et al.* (2003) revealed important data concerning the adoption of social responsibility by Portuguese companies. They concluded that a considerer number of Portuguese companies have a code of conduct and that most of the managers of companies without codes of conduct considered important to have this code and spread it within their organization. Abreu and Crowther (2005) have analyzed SR in Portugal empirically. Their findings show the relationship between SR activity and corporate image and performance and also, the existence of cultural differences in SR conceptualization. The authors highlight the importance of more research in this area, in Portugal and in the newly expanded European Community. Other authors (Dias-Sardinha and Reijnders, 2005; KPMG, 2006; Branco and Rodrigues, 2006, 2008) confirmed this increasingly importance of SR in Portuguese industry, in particular, in what concern the environmental dimension. Specifically, studies in car manufacturing shown that SR contributes not only to better corporate financial performance by lowering costs and increasing productivity but also indirectly to better corporate financial performance by increasing consumer car purchasing satisfaction (Loureiro *et al*., 2012).

2.3. Causal relationships

Measuring SR performance remains a challenging task (Morimoto *et al.*, 2005). In the fact, SR performance is a social construct and some physical property where not available and results depend how SR is measured. Ullmann (1985) proposed two categories of SR measures: social disclosure (embracing voluntary corporate social reporting and mandatory pollution reporting) and social performance which might preferably use a reputational index or some other form of third party ranking/rating system. Though, Ullmann (1985) admitted that often social disclosure is utilized as a surrogate for actual SR performance. SR means that companies perform accountability to their stakeholders by incorporating social and environmental concerns in their business operations (Tanimoto and Suzuki, 2005).

Nevertheless, firms will necessarily have to take into account cultural differences when defining their SR policies and communicating to stakeholders in different countries (Bird and Smucker, 2007). Some studies suggest that a vast majority of corporate social

programs are primarily intended to create good relations and a positive publicity, and to boost employees' moral (Porter and Kramer, 2002) but also refers that, very often they have nothing to do with the strategy of the firm (Gallego-Álvarez, *et al.* 2011).

In a local perspective, investments made in social responsibility contribute to enhance the demand for the products sold by the company, given the goodwill produced by the firm to be seen as a responsible company (Mackey *et al.* 2007; Mainardes *et al.* 2011). At this respect, Gallego-Álvarez *et al.* (2011) affirm that, in the future, only those firms following sustainability as a goal will achieve a competitive advantage. Related to competitiveness, Waddock and Graves (1997) revealed a positive relationship between firms social performance and its financial performance and Orlitzky *et al.* (2003) suggested a positive link between social and financial performance.

Additionally, today enterprises are starting to integrate social entrepreneurship into their core activities in order to develop socially innovative products and services (Schwab, 2008). According to Asongu (2007), innovation is a strong argument for SR. Larsen and Peck (2001, p.17) claimed that "innovative companies are thinking and acting in terms of a triple-bottom-line ethic, which goes well beyond the drive to maximize shareholder value by incorporating environmental quality and social justice considerations into their business decisions". Mac Gregor and Fontrodona (2008) have explored the fit between SR and innovation in a study which involved 60 SMEs throughout Europe concluding that SR implementation and innovation can be configured to form a virtuous circle. More specifically, Borger and Kruglianskas (2006) demonstrated that there were strong relationships between the implementation of CSR strategy and effective environmental and innovative performance, aspect also supported by Chang (2011). Hockerts and Morsing (2008) have studied SR in the innovation process and later, Werther and Chandler (2010) have considered innovation as strategically important for SR.

Based on the previous arguments we believe that, within the Lisbon metropolitan area, the regional model originally developed by Gallardo-Vázquez and Sánchez-Hernández (2012) related to SR and competitive success, considering also performance and innovation, could fit in this new context. This empirical task is shown in next sections.

2.4. Method and Hypotheses

The analysis has been undertaken by using a structural equation modeling approach based in the previous work of Gallardo-Vázquez and Sánchez-Hernández (2012, 2013, 2014) in the region of Extremadura, in Spain. The multivariate technique used was Partial Least Squares (PLS), a second-generation technique primarily used to develop theories in exploratory research. PLS estimation of path models involves latent constructs indirectly measured by multiple indicators and allows the use of reflective measures, as is the case.

In the model, constructs has been hypothesized as reflective bearing in mind that this is the most used choice in social sciences. The decision to develop a reflective model implies that causality flows from the constructs to the indicators. Therefore, a change in a construct causes a change in its indicators as the indicators share a common theme and are interchangeable, enabling researchers to measure the construct by sampling a few relevant indicators underlying the domain of the construct (Coltman *et al*., 2008). The model developed to analyze SR in Portugal is shown in **Figure 1** below.

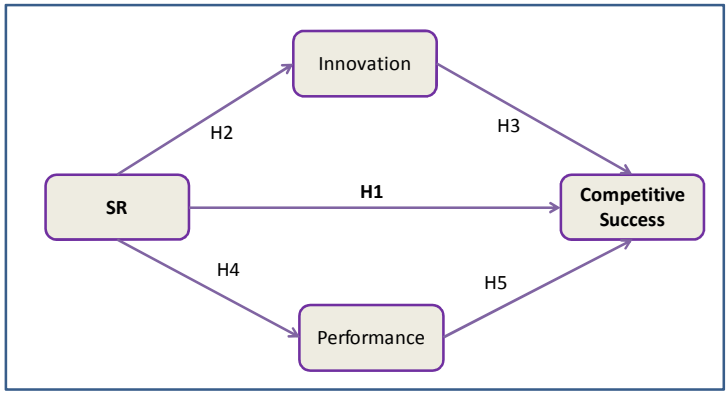

Figure 1: The conceptual model

This study aims to describe whether the firms´ orientation to SR is related to the firm's performance, innovation and competitive success. Here we present the five hypotheses to be tested:

H_1: *There is a positive association between the orientation to SR and the degree of competitive success in the market.*

H_2: *There is a positive association between the orientation to SR and the degree of innovation.*

H_3: *There is a positive association between the degree of innovation and the degree of competitive success in the market.*

H_4: *There is a positive association between the orientation to SR and the degree of performance.*

H_5: *There is a positive association between the degree of performance and the degree of competitive success in the market.*

To carry on the empirical analysis, the selected sample consisted of 91 firms from the Metropolitan Area of Lisbon considering that group of businesses representative of the Portuguese productive framework. Metropolitan area of Lisbon registers a higher concentration of population, have 18 municipalities and 14 cities. Nowadays, have about 3 millions inhabitants and ¼ of total Portuguese population, 30% of total Portuguese firms, 33% of total employment and contributes more than 36% to Portuguese GDP. **Table 1** presents the technical information of the study.

Table 1: Technical data sheet of the study

Technical issues	Data in the study
Universe	Managers in Portugal
Geographical scope	Metropolitan area of Lisbon (Portugal)
Date	May-June 2014
Sample	91 firms
Sample method	Convenience
Method of information collection	E-mail and phone contact
Contacted firms	500
Index of participation	10%
Analysis technique	Partial Least Squares

In order to get answers from the managers, the instrument used for data gathering was the same questionnaire previously used by Gallardo-Vázquez and Sánchez-Hernández (2012, 2013, 2014). The respondents should identify their perceptions respecting a five-point Likert scale from “1” being "not agree" to “5” being "completely agree”.

3. Analysis and main results

The first step in interpreting the results is to examine measure reliability and validity. In our reflective model the SR construct drives the indicators, which have positive and high inter-correlations. Following common practice we examine first the second-order construct. Taking into account that constructs in the model have been designed as reflective, one examines the loadings, which can be interpreted in the same manner as the loadings in a principal component analysis.

Results from the general measurement model show the final items kept for SR. It is remarkable that exclusion or inclusion of one or more indicators from the domain does not necessarily alter the content validity of the construct (Coltman *et al*., 2008). We have considered 0,60 loading value a lower limit for acceptance as modest construct reliability, that is applicable in the early stages of development of scales. That is close to the 0,7 general recommendation (Nunally, 1978). To assess discriminant validity and according to Fornell and Larcker (1981), we have calculated the average variance extracted (AVE) for all constructs getting values higher than the limit of 0,50 (0,60, 0,55 and 0,56 for Competitive Success, Innovation and Performance respectively). However the average variance extracted for SR get only a value of 0,44, that is close to 0,50 but is not really good enough to be considered a good value. Composite reiliability has been also tested, considering it a more accurate measure than Cronbach alpha value because it does not assume equal item weighting. The model shows satisfactory values for all constructs (0,70 for SR, 0,74 for Competitive Success, 0,71 for Innovation and 0,72 for Performance).

The second step of the analysis is related to the goodness-of-fit of the model in order to confirm the working hypothesis. For that purpose, PLS employs bootstrapping, a nonparametric re-sampling technique that offers both the standard error and the values of Student's *t*-statistic. Thus, to calculate the significance of the path coefficients, the test was performed with 500 subsamples using a two-tailed *t*-distribution with n-1 degrees of freedom, where n is the number of sub-samples.

Consistent with our first hypothesis, the path linking SR in to Competitive Success was positive and significant. However, as it is shown in **Table 2**, not all hypothesized relations have been verified. H_1, H_2 y H_5 are significant, but H_3 and H_4 are not. It has been verify the direct effect of SR to Competitive success, the main hypothesis of this work (H_1). There have been also verified the direct and positive effect of SR on Innovation (H_2) and the direct and positive effect of Performance on Competitive Success (H_5). However, in this empirical analysis we cannot confirm any influence of Innovation on Competitive Success (rejection of H_3) and we cannot confirm any influence of SR on Performance (rejection of H_5). Furthermore, R^2 of the dependent variables are not acceptable in all cases. PLS dies not generate a single goodness of fit metric for the entire model. The R^2 values are examined instead. In the model, the R^2 value obtained could be accepted for Innovation and Competitive Success (R^2 Innovation = 0,131; R^2 Competitive Success = 0,265) but R^2 is not acceptable for Performance (R^2 Performance = 0,012).

Table 2: Hypotheses testing with a bootstrap procedure

Hypothesis A ➔ B	**Original path coefficient (β)**	**Mean of sub-sample path coefficient**	***t*-value**
H_1 **SR➔ Competitive Success**	0,498	0,505	8,68***
H_2 **SR➔ Innovation**	0,359	0,366	5,68***
H_3 **Innovation ➔ Competitive Success**	0,127	0,135	1,8
H_4 **SR ➔ Performance**	0,019	0,020	0,29
H_5 **Performance➔ Competitive Success**	0,188	0,186	2,88**
*p < 0.05; **p < 0.01; ***p < 0.001 (based on a Student's two-tailed test, $t_{(499)}$) $t_{(0.05;499)} = 1.96$; $t_{(0.01;499)} = 2.59$; $t_{(0.001;499)} = 3.31$			

4. Final Remarks, limitations of the study and future lines of research

In order to test the hypotheses posted in the model adapted from previous studies to the Lisbon metropolitan region, we developed the classical steps for assessing the conceptual and the structural model. The scales used in the questionnaire were not modified in order to test the same instrument in a different context, other region with different characteristics and, may be very important, a new situation of economic crisis. We acknowledge the situation studied here is different from that examined in earlier research. In addition, the small and non representative sample used has to be also recognized as important limitations.

In the analysis, individual reflective item reliability has been considered adequate considering the exploratory nature of our study, when an item has a factor loading that is greater than 0.6 on its respective construct, which implies more shared variance between the construct and its indicators than error variance. However, the first problem occurred when the average variance extracted for SR showed only a value of 0,44 because it is recommended that this value should be greater than 0,50 meaning that 50 percent or more variance of the indicators should be accounted for. At this point we can conclude that the measurement model do not satisfied the required conditions. Consequently, the structural model where three of the five hypotheses have been confirmed has to be interpreted with reserve. It is true that the main hypothesis of the model is significant confirming the direct and positive effect of SR on Competitive Success, but it has no sense to analyze the predictive power of the model acknowledging the weak results measuring the constructs involved in the path analysis carried out.

Future lines of research emerge. First the scales used in the future will be modified to suit the precise needs of the investigation and to adapt the questionnaire to specific cultural and economic context. We can consider this work and the first results obtained as a pre-test among Portuguese managers from the most dynamic business area that is Lisbon. We consider this paper a starting point to develop a SR scale for Portuguese economic reality and for Portuguese firms.

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Uncovering unobserved heterogeneity in the ECSI model: An application in higher education in tourism

Completed Research Paper

Sofia Eurico
School of Tourism and Maritime Technology, Leiria, Portugal
sofia.eurico@ipleiria.pt

Catarina Marques
ISCTE Business School, Lisbon, Portugal
catarina.marques@iscte.pt

Patrícia Oom do Valle
Research Center for Spatial and Organizations Dynamics (CIEO), University of the Algarve, Faro, Portugal
pvalle@ualg.pt

João Albino Silva
Research Center for Spatial and Organizations Dynamics (CIEO), University of the Algarve, Faro, Portugal
jsilva@ualg.pt

Abstract

This research explores the European Consumer Satisfaction Index model applied to higher education in tourism by accounting for unobserved heterogeneity. In particular, it intends to identify segments of High Education Institutions (HEI)' consumers based on the structural model estimates of the European Consumer Satisfaction Index (ECSI), enlarged with the employability construct. A model-based segmentation approach using FIMIX in PLS path modelling is used. The ECSI was properly adjusted to the educational framework and has shown its effectiveness when assessing students' satisfaction regarding the attended HEI. Two distinctive graduates' segments were identified using a sample of 166 HEIs' consumers. Results confirm the assumption of heterogeneity as the relationships differ across segments and the need for HEIs to differently target those segments in such a competitive context.

Keywords: *ECSI, higher education, FIMIX, PLS.*

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1. Introduction

Higher Education (HE) has faced different challenges as a reflection of social-economic aspects that characterize societies in distinct times. Nowadays, Higher Education Institutions (HEI) are pressured for an increasing competitiveness that demands high standards of knowledge and quality, internationalization and mobility programs, strategies that distinguish them from the others and focus on attracting new students and offering post-graduation options for those who are already enrolled in the system. In recent years, HEIs have also been strained by some governments' agenda because of the issue of employability and this dimension has more and more often dictated financial support according to the obtained results (HEFCE, 2001).

As the primary consumers of HEIs (Kanji and Tambi, 1999), students/graduates' satisfaction and loyalty regarding the HEI attended is undoubtedly determinant for the planning of strategies that will manage to accomplish the previously mentioned demands and simultaneously get graduates' appraisal of the service provided. The increasing numbers of unemployment rates for graduates may also affect their perception of and satisfaction with the service provided by the HEIs, which can ultimately be reflected on a reduction of the number of potential students enrolling the HE. The issue of employability gains therefore visibility, and helping and teaching individuals to be *employable* is now in HEIs' agendas.

The framework for this study is the ECSI (European Consumer Satisfaction Index) model that measures the importance of image, expectations, quality and value as antecedents of satisfaction, and loyalty as its main consequence (ECSI Technical Committee, 1998). Following previous research, the model used in this study adds the influence of the construct employability on key connections of the ECSI model applied to HEIs, so that these institutions may get acquainted with the role of this factor on this particular consumer's perceptions and, therefore, adjust their educational performance to graduates' best interest. As the relationship between the antecedents of satisfaction and its impacts on loyalty may change for distinctive groups of individuals, the aim of the current research is to identify graduates' segments with different patterns in the ECSI model applied to HEIs. Thus, this study intends to deep the understanding of the ECSI model, enlarged with the construct employability, by seeking heterogeneity among its hypothesized relationships. By identifying the segments that account of this heterogeneity, HEIs will have a better understanding of their consumers and, consequently, be more prepared to select the best decisions to target them in such a competitive context.

Tourism graduates have been chosen for this research considering the major importance of the Tourism industry for the economic development of Portugal and the attention that has been given to the qualification of its human resources as a central aspect for its development (Dhiman, 2012; MEI, 2007). In this study, the proposed model is estimated and validated using the Partial Least Squares Path Modelling (PLS-PM) approach to Structural Equation Modelling. Since the ECSI model was not analysed yet regarding the existence of mutual exclusive homogenous subgroups in terms of its relations, there is not previous information about possible sources of heterogeneity (observed heterogeneity), i.e., about the variables that could be beyond the different segments. Therefore, in order to identify the graduates' segments, the FInite MIXture Partial Least Squares (FIMIX-PLS) method will be applied (Hahn *et al.*, 2002). This method is particularly adequate for the analysis of unobserved heterogeneity in PLS-PM (Rigdon *et al.*, 2010; Ringle *et al.*, 2010; Sarstedt, 2008), i.e., to identify segments when there is no prior information about the relevant segmentation variables.

2. Integrating the Construct "Employability" in the ECSI Model

2.1. Understanding the employability concept as a key strategy for the positioning of HEIs

The concept of employability is directly linked to "the possession of the understandings, skills and personal attributes necessary to perform adequately in a graduate-level job" (Knight and Yorke, 2010). Nowadays, HEIs do struggle both to attract new students and to respond properly to government agendas' which tend to value this aspect as a response to economies' dynamics and, in the particular case of Europe, considering the increasing numbers of unemployed graduates, including in the tourism industry (Dhiman, 2012). Strategies such as the creation of careers' services, the development of workshops that aim to enhance

employability skills and marketing strategies that are planned to uphold institutions in such a competitive market are just some of the approaches HEIs are promoting to answer this issue.

2.2. The ECSI model in higher education

The basic structure of the ECSI model has been developed in 1998 by the ECSI Technical Committee (ECSI Technical Committee, 1998) as a structural equation model, comprising links between consumer satisfaction and its determinants and consequences. In particular, the causes of customer satisfaction foreseen in the model are image, expectations, perceived quality and perceived value, being loyalty the presented consequence of satisfaction. To each latent variable, a set of manifest measurable variables are associated and these last ones are observed by survey questions to the customers.

The ECSI approach was chosen for the current study for its flexibility when applied to a wide variety of products, services at industry-level and in public sector, mainly due to the use of generic questions. Based on literature review, and as far as education is concerned, a reduced number of studies have applied the ECSI methodology to HEIs. Martensen *et al.* (2000) presented the first study using the ECSI methodology to measure students' satisfaction towards the HEI attended. Campostrini and Gerzeli (2007), Chitty and Soutar (2004), Alves and Raposo (2007), Chiandotto *et al.* (2007) and Brown and Mazzarol (2009) have followed, but none has considered employability as a determinant of satisfaction. All have achieved to obtain results on the attempt of measuring students' satisfaction with the ECSI methodology, sustaining our modelling approach.

As for the antecedent variables and their corresponding survey questions, they have been adjusted to the context of HE. Therefore, the global image of the HEI attended has been measured through items such as the institution's academic status, its students' educational achievement and its contribution to the development of society. In the educational framework, this variable has shown to have a considerable impact on students' satisfaction and loyalty regarding the HEI (Martensen *et al*., 2000; Brown and Mazzarol, 2009). Expectations have been studied considering students' expectations when enrolling the HEI attended regarding items such as course's curricula, teachers' pedagogical methods, preparation to coming job and career. This variable has, in previous studies, proved to have a positive effect on satisfaction via perceived quality (Anderson and Sullivan, 1993; Kristensen *et al*., 1999), being therefore relevant for the present study. The quality variable was split into the quality of "hard ware", for the non-human elements (e.g. study programmes and courses) and the quality of "software", for the human elements (teaching and administrative staff), following the works of Kristensen *et al*.(1999), Chitty and Soutar (2004) and Chiandotto *et al*. (2007). Perceived value is expected to have an influence on students' satisfaction with the attended HEI, as they tend to expect that time and money invested in education pay returns. In previous studies, this relationship has confirmed value to have a direct and positive impact on satisfaction (Martensen *et al*., 2000; Alves and Raposo, 2007). As for satisfaction, the items suggested by Oliver (1996) were followed and students were asked to express, for instance, their satisfaction on the topic of the services provided by the HEI attended and overall experience. Finally, loyalty, as the only consequent variable of satisfaction has been studied as an important element that informs on topics such as the reputation of the institution, the students' intention to recommend it and their intention to re-enrol for postgraduate studies (Hennig-Thurau *et al.*, 2001).

Employability, as the new variable included in the original model was assessed using items used in the studies of Knight and Yorke (2003) and Schomburg and Teichler (2006). Nine items, including the importance of the attended HEI in the process of finding a first job,

the value given by employers to the institution itself and the adequacy of the studies with respect to the employment requisites were selected to ascertain this variable.

As for the introduction of this construct on the ECSI model, as an antecedent of satisfaction and loyalty, it proved to be conceptually and empirically relevant as it was shown to have a very significant effect on the image of the HEI attended, being this one, image, the construct with the greatest impact on the satisfaction formation process (Eurico *et al.*, 2013) The strong effect of employability on image reinforces the importance HEIs shall give to the integration of the concept on their educational practice and promotional strategy. The contribution of the current study is to explore the integration of employability in the ECSI model, identifying and characterizing segments of graduates regarding the relations among its constructs.

2.3. Conceptual model and research hypotheses

With the purpose of measuring graduates' satisfaction regarding the HEI attended and the role of employability in it, a research model was developed, taking into account the ECSI framework. Consistent with the objectives of this study, the model, in Figure 1, has therefore been developed and tested. The hypotheses under test are described as follows and indicated in the figure.

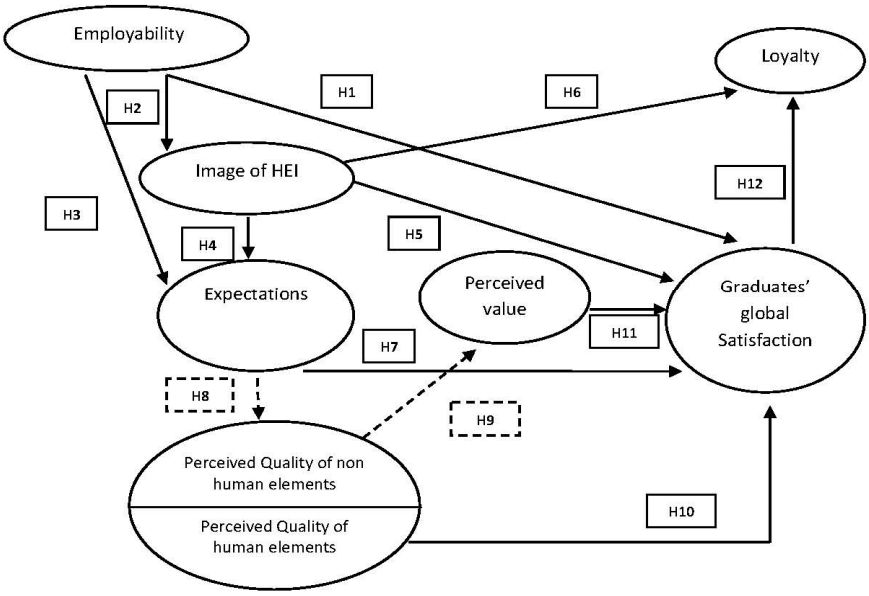

Figure 1: Research model and hypotheses

H_1: Employability has a direct effect on satisfaction concerning the HEI attended;
H_2: Employability has a direct effect on the image of the HEI attended;
H_3: Employability has a direct effect on expectations;
H_4: The image of the HEI has a positive and direct effect on expectations;
H_5: The image of the HEI has a positive and direct effect on satisfaction;
H_6: The image of the HEI has a positive and direct effect on loyalty;
H_7: Expectations have a direct effect on satisfaction;
H_8: The effect of expectations on satisfaction is indirect through quality;
H_9: Perceived quality of non-human elements has an indirect effect on satisfaction through perceived value;
H_{10}: Perceived quality of human elements has a positive and direct effect on satisfaction;

H_{11}: Perceived value has a direct and positive impact on satisfaction;

H_{12}: Satisfaction concerning the HEI attended has a positive and direct effect on loyalty to the institution.

With the exception of H_8 and H_9, all the hypotheses state a direct effect between the correspondent latent variables. Besides a direct effect, all the hypotheses, excepting H_1, H_7 and H_9 propose a positive effect between the variables. H_8 and H_9 indicate indirect effects.

3. Methodology

Data for this study was obtained from a questionnaire applied from January 2010 to June 2010 to 166 Tourism graduates working in the tourism industry in the region of Leiria-Fatima, Portugal. The response rate equals 80.2% and the sample size meets the requirements for PLS-PM analysis. The questionnaire considered the ECSI original questionnaire's structure and it was divided into two major parts. The first part dealt with graduates' background and the second part was divided into seven sections, each one related to the constructs presented in the research model (employability, image, expectations, quality, value, satisfaction, loyalty), described by three to nine measurement variables measured on a 5-point Likert scale.

The global model was previously estimated by PLS-PM. All measures in the model are reflective. Then, the FIMIX-PLS approach was applied to identify HE consumer segments. SmartPLS 2.0 (Ringle *et al.*, 2005) was used. The potential unobserved heterogeneity is uncovered by FIMIX-PLS within the model structural relationships .The segment number was decided based on the comparison among different model performance indicators (Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), Consistent AIC (CAIC), Corrected AIC with the penalty factor of three (AIC_3), Normed Entropy Statistic (EN)) (Sarstedt *et al.*, 2011). The mixing proportions, the *a posteriori* probability of segment membership for each observation and the segment-specific estimates for the structural relationships and for the regression variances were estimated (Henseler et al., 2009). The significance of the indirect effects was assessed by the Sobel Test (Sobel, 1982; MacKinnon *et al.*, 2002).

4. Results and discussion

4.1. Sample's description

The distribution of the characterization variables of respondents are presented in table 4 (column "global"). The obtained data shows that our sample comprises 127 female (76.5%) and 39 males (23.5%) and the mean age of the respondents was 29.0. Regarding their education and training, all the respondents held a bachelor degree on tourism area, which was an assumption of the study. More than 70% are graduated on "Tourism" (72.7%) and the remaining individuals on "Tourism and Hospitality Management". 13.3% attended a masters' program and from these 2 have already concluded it. Finally, 1.8% attended a PhD program. Furthermore and as far as work experience is concerned, for the majority of the respondents (70.5%) the job at the time of the survey was not their first job and when asked about the links between that job and the scientific area of the BSc, 93.4% answered positively. Lastly, and on the subject of income, 66.7% of the respondents received monthly between 451€ to 900€, 29.0% received from 901€ to 1350€ and 3.1% received more than 1350€.

4.2. Indicators' description

The latent variables and the corresponding indicators considered in the research model were analysed according to the respondents' level of agreement (table 1). Results for the items related to employability show that the ones which gathered the highest values of agreement correspond to the relevance of training to perform the job functions and its importance to the possibility of career progress. As for image, indicators with the higher percentages in the categories of agreement are those which reflect the perception of respondents in relation to the attended HEI, considering it a good institution to study and the one that characterizes the HEI as innovative and forward looking. The indicators linked to the variable expectations with the highest agreement answers are those related to the curriculum of the attended course and the scientific knowledge of teachers. As for the indicators used to measure the concept of quality, the ones with the highest percentage of agreement are related to scientific knowledge and teaching skills of teachers. Value is distinguished from the previous variables as being the one with a higher concentration of responses alluding to the disagreement. Therefore, the ease in obtaining a good job seems not to reward the amount paid for education, according to students' answers. The concept of satisfaction was measured by five indicators and overall satisfaction of respondents with the service provided by the HEI was the attribute with the highest percentage of agreement. As for loyalty, approximately 60% of respondents expressed the intention to recommending the attended HEI and nearly half would choose the same institution to attend post-graduate training.

Table 1: Distribution of answers in the different latent variables (own elaboration)

Latent Variables	Indicators	Strongly agree + Disagree (%)	Neither agree nor disagree (%)	Agree + Strongly agree (%)
Employability	Globally, the HEI attended allows finding a first job before six months after graduation.	19.9	36.1	44.0
	Globally, the HEI attended is valued by employers.	22.3	31.9	45.8
	Globally, the HEI attended interacts with the tourism industry sector.	13.3	27.7	59.0
	Globally, the HEI attended prepares students for the transition to the job market.	23.7	23.0	53.3
	Globally, the degree program is directly linked and relevant to a succeeded performance of professional duties.	13.2	17.5	69.3
	Globally, having a bachelor's degree raises the expectation of professional enhancement.	10.2	23.5	66.3
	Globally, the HEI attended enhances the adequacy of the studies with respect to the employment requisites.	19.3	31.3	49.4
	Globally, the HEI attended allows and enhances lifelong learning.	10.9	32.5	56.6
	Globally, the HEI attended matches the tourism industry sector demands.	16.9	31.9	51.2
Image	Generally, this is a good HEI to study.	5.4	12.7	81.9
	The HEI attended shows and encourages innovation.	9.6	21.7	68.7
	The HEI attended has a trustworthy academic status.	13.9	33.7	52.4
	The HEI attended offers its students educational achievement.	11.5	28.3	60.2
	The HEI attended supports its graduates.	28.9	28.3	42.8
	The HEI attended contributes dynamically to the society development.	6.0	27.1	66.9

Table 1: Distribution of answers in the different latent variables (own elaboration) (cont.)

Expectations	Course's curricula.	3.1	37.3	59.6
	Teachers' pedagogical methods.	6.7	35.5	57.8
	Teachers' scientific knowledge.	5.5	35.5	59.0
	HEI facilities.	35.0	37.9	27.1
	HEI support functions.	26.5	45.8	27.7
	Overall quality of services in general.	9.0	51.2	39.8
	Preparation to coming job and career.	10.9	32.5	56.6
	The services received considering your initial expectations.	6.0	40.4	53.6
Quality	Overall quality of the service provided.	5.4	49.4	45.2
	Course's curricula.	13.8	44.6	41.6
	Teachers' pedagogical methods.	6.1	36.1	57.8
	Teachers' scientific knowledge.	4.9	35.5	59.6
	The organization and functioning of the HEI.	10.9	58.4	30.7
	HEI facilities (library. computing services tutorials. …).	27.1	41.6	31.3
	Non-teaching staff and services.	14.5	58.4	27.1
	HEI building.	41.6	30.7	27.7
Value	The value paid for this course at this HEI is rewarded by the way employers face and look for its graduates.	38.6	34.3	27.1
	The value of the education received is rewarded by the easiness of finding a first job.	38.6	31.9	29.5
	The value paid for this course is rewarded by the overall provided service.	27.2	35.5	37.3
	The value paid for this course at this HEI is rewarded by the way employers face and look for its graduates.	38.6	34.3	27.1
	The value of the education received is rewarded by the easiness of finding a first job.	38.6	31.9	29.5
	The value paid for this course is rewarded by the overall provided service.	27.2	35.5	37.3
Satisfaction	Globally. I am satisfied with the services provided by the HEI attended.	10.2	18.1	71.7
	My expectations regarding overall experience received were totally satisfied.	1.4	13.9	68.7
	As an employer fully integrated in the labour market. The HEI attended satisfies my need for advanced studies.	25.3	34.9	39.8
	The HEI attended can be considered as an ideal HEI.	33.7	41.0	25.3
	The services offered and acquired skills reward having chosen this HEI.	18.1	29.5	52.4
Loyalty	If I had to choose an HEI to graduate. I'd choose the same.	20.5	25.3	54.2
	If I had to choose a course again. I'd choose the same.	19.9	23.5	56.6
	I intend to recommend the HEI attended.	1.5	28.3	60.2
	I intend to recommend the course I've attended.	14.5	30.7	54.8
	If I choose to continue studying. I'll do it at the HEI attended.	16.3	35.5	48.2

4.3. Results from FIMIX-PLS

FIMIX-PLS algorithm was repeated for a different number of segments. The joint consideration of AIC_3 and CAIC statistics suggested a two-segment solution (Sarstedt and Ringle, 2010), in which the measurement model was identical across latent segments. Segment 1 is the smaller comprising 24.7% of the overall graduate group. An overview of the quality assessment measures is presented in table 2. R^2 values of the endogenous latent variables in segment 1 are greater than in the global model, indicating that the explained variance has really been improved for segment 1 model. In this segment, Loyalty, Satisfaction and Image have high values of R^2, indicating that all determinants have a strong influence on

these constructs. Segment 2 shows more moderate R^2 values for Loyalty, Satisfaction and Image, although the other constructs have higher values of R^2 than in the global model. However, the values of the average R^2 remain greater than those of the global model (with the exception of Value), confirming that FIMIX-PLS has an important role in uncovering the unobserved heterogeneity of the global structural equation model. Similarly, the GoF measure (Tenenhaus *et al.*, 2005) in segments are greater than in the global model, thus its higher value represents better path model estimations than in the global model.

Regarding the measurement models, quality assessment is verified for the global and segment-specific models since average variance extracted and composite reliability measures are clearly placed over the recommended thresholds for all latent variables (Hair *et al.*, 2011; Henseler *et al.*, 2009).

Table 2: Some measures of quality assessment of global and FIMIX-PLS segment-specific models (own elaboration)

	Global Model	Segment 1 Model	Segment 2 Model	Average R^2
N (%)	166 (100%)	41 (24.7%)	125 (75.3%)	
R^2				
IMAGE	0.5226	0.7472	0.4658	0.6065
EXPECTATIONS	0.1336	0.4551	0.4573	0.4562
QUALITY OF HUMAN ELEMENTS	0.1345	0.3259	0.4540	0.3900
QUALITY OF NON-HUMAN ELEM.	0.2249	0.2990	0.5475	0.4233
VALUE	0.2288	0.1960	0.2486	0.2223
SATISFACTION	0.7425	0.9450	0.6943	0.8197
LOYALTY	0.6677	0.8180	0.6200	0.7190
GoF	0.4786	0.5909	0.5487	

Table 3 presents an overview of structural parameter estimates for the global model and the two segment-specific models. Multiple group comparison results provide evidence of varying relationships among constructs for the two segments. T-tests confirm that the segments are different in all structural relationships.

Comparing significance and strength of the structural coefficients, results show that (1) all relationships hypothesized in H_2, H_5 and H_{12} are positive and significant in the three models; however they are the strongest in the segment 1 model and the weakest in the segment 2 model. The influence of employability on satisfaction (H_1) is also significant in all models, but is the strongest in segment 2 model; (2) H_3 is only verified in the segment 1 model; indeed for these graduates the employability negatively influences their expectations; (3) Contrarily to the global model results, the expectation of the graduates of segment 1 negatively affects satisfaction towards HE through quality of human elements (H8). However, in both latter models, the quality of non-human elements affects positively satisfaction through value, confirming H_9; (4) Like in the global model, the segment 2 results shows that the stronger the HE image that graduates have the stronger their expectations and loyalty towards the HE, verifying H_4 and H_6 respectively. The expectations of these graduates also influence satisfaction (H_7), despite its low estimate.

Regarding the main influences on satisfaction and loyalty, findings of the two-segment solution can be summarized as follows: (1) In the segment 1, image and value are the core determinants of satisfaction (with path coefficients of 0.714 and 0.436 respectively). The indirect effects of expectations are weak. Loyalty is strongly influenced by satisfaction. (2) Segment 2 has image and expectations as the main drivers of satisfaction which, in turn, jointly with image, influence the loyalty towards the HE.

With reference to employability, it strongly affects image in the two segments. However, for the small group of graduates of segment 1, the employability negatively influences satisfaction and the expectations that graduates have about the HE. This may be either due to students' lack of understanding of the labour-market, misunderstanding of the concept of employability or to their lack of awareness of the importance of employability issues for the process of entering into the professional arena. Both segments should be of concern to HEIs in their education programs, as employability has shown to be an important antecedent of image, which must be worked in a marketing perspective to enhance the institution's reputation concerning the preparation of employable students.

Table 3: Standardized path coefficient for global model and FIMIX-PLS segment results (own elaboration)

Hypotheses	Structural Paths	Global model	Seg 1 model	Seg 2 model
H1 (a)	EMPLOYABILITY -> SATISFACTION	0.1573**	-0.1987**	0.2585*
H2	EMPLOYABILITY -> IMAGE	0.7229*	0.8644*	0.6825*
H3	EMPLOYABILITY -> EXPECTATIONS	-0.1097	-0.8396*	-0.0105
H4	IMAGE -> EXPECTATIONS	0.4369*	-0.1996	0.6834*
H5	IMAGE -> SATISFACTION	0.5280*	0.7140*	0.3966*
H6	IMAGE -> LOYALTY	0.2049*	-0.0896	0.2817*
H7 (a)	EXPECTATIONS -> SATISFACTION	0.0300	-0.0368	0.2155*
H8 (a)	EXPECTATIONS -> SATISFACTION through QUALITY OF HUMAN ELEMENTS	0.0459**	-0.1268*	0.0259
H9 (a)	QUALITY OF NON-HUMAN ELEMENTS -> SATISFACTION through VALUE	0.0918*	0.1930*	0.0365
H10	QUALITY OF HUMAN ELEMENTS -> SATISFACTION	0.1252*	0.2221*	0.0384
H11	VALUE -> SATISFACTION	0.1920*	0.4360*	0.0732
H12	SATISFACTION -> LOYALTY	0.6411*	0.9836*	0.5477*

* $p < 0.05$; ** $p < 0.10$.
(a) two-tailed statistical hypothesis.

4.4. Segments' profile

Table 4 present the distribution differences across and within segments. The results show significant differences only on the graduates' BSc and type of HEI frequented, which indicate that these variables might be discriminate variables of the segments. It is important to note that, contrary to segment 2 and the whole sample, segment 1 has a great percentage of "Hospitality Management's" graduates and has more graduates who frequented the university.

The main characteristics of the graduates' segments are summarized as follows: Both segments reveal similar percentages when it comes to gender, age, the BSc was the first option and the actual job is the first job. As for education and training, segment 2 presents closer results to the ones obtained for the whole sample as far as the attended course is concerned. All the other items related to this topic are quite similar in both segments when compared to the entire sample. Moreover, the items related to work experience reveal that both segments' answers are equivalent to those of the sample, except for the net income, that tends to be higher in segment 1, namely in the category 901€ to 1350€.

Table 4: Characteristics of HEI consumers' segments (own elaboration)

	Segments	1	2	%/value	Pearson Chi-Square
Gender (%)	Female Male	73.2 26.8	77.6 22.4	76.5 23.5	0.337 df=1
Age (mean)		29.1	29.0	29.0	0.079 df=164 (a)
Net Household income (monthly) (%)	451€ to 900€ 901€ to 1350€ More than 1350€	58.5 39.0 2.4	69.4 25.6 5.0	66.7 29.0 4.3	2.891 df=2
BSc (%)	Tourism Tourism and Hospitality Management	58.5 41.5	77.4 22.6	72.7 27.3	5.539* df=1
Year of BSc conclusion (%)	before 2001 2001 to 2010	19.5 80.5	15.2 84.8	16.3 83.7	0.422 df=1
The BSc was the first option (%)	Yes No	82.9 17.1	82.4 17.6	82.5 17.5	0.006 df=1
HEI type	Polytechnic Institutes Schools and Higher Institutes Universities	75.6 9.8 14.6	78.9 17.1 4.1	78.0 15.2 6.7	6.243** df=2
MSc Student (%)	Yes No	19.5 80.5	11.2 88.8	13.3 86.7	1.855 df=1
PhD Student (%)	Yes No	2.4 97.6	1.6 98.4	1.8 98.2	(b)
The actual job is the first job (%)	Yes No	31.7 68.3	28.8 71.2	29.5 70.5	0.125 df=1
The actual job is in the same area of the BSc (%)	Yes No	95.1 4.9	92.8 7.2	93.4 6.6	1.000 df=1
Months (mean) between concluding the BSc and entering the labour market		3.8	3.0	3.2	0.953 df=163 (a)

(a) T statistic of Independent sample t-test; (b) Not possible to verify the assumptions of the Chi-square test. * Significant at the 0.01 level; ** Significant at the 0.05 level.

5. Conclusion

The results of our empirical study show that the ECSI model allows an accurate analysis of the graduates' satisfaction, indicating its flexibility when applied to the educational field. Image, quality, expectations and value have been confirmed, directly or indirectly, as determinants of the graduates' satisfaction and loyalty as its main consequence. Employability has shown empirical relevance due the significant impact it has on image, globally and in both segments, revealing to be the most important antecedent of satisfaction. Satisfaction should therefore be analysed as a multi-dimensional concept, and the image of HEIs should be enhanced as this is the precedent that has the greatest impact on it. As for image, results indicate that it is strongly influenced by employability, which reveals that HEIs should also invest its efforts primarily on these two dimensions, image and perceived employability, to obtain the satisfaction and loyalty of its immediate consumers, the students. Quoting Harvey (2010, p. 7) "a degree may once have been a passport into graduate employment: it was indicative of a level of knowledge and intellectual ability. However, as a result of organizational changes and the expansion in the numbers of graduates, this is no longer the case." Given this reality, and taking into account the results found, HEIs should make a commitment to ensure the qualification of human resources in accordance with the actual needs of the Tourism industry and somehow guarantee students' understanding of the

importance of developing employability skills, their development as employable individuals and as relevant advertisers of the institution to the outside market.

As for the obtained results on both segments, they emphasize on the importance of institutional image's management and subsequent analysis of Higher Education students so that institutions may reflect upon the heterogeneity of its main consumers and outline strategies that will reach different public targets. Therefore, further research is required to improve the characterization of the identified segments, namely in what concerns the aspects that have a potentially discriminant power between segments, for interpretation purposes and additional insights. Other significant opportunities for further research within this topic include trying to understand more deeply the reasons for the existence of a segment of students to whom employability reduces satisfaction as this information will certainly represent an important asset for institutions and also to develop a set of guidelines for HEIs or education policy to deal with these reasons.

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Interaction and brand experience as a path for brand love: a PLS-SEM marketing application.

Completed Research Paper

Karla Barajas-Portas
Universidad Anáhuac México Norte
karla.barajas@anahuac.mx

Abstract

Interaction through online social networking sites is one of the most relevant topics nowadays. In the other hand, brand experience has become a powerful for marketers also creating an important bond. Considering both constructs, we propose to analyze the effect of them as a path of the brand love. We analyze the effect of interaction and brand experience on brand love. We conducted a path analysis using PLS-SEM. This paper explores a new way for marketers to improve the engagement with consumers. These interactions between consumers and their brands make stronger the relationship among them.

Keywords: *Social media, branding, marketing experience, brand love, PLS.*

1. Introduction

This paper empirically explores the impacts of interaction and brand experiences on brand love. The first part of this paper exposes a literature review about the three constructs we are dealing with. After that we expose the methodology details considering the sample size, the scale used for the study and the statistical method to use.

We conducted a path analysis using partial least squares as the most suitable approach of structural equation modeling for the purpose and characteristics of the study. Finally we present the model and the results of the procedure.

2. Literature Review and Research Hypotheses

2.1. Social media interaction

Digital evolution and especially social media have changed how consumers and marketers communicate. Peer communication through social media (SM), a new form of consumer socialization, has profound impacts on consumer decision making and thus marketing strategies (Vinerean, Cetina, Dumitrescu, & Tichindelean, 2013).

Social media websites provide an opportunity for companies to engage and interact with consumers, to be in touch and increase the intimacy of the customer relationship, and in those platforms we can create meaningful relationships. (Mersey, Malthouse, & Calder, 2010).

Marketers are now able to reach consumers and interact with them using social media. This is an opportunity to improve the relationship, but it is also a risk. (Chung & Austria, 2010). We want to demonstrate that a personal relation with brands and products on digital paths, are the optimal way to obtain love of the consumers.

2.2. Brand Experience

Brand experience is a construct developed on the last decades, although experiences in marketing was considered previously, there was a topic not researched as a multidimensional construct (Holbrook & Hirschman, 1981) (Hirschman, 1984) (Gimeno, 1986) (Edell & Burke, 1987) (Batra & Ahtola, 1990) (Bedolla P., 2002) (Schmitt, 2005).

For many years, experience considered the sensory stimuli as the producer of a complete brand experience. By human nature, people capture all the information about the environment by the 5 human senses simultaneously, but in marketing not all the brands pay attention on this fact. Martin Lindstrom made an effort to demonstrate that it is very important to considerer all the senses conducting a huge study in order to develop a "sensogram", that is the methodology of measurement of brand sensory (2005). More recently, sensory marketing has expanded to include all five senses, sensory environments, and sensory branding (Hulten, 2008).

Bernd Schmitt had been researching about experiential marketing since 90's, he wrote a practitioner book in which he developed a group of recommendations about how companies has to implement the experience in marketing as a point of differentiation for products (Schmitt, 2005). In the past decade expended a lot of time working with Brakus and Zarantonello and they developed a one of the most accepted scales for the brand experience. ("Brand Experience: What is it? How is it measured? Does it affect loyalty?" 2009).

Brand experience is conceptualized as sensations, feelings, cognitions and behavioral responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications and environments (2009, pág. 52)

2.3. Brand Love

Brand love is defined as the degree of passionate emotional attachment a satisfied consumer has for a particular brand and includes passion for a brand, attachment to the brand, positive evaluation of the brans, positive emotions and declarations of love for the brand (Carroll & Ahuvia, 2006). They found that brand related with hedonic products generate easily stronger relations. For that reason we are considering brands that people declare as their favorite one, no matter the category. Further studies could analyze that relation.

Brand love is important in a marketing strategy context because of its relationship with loyalty and word of mouth. (Bergkvist & Bech-Larsen, 2010). Considering interaction on social networking sites as a type WOM, we are testing the possible relation establish in prior studies.

3. Research Method

The aim of the present study is to test the impact of interaction (SNS) and brand experience on brand love construct. For that purpose we use different scales taken from

previous studies.

For brand experience we use the scale developed by Brakus, Schmitt & Zarantonello (2009). This measurement was developed considering a second order AFC. The four factor model includes: sensory, affective, behavioral and intellectual, with 3 items each one. This brand experience scale was used as a predictor of consumer behavior and to profile consumers (Zarantonello & Schmitt, 2010).

For Interaction we are testing a scale developed for this purpose taking as base the following authors: (Chung & Austria, 2010) (Mersey, Malthouse, & Calder, 2010) (Vinerean, Cetina, Dumitrescu, & Tichindelean, 2013).

In the case of brand love we use the scale developed by Carroll & Ahuvia. The original scale considered 10 items, we adapted it for our purpose and we reduce it to 6 items, considering recommendations of the work made by Bergkvist & Bech-Larsen (2010).

Table 1: Construct items

Factor	*Code*	*item*
Brand love	**BL-1**	This is a wonderful brand
	BL-2	This brand makes me feel good
	BL-3	This brand makes me very happy
	BL-4	I love this brand!
	BL-5	I am passionate about this brand
	BL-6	I am very attached to this brand
Brand Experience	**BE-S-1**	This brand makes a strong impression on my visual sense or other senses.
	BE-S-3	This brand appeal to my senses.
	BE-A-1	This brand induces feelings and sentiments.
	BE-A-2	I have strong emotions for this brand.
	BE-A-3	This brand is an emotional brand.
	BE-B-1	I engage in physical actions and behaviors when I use this brand.
	BE-B-2	This brand results in bodily experiences.
	BE-B-3	This brand is action oriented.
	BE-I-1	I engage in a lot of thinking when I encounter this brand.
	BE-I-2	This brand make me think.
Interaction	**ISM-1**	I think the content shared by this brand on the socialmedia networks is interesting
	ISM-2	I follow the brand pages in order to obtain recent information of the brand/products
	ISM-3	I visit the brand page on social media networks regulary
	ISM-4	I am interested on having a digital relationship with this brand
	ISM-5	This is brand with which I can talk (chat)
	ISM-6	I follow this brand every day on facebook
	ISM-7	I follow this brand every day on twitter
	ISM-8	This is a brand who listen to me

The survey consists of 30 questions, 6 of them were demographic, 6 related to feelings and emotions to favorite brand, the rest item related to brand experience and interaction via SNS. We use a seven-point Likert scale (1=”completely disagree”, and 7=”completely agree”) for the 20 items provided in the Table 1.

The information was collected from respondents by a survey applied between January and May 2014. We used the convenience sampling technique which implies a non-probability sampling. We ask to 95 real consumers to answer the questionnaire. The sample was represented by undergraduate students of the Universidad Anahuac Mexico Norte, 48% male and 52% female. Respondents ranged in age from 18 to 24. We found that all of them use at least Facebook, 72% use also twitter, 54% uses other SNS (foursquare, LinkedIn, Instagram, vine). 86% of the respondents use SNS several times a day, 67.3% use SNS once each day, 3.4% few times a week.

We ask for their favorite brand and if they used to buy it and if they interact with it on digital platforms. First we make questions about the consumption and the feeling for the brand. All the questions about interaction are according with the brand that the user designed as favorite one. We are not researching about a brand or a category brand, we are trying to understand which is the bond and how does it impact brand love.

4. Results

Smart PLS structural modeling was employed for testing the model. The results of the measurement and the path are show on the figure 1. The R2 is 0.302 for brand love and 0.329 for brand experience. This means that interaction and brand experience moderately explain 30% and 32.9% of the endogenous latent variables.

The inner model suggests that interaction has the strongest effect on brand experience (0.574) followed by interaction on brand love (0.314) and brand experience on brand love (0.306). The hypothesized path relationship between Interaction and brand experience on brand love is statistically significant. Thus we can conclude that interaction and brand experience are both moderately strong predictors of brand love; and interaction is moderately strong predictor of brand experiences.

The outer model loading are acceptable, all of them are greater than 0.5. The AVE for brand experience (0.501), brand love (0.567) and interaction (0.537). (Table 2).

Table 2: Construct items Results for outer model

Factor	Code	item	Factor Loading	AVE	Composite reliability	Reliability (α)
Brand love	BL-1	This is a wonderful brand	0.502	0.567	0.884	0.843
	BL-2	This brand makes me feel good	0.688			
	BL-3	This brand makes me very happy	0.855			
	BL-4	I love this brand!	0.878			
	BL-5	I am passionate about this brand	0.783			
	BL-6	I am very attached to this brand	0.752			
Brand Experience	BE-S-1	This brand makes a strong impression on my visual sense or other senses.	0.551	0.501	0.909	0.888
	BE-S-3	This brand appeal to my senses.	0.610			
	BE-A-1	This brand induces feelings and sentiments.	0.783			
	BE-A-2	I have strong emotions for this brand.	0.791			
	BE-A-3	This brand is an emotional brand.	0.647			
	BE-B-1	I engage in physical actions and behaviors when I use this brand.	0.745			
	BE-B-2	This brand results in bodily experiences.	0.748			
	BE-B-3	This brand is action oriented.	0.766			
	BE-I-1	I engage in a lot of thinking when I encounter this brand.	0.699			
	BE-I-2	This brand make me think.	0.699			
Interaction	ISM-1	I think the content shared by this brand on the socialmedia networks is interesting	0.802	0.537	0.901	0.872
	ISM-2	I follow the brand pages in order to obtain recent information of the brand/products	0.809			
	ISM-3	I visit the brand page on social media networks regulary	0.747			
	ISM-4	I am interested on having a digital relationship with this brand	0.832			
	ISM-5	This is brand with which I can talk (chat)	0.699			
	ISM-6	I follow this brand every day on facebook	0.806			
	ISM-7	I follow this brand every day on twitter	0.543			
	ISM-8	This is a brand who listen to me	0.563			

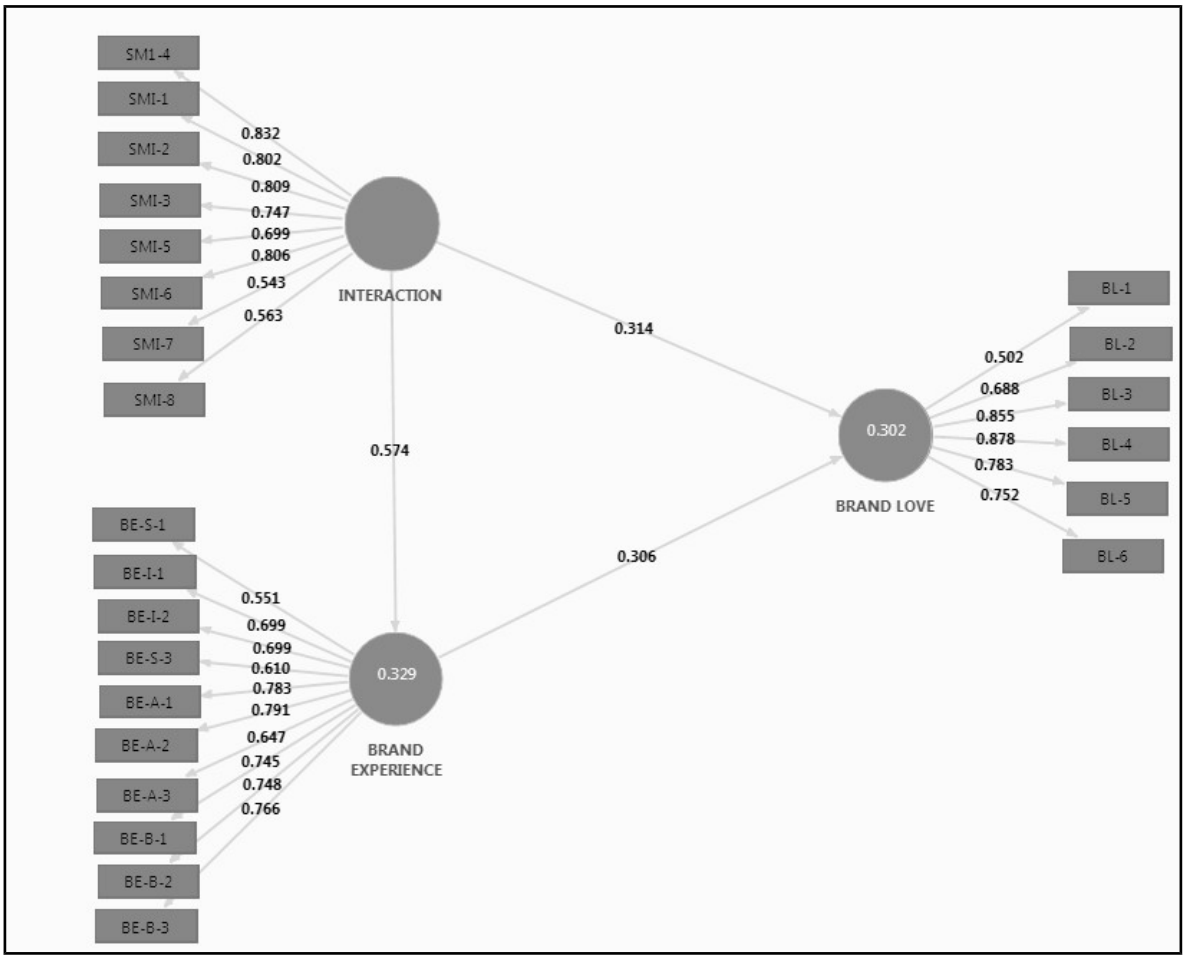

Figure 1: Brand love path model

5. Discussion

According with the statistical model, we can conclude that the interaction on social networking sites and the brand experiences generated by marketing strategies are predictors of brand love. Previous literature assumes that brand love results on loyalty, but we do not test this relationship on this paper, but it could be a future research to explore that impact.

For effective and strong relationship between brands and consumers, it should be considered how to participate in social media and how provide experiences in the 4 paths: Sensual, affective, behavioral and intellectual.

The relevance of this research is taking the first step for testing the impact of digital interaction and experiences on the desired brand love. The aim is giving new marketing strategies for the theoretical and empirical support which has the importance of these factors for consumers. In this way, companies must pay more attention to their actions on Social Media and control agents that inherently exist in products and optimizing their use to improve your brand image actions and generate sustainable competitive advantage in time. The natural human processes as socialization, interaction and experiences are the first link in the production of emotions and remain on consumers mind and heart for longer than the images of traditional communication.

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Linking market orientation, innovation, unlearning and performance: A multiple mediation model.

Completed Research Paper

Antonio L. Leal Rodríguez
Universidad Loyola Andalucia
alleal@uloyola.es
José L. Roldán
Universidad de Sevilla
jlroldan@us.es

Jaime Ortega-Gutiérrez
Universidad de Sevilla
joguti@us.es

Abstract

Many studies uphold market orientation as a key factor in creating and sustaining a firm's competitive advantage. The present research model explores this topic further by including within the model the links between organizations' innovation outcomes, its process of organizational unlearning and business performance. In particular, the model empirically tests the mediating role of innovation outcomes and organizational unlearning in the relationship between market orientation and business performance. The present study uses a sample of 145 firms from the Spanish automotive components manufacturing sector and employs partial least squares (PLS) in order to test the research hypotheses.

Keywords: *market orientation, innovation outcomes, organizational unlearning, business performance, partial least squares, multiple mediation.*

1. Introduction

Firms are currently competing within an extremely turbulent and dynamic context. Under such conditions, firms are forced to constantly renew their products and services, as these quickly become obsolete. In this sense, the organizations' ability to renew its knowledge bases would provide them an advantage over its competitors in the innovation contest, and hence make them improve its performance (Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011). Organizational learning capability plays a crucial role to this end. In this sense, the firm's capacity to learn faster than competitors is perhaps the only way of attaining sustainable competitive advantages (Senge, 1990). Nevertheless, organizational learning alone might be insufficient for the effective fostering of knowledge and insight, as a process of organizational unlearning (OU) may also be necessary (Akgün, Byrne, Lynn, and Keskin, 2007).

Innovation enhances the firms' capacity to face the uncertainty that characterizes the current competing fields. This capability enhances the firm's ability of seeking new opportunities and exploiting the existing ones more efficiently (Matzler, Abfalter, Mooradian, & Bailom, 2013). Moreover, innovation also constitutes a key factor in the creation and sustaining of competitive advantages, which in turn expands business performance. Being innovative involves making the firm's structures more flexible. By virtue of such flexibility, firms find easier to adapt to their business environment, thus enabling them to leverage

opportunities better than their competitors (Damanpour & Gopalakrishnan, 2001).

It seems clear that in order to succeed within the new hypercompetitive manufacturing environment, firms ought to be more innovative. To this end, they need to remain up to date of the multiple changes and fluctuations that constantly appear in the market. This involves staying oriented to their customers, proactively adopting a market orientation (MO) strategy (Laforet, 2009). The ultimate aim of developing a market orientation strategy deals with enhancing the firm's innovativeness and performance.

There is plenty of literature positing that organizational learning and firm innovativeness are both antecedents and influencers of business performance (March, 1991; Vijande, Pérez, González, & Casielles, 2005). However, few studies assess the link between organizational unlearning (OU) and business performance (BP). For instance, Cegarra-Navarro et al. (2011) reveal that an unlearning context mediates the effects of knowledge exploration and exploitation on business performance. This finding suggests that OU potentially enables employees to leverage the existing knowledge and makes them able to generate new knowledge, which supposes in turn two fundamental aspects in order to attaining competitive advantages. The results of this study conclude that market orientation is positively related with business performance and that OU and IO drive this relationship. Therefore, the present paper proposes that unlearning and innovation are mediators of the direct relationship between market orientation and business performance.

The paper proceeds as follows. The next section presents the theoretical background together with the research model and hypotheses arising from the literature review. The third section comprises a description of the research methodology followed in order to test these hypotheses. The forth section presents the results of the data analyses using partial least squares (PLS) path-modeling technique. Finally, the fifth section brings together the discussion, implications, limitations, and directions for future research.

2. Literature Review and Research Hypotheses

Within this section we develop the theoretical foundations concerning the distinct variables and hypotheses included in the research model.

2.1. The Link Between Market Orientation and Performance

Market orientation is defined by Narver and Slater (1990) as a second order multidimensional construct shaped by three dimensions: (i) Customer orientation: organizational actions oriented to identify the customers' perceptions, needs and desires and trying to satisfy them through their adapted supply. (ii) Competitors orientation: organizational actions oriented to know the competitors' weaknesses, strengths, opportunities and strategies and being able to react and design the proper response. (iii) Inter-functional coordination: joint and efficient use of the firm's resources and capacities in order to provide greater value to its customers.

Plenty of empirical works have analyzed the role of market orientation as an antecedent of business performance. However, the assessment of the link between market orientation and performance has aroused inconclusive results, as some research studies failed to find support for this direct relationship (Noble, Sinha & Kumar, 2002). Other studies obtain mixed results (Jaworski & Kohli, 1993).

Nevertheless, the literature in this field widely suggests the existence of a positive relationship between the firms' market orientation, new products success and overall performance (Narver & Slater, 1990; Desphande et al., 1993; Appiah-Adu & Singh, 1998).

This positive relationship is explained because market orientation enables firms to generate long-term greater value for its customers (Morgan & Strong, 1998). The market orientation strategy helps firms to obtain vital information about the market needs and trends, and hence, enables them to enhance their decision-making capability and adjust their offer (Jiménez-Jiménez, Sanz-Valle & Hernández-Espallardo, 2008). Consequently the firm is more connected to the customers' requirements, who will correspond arising higher doses of satisfaction and loyalty (Kohli & Jaworski, 1990).

Some empirical studies such as the one developed by Pelham (2000) find a positive relationship between market orientation and financial performance (e.g. growth in sales, gross profit enhancement, etc.). This author argues that organizations will increase their profits when they rely on certain actions and behaviors related with satisfying the customers' needs. Therefore, we posit the following hypothesis:

H1: Market orientation relates positively to business performance.

2.2. The Mediating Roles of Firm Innovation and Unlearning

2.2.1. The mediating role of firm innovation on the market orientation-performance link

Market orientation has been extensively assessed with regard to its relation with innovation outcomes. There are several research studies that reveal a positive impact of MO on new products development –especially at the early stages of the product life cycle– and incremental innovations (Atuahene-Gima, 1996; Laforet, 2009).

The organizational innovation process is to a large extent dependent of the amount of information obtained from the market. In this vein, the firm needs to be oriented to the market, this is to be aware of the changes in the customers needs and behaviours, as well as carefully monitoring what competitors and suppliers are doing (Kohli & Jaworski, 1990). Strong evidence supports the impact of market orientation on firm innovativeness both in manufacturing and service companies (Harryson, 1997; Lukas & Ferrell, 2000).

It is widely accepted that firms that innovate are more efficient, attain higher performance, and are more likely to survive (Damanpour & Schneider, 2006; Leal-Rodríguez et al., 2014). Organizations that promote creativity and innovation are more likely to identify and attract opportunities that might lead to valuable results. Innovation always encompasses a certain degree of risk and its success in never guaranteed. Most empirical research studies posit the existence of a positive relationship between innovation and performance (Roberts, 1999; Hansen, Nohria & Tierney, 1999). An innovative approach enables firms to deal with a turbulent and dynamic environment and helps them to achieve and sustain long-term competitive advantages (Leal-Rodriguez, Eldridge, Roldán, Leal-Millán & Ortega-Gutiérrez, 2014). Accordingly, we propose the following hypothesis:

H2: Innovation outcomes positively mediate the relationship between market orientation and business performance.

2.2.2. The mediating role of unlearning on the market orientation-performance link

According to Cegarra and Sánchez's (2008) framework, organizational unlearning (OU) is a second order multidimensional construct shaped by three dimensions. The three dimensions that comprise OU are: (i) the examination of lens fitting; (ii) the consolidation of emergent understandings; and (iii) the framework for changing individual habits. The first dimension deals with a change of perspective oriented to disrupt the employees' usual state of comfort,

and hence, being able to raise their awareness of new perceptions. The second dimension involves the organizational processes that permit employees to apply and develop their problem solving skills. In other words, this dimension deals with allowing individuals to perform a critical assessment of the problem instead of following standard instructions. Finally, the last OU dimension refers to the firm's attempts to inhibit bad habits and inappropriate values or attitudes before bringing new ideas or knowledge-based changes into the organization's operations (Cegarra-Navarro, Sánchez-Vidal, & Cegarra-Leiva, 2011).

A research study developed by Lee and Tsai (2005) assessed the links between market orientation, learning orientation, innovation and culture. In this vein, these authors suggest that market orientation, learning orientation and innovativeness influence business performance. Many studies have demonstrated the impact exerted by OL on business performance (Pérez-López, Montes-Peón & Vázquez-Ordás, 2004; Real, Leal & Roldán, 2006). In this vein, firms will have a superior performance than their competitors when they are able to learn more efficiently (Inkpen & Crossan, 1995).

In order to reach success in organizational innovation and performance, it becomes fundamental the firm's market orientation and learning orientation (Slater & Narver, 1995). According to Baker and Sinkula (1999) OL also involves the extent to which organizations are committed to challenge the main beliefs, norms, practices and values. In the same line, Baker and Sinkula (2002) sustain that the firm's market orientation will only lead to business performance improvement when it is combined with an effective OL strategy. Martin de Holan and Phillips (2004) affirm that firms must abandon certain knowledge, practices, and routines in order to acquire new knowledge. The literature on organizational learning posits that learning is a dynamic process where the forgetting of knowledge, old logics, behaviors, and routines is succeeded by new knowledge acquisition (Hedberg, 1981). This process of organizational unlearning as a dynamic process whereby the firm can identify obsolete knowledge and routines and then eliminate them is a prerequisite for the acquisition of new knowledge. McGill and Slocum (1993, p.67) state, "The first step to learning is to challenge these ways of thinking that worked so well in the past." Cepeda-Carrión, Cegarra-Navarro, and Leal-Millán (2012, p. 1552) argue that, "the replacement of old knowledge could be essential for organizations that wish to create new products or services that require new points of view and ideas". Thus, we hypothesize:

H3: Organizational unlearning positively mediates the relationship between market orientation and business performance.

3. Research Method

3.1. Data collection and sample

This research identifies as study population the whole sector of Spanish firms belonging to the automotive components manufacturing industry. The sample comes from a list of Sernauto, the Spanish Association of manufacturers of equipment and components for the automotive industry. From this sector's 906 companies, 418 fulfil the selection criteria (i.e., being knowledge-intensive firms that are innovation and learning oriented). After two mailing efforts, the outcome is 145 usable surveys (a 34.7% response rate). Questionnaires were answered by top managers.

3.2. Measures

The literature review in Section 2 provides the basis for the survey design. This study

adapts scales from previous works in which the items and responses appear on a seven-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree). To assess the organizational unlearning (OU) as an aggregate multidimensional construct, the methodology adapts 18 items (five items to measure the examination of lens fitting, six items to measure the consolidation of emergent understandings, and seven items to measure the framework for changing individual habits) from Cegarra and Sánchez (2008). MO is assessed through the scale developed by Narver and Slater (1990). This scale comprises 14 items (five to measure customer orientation, four to measure competitors orientation, and five to measure inter-functional coordination). Building on the previous work of Powel (1995), five items compose the scale for business performance (BP). For the innovation outcomes (IO) variable, this work adapts the eight items that Prajogo and Ahmed (2006) use in their study. Due to space limit within this paper we could not include the questionnaire items. However, we will be delighted to submit the questionnaire by e-mail to whom may require it.

3.3. Data analysis

To test the research model, the present study uses partial least squares (PLS), a variance-based structural equation modeling (SEM) method. PLS is a suitable technique for use in this study due to the following reasons (Roldán & Sánchez-Franco, 2012): (1) the sample (n = 145) is small; (2) the focus of the study is the prediction of the dependent variables; (3) the research model entails considerable complexity with regard to the type of relationships in the hypotheses; and (4) this study uses latent variables' scores in the subsequent analysis for predictive purposes. The present work uses the SmartPLS software (Ringle, Wende, & Will, 2005) for the simultaneous assessment of the measurement model and the structural model.

4. Results

The analysis of a PLS model comprises two phases: (1) assessment of reliability and validity of measurement model, and (2) evaluation of structural model.

4.1. Measurement model

The assessment of reflective measurement model evaluates model's reliability and validity. Results show that measurement model meets all common requirements. First, reflective individual items are reliable because all standardized loadings are greater than 0.7 (Table 1). Consequently, the individual item reliability is adequate (Carmines & Zeller, 1979). Second, all reflective constructs meet the requirement of construct reliability, since their composite reliabilities (ρ c) are greater than 0.7 (Nunnally & Bernstein, 1994) (Table 1). Third, these latent variables achieve convergent validity because their average variance extracted (AVE) surpasses 0.5 level (Fornell & Larcker, 1981) (Table 1). Finally, all variables meet discriminant validity requirements. Confirmation of this validity comes from comparison of the square root of AVE versus the corresponding latent variable correlations (Table 2). For satisfactory discriminant validity, diagonal elements should be significantly greater than off-diagonal elements in the corresponding rows and columns (Roldán & Sánchez-Franco, 2012).

Table 1: Measurement model

CONSTRUCT/dimension/indicator	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
MARKET ORIENTATION		0.955	0.876
Customer orientation	0.904		
Competitors orientation	0.963		
Inter-functional coordination	0.940		
ORGANIZATIONAL UNLEARNING		0.976	0.930
Examination of lens fitting	0.975		
Consolidation of emergent understandings	0.950		
Framework for changing individual habits	0.968		
INNOVATION OUTCOMES		0.970	0.803
BUSINESS PERFORMANCE		0.920	0.697

Table 2: Discriminant validity

	IO	MO	BP	OU
IO	**0.896**	0	0	0
MO	0.628	**0.936**	0	0
BP	0.711	0.870	**0.935**	0
OU	0.504	0.919	0.859	**0.965**

Diagonal elements (bold) are the square root of variance shared between the constructs and their measures (AVE). Off-diagonal elements are the correlations among constructs. For discriminant validity, the diagonal elements should be larger than the off-diagonal elements.

4.2. Structural model

Table 3 shows the explained variance (R2) in the endogenous variables and the path coefficients for the three models under study. Bootstrapping (5000 samples) provides t-values that enable the evaluation of relationships' statistical significance in the research model (Roldán & Sánchez-Franco, 2012).

Table 3: Structural model results

Relationships	**Model 1**	**Support**	**Model 2**	**Support**
	$R^2_{BP} = 0.759$		$R^2_{BP} = 0.161$ $R^2_{IO} = 0.394$ $R^2_{OU} = 0.844$	
MO→BP	0.871*** (44.773)	Yes	0.161^{ns} (1.509)	No
MO→IO			0.628*** (13.316)	Yes
IO→BP			0.337*** (7.608)	Yes
MO→OU			0.919*** (69.387)	Yes
OU→BP			0.541*** (5.658)	Yes

Notes: MO: Market orientation; IO: Innovation outcomes; OU: Organizational unlearning; BP: Business performance
t values in parentheses *** p < 0.001; ** p < 0.01; * p < 0.05; ns: not significant (based on t(4999), one-tailed test). t(0.05, 4999) = 1.645; t(0.01, 4999) = 2.327; t(0.001, 4999) = 3.092

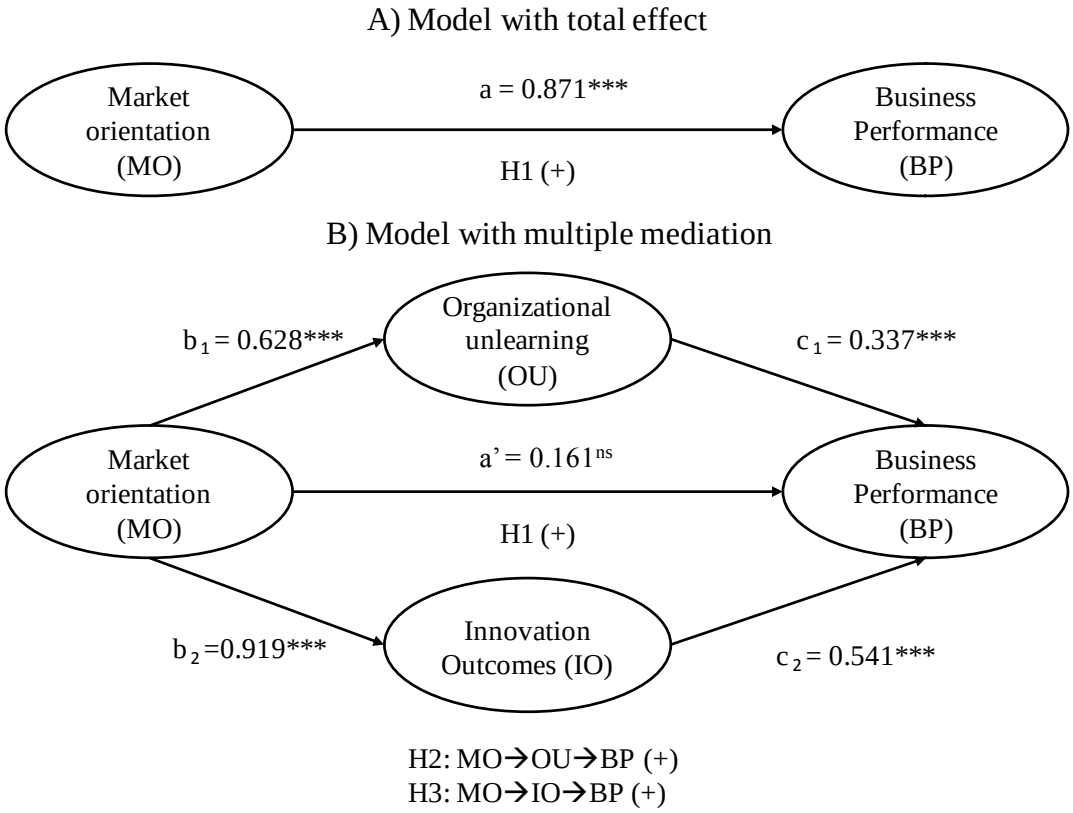
Table 3 includes the direct paths for both models 1 and 2. Model 1 solely comprises the MO-BP direct link. In such scenario, results support H1, which describes the direct relationship between market orientation (MO) and business performance (BP) (a = 0.871; t = 44.773). In addition, model 2 encompasses the rest of direct relationships once included the IO and OU variables within the model. Results reveal that b_1, c_1, b_2 and c_2 are significant as direct effects. This is a first step to demonstrate the existence of an indirect effect of MO on BP via IO (H2).

Table 4: Summary of mediating effect tests

Total effect of MO on BP		Direct effect of MO on BP			Indirect effects of MO on BP				
Coefficient	t-value		Coefficient	t-value		Point estimate	Percentile 95% CI		VAF
							lower	upper	
0.871***	44.773	H1 = a'	0.161ns	1.509	Total = b1c1 + b2c2	0.709	0.433	0.972	84.40%
					H2 = b1c1	0.212	0.130	0.301	24.34%
					H3 = b2c2	0.497	0.303	0.671	57.06%

We also demonstrate the existence of an indirect effect of MO on BP via OU (H3). We have followed the methodological approach proposed by Preacher & Hayes (2008) and Taylor et al. (2008) in order to verify our mediation hypotheses (H2 and H3). Such mediating effects are quantified and contrasted (Table 4). Following Williams & MacKinnon´s (2008) proposals, we used the bootstrapping technique to test the mediation effect. Chin (2010) suggests a two-step procedure for assessing indirect effects on PLS. The first step deals with using the specific model in question including both direct and indirect paths, performing N-bootstrap resampling and finally multiplying the direct paths that make up the indirect path under evaluation. The second step is the estimation of significance and the size of the indirect effects in relation to the total effect, through the assessment of the variance accounted for (VAF). Thereby, it is possible to determine the extent to which the variance of the dependent variable is indirectly explained via the mediator variables. VAF = $(b_1*c_1)/(b1*c_1+a)$. VAF values under 20% imply the direct effect is very strong and there is no mediation. Values among 20% and 80% reveal the existence of partial mediation, whereas when VAF reaches values over 20% 80% we can affirm the existence of a full mediation (Hair et al., 2014). As Table 4 reveals, for both hypotheses (H2 and H3), there exists partial mediation, as VAF values are within the 20-80% interval. This means that IO and OU partial mediate the influence of MO on BP. As for the total effect, VAF is over 80%, which means that the joint indirect effect of IO and OU fully mediate the MO-BP link. This study's 5000 resamples also generate 95% confidence intervals (percentile) for the mediators as shown in Table 4 (Picón, Castro & Roldán, 2014).

Figure 1: Structural model: a multiple mediation model



5. Discussion

The literature traditionally highlights the role of firm innovativeness as a source of competitive advantages for organizations. Recently, variables such as organizational learning and market orientation are also being studied as drivers of business performance. Besides, some studies sustains that they are key antecedents of innovation and that they affect performance by means of their effect on this variable (Jiménez-Jiménez et al., 2008). However, there is a scarcity of empirical studies that include the impact of organizational unlearning on these relationships. Therefore, this work simultaneously assesses the direct link between market orientation and performance as well as the mediating role of innovation and unlearning on this tie. This study contributes to enhancing the recent research on the firm's strategic efforts on market orientation, innovation and unlearning, in their attempt to improve business performance.

Firstly, we find support for the direct relationship between MO and BP. This result is in line with prior related studies (Narver & Slater, 1990; Desphande et al., 1993; Kohli & Jaworski, 1990) and provides additional evidence to sustain the relevance of market orientation as a driver of business performance enhancement and hence as a source of competitive advantage. Secondly, our results support the hypothesis of considering MO as an antecedent of firm innovativeness. This finding is consistent with previous studies (Weerawardenaa and O'Cassb, 2004; Jiménez-Jiménez et al., 2008) that argue that firms, in order to be innovative, must rely on mechanisms of acquisition and leveraging of external knowledge –knowledge from customers, competitors, suppliers, etc.– as well as on the firm's internal knowledge. Similarly, we find support for the direct link between MO and OU, proving hence that MO is an antecedent of unlearning. Finally, our results provide evidence to support the direct effects of IO and OU on BP. The IO-BP link was previously posited in

research studies (Narver & Slater, 1990; Jaworski & Kohli, 1993). On the other hand, although plenty of studies have addressed the OL-BP tie (Nevis et al. 1995; Brockmand and Morgan, 2003), the link between OU and BP has been scarcely assessed. Cegarra-Navarro et al. (2011) prove that unlearning contexts mediate the effects of knowledge management on organizational performance (Leal-Rodríguez et al. 2015).

This work has some important academic implications. First, it should be noted that prior related works have examined in a single research model the relationships between market orientation, organizational learning, innovation and performance, but they have never included the organizational unlearning variable within the model. Second, our results are in line with the theory as they prove the influence exerted by MO as an antecedent of BP. Furthermore, according to our results, we conclude that this influence of MO on performance is through its effect on IO and OU, since when such variables are introduced within the model, the direct MO-BP relationship becomes unsupported. This means that both IO and OU play a mediating role on the MO-BP tie.

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Is age still valid for segmenting e-shoppers?

Completed Research Paper

Agudo-Peregrina, Ángel F.
Universidad Politécnica de Madrid
af.agudo@upm.es
Acquila-Natale, Emiliano
Universidad Politécnica de Madrid
emiliano.acquila@upm.es

Hernández-García, Ángel.
Universidad Politécnica de Madrid
angel.hernandez@upm.es

Abstract

This study examines the differences in the acceptance and use of electronic commerce by end consumers, segmented in three groups according to their age. The UTAUT2 provides the theoretical framework, with the addition of three constructs from e-commerce literature: perceived risk, product risk, and perceived trust. Responses to an online survey by 817 Spanish Internet shoppers validate the research model. An omnibus test of group differences precedes the assessment of four multigroup analysis methods. Results show that gaps caused by age differences in e-shoppers are narrowing. This paper also identifies the strengths and weaknesses of the different multigroup approaches.

Keywords: *Electronic commerce, acceptance, segmentation, age, multigroup comparison*

1. Introduction

The use of Partial Least Squares (PLS) to empirically validate relationships in general theoretical models is common in the disciplines of e-business, marketing, and consumer behavior (Henseler et al. 2009). Most of the studies using PLS validate their models from one sample only and assume that this sample is homogeneous. Segmentation is an essential tool for marketing, but it requires analyzing differences between consumers (Kotler & Armstrong, 2012). Therefore, a homogeneous sample approach is not valid for segmentation. Multigroup analysis allows assessment of these differences across groups in PLS analysis. Some studies use these multigroup methods to analyze different segments and identify significant differences in path estimates (e.g. Agudo-Peregrina et al., 2014.). However, there are still few examples of empirical multigroup analysis, and these examples present two important shortcomings.

First, studies including multigroup analysis limit the empirical validation to the use of only one or at most two methods. Furthermore, studies incorporating two different methods do not perform any comparison between the results from both methods (Henseler et al., 2009). Second, existing PLS multigroup research rarely considers more than two groups in the analysis (e.g. Acedo & Jones, 2007). In addition, approaches to multigroup analysis with more than two groups focus on pairwise group comparisons, increasing the familywise error rate (Mooi & Sarstedt, 2011).

Acceptance technology models are good examples of theoretical approaches that rely on

PLS for empirical validation. The unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003) is a synthesis of eight previous acceptance models. UTAUT includes moderating variables such as gender, age or experience. In UTAUT and its latter evolution, UTAUT2 (Venkatesh et al., 2012), moderators are dichotomous variables (e.g., male and female users, young and old users, experienced and non-experienced users). However, modeling some moderators—such as age—as dichotomous variables is a too simplistic representation of reality, especially for the study of consumer behavior.

In the case of electronic commerce this oversimplification is particularly relevant, as the use of electronic commerce increases and new consumers from the upper and lower age segments are starting to make online purchases. For example, the number of Internet users in Spain has spiked from 23.5% in 2000 to 73.1% of the population (ONTSI, 2014). Meanwhile, online purchasers have increased from 12.7% in 2000 to 60.6% in 2013, with online transactions between consumers and online vendors doubling in less than four years, totaling 14.6 billion euros in 2013 (ONTSI, 2014). In parallel, the characteristics of online consumers have changed and evolved in the last decade. The number of older e-shoppers—more than 49 years old—was 15.2% of the total in 2007, but has raised to 21.7% in 2013 due to the incorporation of new customers and the aging of those that started using electronic commerce in their forties a decade ago. On the other hand, consumers younger than 25 years old are digital natives that have already been born after the emergence of Internet.

This study thereby focuses on the analysis of the impact of consumers' age in the acceptance and use of electronic commerce, and compares the result of applying different multigroup methods with segmentation purposes. The study begins with a review of the e-commerce acceptance literature and the influence of age in e-commerce acceptance in Section 2. Section 3 describes the characteristics of the method. Section 4 shows the data analysis and the results. The final section contains the conclusions and limitations of the study, as well as avenues of future research on this topic.

2. Literature Review

2.1. Electronic commerce acceptance

Technology acceptance models are theoretical approaches to the study of the factors influencing the adoption of a technology. The first framework to address technology acceptance is the theory of diffusion of innovations (Rogers, 1962), which investigates innovations' characteristics that influence the adoption of a certain technology. Later on, other theoretical models appear in the literature, such as the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), the technology acceptance model (TAM) (Davis, 1989), the theory of planned behavior (TPB) (Ajzen, 1991), or the motivational model (Davis, et al. 1992). However, this increase in the number of available models leads to lack of comprehensive perspective. To solve this, Venkatesh et al. (2003) propose a combination of the main eight previous models and formulate UTAUT. UTAUT comprises four main factors affecting behavioral intention to use information systems: effort expectancy, performance expectancy, social influence and facilitating conditions. UTAUT also includes the moderating effects of gender, age, experience, and voluntariness in the acceptance and use of technology. Venkatesh et al. (2012) revise UTAUT and propose UTAUT2. UTAUT2 adds three new factors to the original model—hedonic motivations, habit and price—in order to adapt the model to acceptance and use of technologies by end consumers.

Despite the absence of prior studies using the UTAUT2 to study the acceptance of electronic commerce, earlier literature confirms the influence of UTAUT factors in purchase intention and purchase behavior (e.g. Pavlou, 2003; Van Slyke et al., 2002). However, among the new predicting variables from UTAUT2, only hedonic motivation is applicable to electronic commerce (Ha & Stoel, 2009; Morosan & Jeong, 2008). Consumers do not have to pay a particular fee to purchase online, apart from the Internet connection rate, and therefore price is not relevant. Habit is not a fitting predictor variable either because it has a moderating role instead (Limayem et al., 2007). In addition, literature in e-commerce research proposes two specific factors influencing online purchase intention: perceived risk (Lin et al., 2010; Pavlou, 2003) and perceived trust (Chang, 2010; Chen & Dhillon, 2003). Bhatnagar and Ghose (2004) further differentiate between two types of perceived risks in online shopping: product risks and system risks.

2.2. Age as a moderator variable

Age is a useful segmentation variable in marketing, not only because it is very easy to gather this information from consumers, but also because there are certain socio-cognitive differences between individuals of different ages (Morris & Venkatesh, 2000). E-commerce literature posits that there are differences in the acceptance and use of online stores contingent on consumers' age. The main results show that younger users have a greater interest on using e-commerce and buy more often (Doolin et al., 2005: Ha & Stoel, 2009; Joines et al., 2003), and also that the purpose of using e-commerce is different across age groups (Burke, 2002).

Regarding the influence of age as a moderator variable in technology acceptance and e-commerce acceptance, the influence of effort expectancy is stronger for older consumers (Porter & Donthu, 2006; Venkatesh et al. 2003; Venkatesh et al. 2012; Yu, 2012). The influence of performance expectancy on purchase intention is stronger for young people (Mapeshoane & Pather, 2012; Teo et al., 2012; Tsai et al., 2013), although some studies state that the influence of performance expectancy is stronger for older consumers because their extrinsic motivations to buy online are higher (Bhatnagar et al, 2000; AbuShanab & Pearson, 2007). Yu (2012) considers that the impact of social influence in purchase intention is higher in young people, but the study focuses on mobile banking, a service in which young people usually have less experience. Tsai et al. (2013) and AbuShanab and Pearson (2007) also focus on mobile banking, but neither of both studies find that social influence affects purchase intention significantly. For Morris and Venkatesh (2000), the effect of social influence declines with experience, and therefore the effect of social influence on purchase intention might be higher for older consumers. The effect of age on the relation between facilitating conditions and purchase intention (and also purchase behavior) is stronger in the case of older consumers (Yu, 2012). The same effect of age is present in the relation between perceived risk and purchase intention (Bhatnagar et al. 2000; Doolin et al. 2005; Liebermann & Stashavsky, 2002), and perceived trust and purchase intention (Chen & Dhillon, 2003). However, Bhatnagar and Ghose (2004) consider that product risks have stronger influence on purchase intention for younger customers because the lack of physical contact might increase the perceived risks for those who have less experience identifying the product features. Finally, Bhatnagar et al. (2000) state that the influence of hedonic motivations on purchase intention is stronger for younger consumers. Prior literature does not confirm that age has an effect on the relation between purchase intention and purchase behavior, and therefore purchase intention predicts purchase behavior independently of consumer's age.

H1. The effect of effort expectancy on purchase intention is higher for older e-consumers.
H2. The effect of performance expectancy on purchase intention is higher for younger e-consumers.
H3. The effect of social influence on purchase intention is higher for older e-consumers.
H4. The effect of facilitating conditions on purchase intention is higher for older e-consumers.
H5. The effect of hedonic motivation on purchase intention is higher for younger e-consumers.
H6. The effect of perceived trust on purchase intention is higher for older e-consumers.
H7. The effect of system risks on purchase intention is higher for older e-consumers.
H8. The effect of product risks on purchase intention is higher for younger e-consumers.
H9. The effect of facilitating conditions on purchase behavior is higher for older e-consumers.

3. Method

According to electronic commerce acceptance literature review, the final research model comprises all factors from UTAUT2 excluding price value and habit, and incorporates three specific factors of electronic commerce: perceived risk (i.e., system risks), product risks and perceived trust. Figure 1 shows the research model.

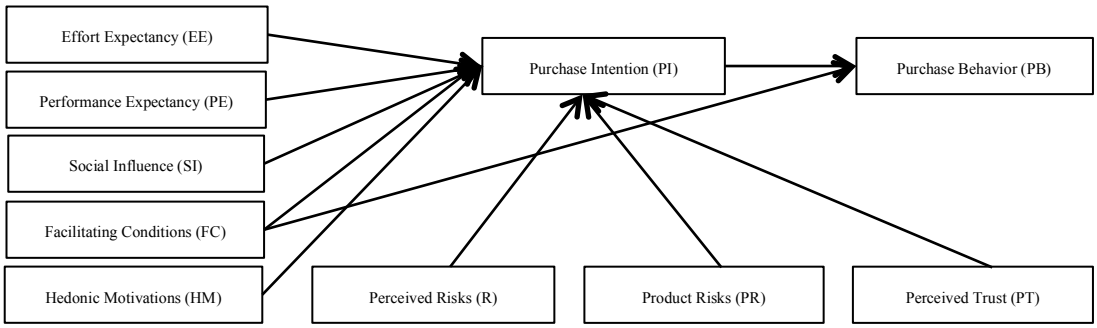

Figure 1: Research model.

3.1. Participants

The empirical validation consisted of an online survey that obtained 1,521 total responses from April to October 2013. Most likely because of the questionnaire length (46 items), 704 responses were incomplete and excluded from the final sample, that comprised 817 valid answers. Respondents of the online survey came from announcements to volunteering students at Universidad Politécnica de Madrid, online shoppers from an internal database, posts with links to the questionnaire published in the social networking website LinkedIn, and personal contacts of respondents: a raffle encouraged participants to answer the questionnaire —the prize was a tablet—and also to redistribute the survey in their networks—there was a special prize for the participant that got most referral responses from his or her links.

As shown in Table 1, age divides the sample into three groups. The division of the sample in these three groups responds to historical reasons of the Spanish Internet Access evolution. The senior group —older than 45—, includes those who were at least 30 in 1998, when only one million of Spaniards had Internet connection (Sanz, 2007). Its members were already adult when they used Internet for their first time. Consistently, Spanish statistics show that e-shoppers older than 49 represent only 21.7% of the total population of online buyers, while

those between 35 and 49 signify 36.4% (ONTSI, 2014). On the other hand, the junior group contains the e-shoppers younger than 26, that's it, those that where 10 years old at the most in 1998. All three groups are large enough to consider small effect size and high statistical power (Cohen, 1998). According to sample characteristics, experience and frequency in the use of e-commerce of the majority of respondents are very high, with almost no valid participants without experience in online shopping. Table 1 shows the sample characteristics.

Table 1: Sample characteristics

		N	Percentage
Gender	Male	508	62.2
	Female	309	37.8
Age	Under 26	181	22.1
	26–45	489	59.9
	Over 45	147	18.0
Monthly income	Less than 500€	180	22.0
	500€–1500€	243	29.8
	1501€–2000€	161	19.7
	More than 2000€	233	28.5
Level of studies	Non university	101	12.3
	University	511	62.6
	Postgraduate	205	25.1
Experience in the use of e-commerce	Never	29	3.6
	Several weeks	9	1.1
	Several months	31	3.8
	1 year	137	16.7
	5 years	438	53.6
	10 years	98	12.0
	More than 10 years	75	9.2
Frequency in the use of e-commerce (last six months)	Never	31	3.8
	Once	51	6.2
	2–5 times	307	37.6
	Once a month	316	38.7
	Once a week	86	10.5
	More than once a week	26	3.2

3.2. Measures

The final survey included 46 items adapted from UTAUT, UTAUT2, and other e-commerce adoption studies: effort expectancy (4 items), performance expectancy (5 items), social influence (2 items), facilitating conditions (7 items), hedonic motivations (3 items), product risk (5 items), perceived risk (7 items), perceived trust (9 items), purchase intention (2 items), and actual purchase behavior (2 items).

The formulation of the questionnaire items took place in three steps: (1) translation into Spanish; (2) validation by a group of technology management researchers and professors from Universidad Politécnica de Madrid; and (3) item rewording proposal, followed by a face-to-face interview with a random group of 10 students who completed the questionnaire and gave feedback on items to ensure that the questions were clear and understandable. The scale for all items was a Likert-type seven-point scale, ranging from 1 (completely disagree) to 7 (completely agree). The online questionnaire consisted of 46 items in 3 sets: demographic items, non-product-related items, and product-related items. For each respondent, items within each set appeared in a random order to avoid potential response sets.

3.3. Data analysis

Considering that no prior studies combine factors from UTAUT and UTAUT2 to study online shopping behavior, and there are both formative (purchase behavior) and reflective constructs (the rest of latent variables), the exploratory aim of the research leads to a traditional partial least squares structural equation modeling (PLS-SEM). PLS-SEM is suitable for analyzing complex models with predictive purposes (Chin, 1998). The statistical analysis tools were XLStat-PLSPM and SmartPLS 3.0 (Ringle et al., 2014).

The analysis of age's moderating effect first validates every model and then develops a multigroup analysis (Sarstedt et al., 2011) with age as a categorical variable (Henseler & Fassott, 2010) to split the sample in three subsamples. The multigroup analysis included five methods: (1) omnibus test of group differences (OTG) (Sarstedt et al., 2011); (2) a parametric approach assuming equal variances (Chin, 2000); (3) a parametric approach assuming unequal variances (Sarstedt et al., 2011); (4) a non-parametric approach based on permutations (Chin & Dibbern, 2010); and (5) Henseler et al.'s (2009) PLS multigroup analysis.

4. Results

4.1. Measurement model and structural model

Measurement model analysis has to ensure validity and reliability requirements for each subsample (e.g. Chin, 1998; Henseler et al., 2009; Hair et al., 2012; Roldan & Sánchez-Franco, 2012). Item reliability demands removing items with factorial loadings lower than 0.5 in all three models to guarantee configuration invariance for multigroup analysis (Steenkamp & Hofstede, 2002). The analysis reveals four invalid items: three indicators from facilitating conditions—FC1 ("I have control over the whole Internet shopping process"); FC6 ("When I shop on the Internet, there is someone who can help me if I experience trouble using the system"); and FC7 ("There is a support line available in the Internet shopping process")—and one item from perceived risks—R7 ("When I shop on the Internet, I risk not finding the lowest prices"). Factorial loadings of most of the remaining items are higher than 0.707. Cronbach's alphas and composite reliabilities are higher than 0.8 for all constructs (Fornell & Larcker, 1981). The analyses also discarded multicollinearity in the case of the formative construct (PB), with variance inflation factor (VIF) values lower than 5 (Kleinbaum, Kupper & Muller, 1988).

Convergent validity analysis shows that average variance extracted (AVE) is higher than 0.5 for all constructs, and both Fornell and Larcker (1981) criterion and cross-loadings (Chin, 1998) confirm discriminant validity in all cases. The HTMT criterion (Henseler et al., 2015) shows that values are always lower than 0.85 except between performance expectancy and effort expectancy, with values of 0.91; 0.90; and 0.82 for the Under 25, 26-45, and Over 45 groups, respectively, which slightly violates the $HTMT_{90}$ criteria in the first two groups.

Table 3 shows the results of the structural model analysis. A bootstrapping procedure with 1000 resamples confirms the structural model's reliability. The bootstrapping procedure with a number of resamples high enough (1000) serves to calculate standard errors and values of the t-statistic for a one-tailed distribution, t (999) (Chin, 1998).

Table 2: Results of the Structural Model

	Path coefficients for each age segment		
Relation	Under 25	26-45	Over 45
Effort expectancy→Purchase intention	0.038	**0.138****	0.028

Performance expectancy→Purchase intention	0.092	**0.143****	**0.274****
Social influence→Purchase intention	0.022	0.044	0.065
Facilitating conditions→Purchase intention	**0.249*****	**0.138****	**0.401*****
Hedonic motivation→Purchase intention	0.059	**0.103****	0.026
Perceived trust→Purchase intention	**0.247****	**0.171*****	-0.040
Perceived risks→Purchase intention	**-0.218****	**-0.191*****	**-0.247****
Product risks→Purchase intention	0.119	-0.006	0.062
Facilitating conditions→Purchase behavior	0.042	**0.098****	0.048
Purchase intention→Purchase behavior	**0.686*****	**0.728*****	**0.750*****
R^2			
Purchase intention	0.371	0.425	0.438
Purchase behavior	0.497	0.595	0.603
Q^2			
Purchase intention	0.287	0.374	0.334
Purchase behavior	0.369	0.464	0.447
GoF			
	0.545	0.610	0.626
SRMR			
	0.064	0.050	0,073

*p < 0.05; **p < 0.01; ***p < 0.001; ns: not significant (based on t(999), one-tailed test)
t(0.05; 999) = 1.646; t(0.01; 999) = 2.330; t(0.001; 999) = 3.098

Four out of ten relationships are significant in younger and older groups. In the range between 26 and 45 years old, eight out of ten relationships are significant. R^2 is higher than 0.1 in all cases (Hair et al., 2012), with a minimum value of 0.371. Stone-Geisser's Q^2 confirms the predictive relevance of the relations in all models. Assuming the limitations (Henseler et al., 2009) of the goodness-of-fit index (GoF) (Tenenhaus et al., 2005), GoF values are higher than 0.5 in all models. The composite model SRMR analysis (Henseler et al., 2014) shows that all groups values are lower than the most conservative threshold of 0.08 (Hu and Bentler, 1999).

Facilitating conditions is the main predictor of purchase intention for both the younger and older groups. Perceived risks also have a significant effect on purchase intention, followed by perceived trust for younger consumers, and performance expectancy for older consumers. Perceived risks are the main predictor of purchase intention in the case of the middle-aged adults, followed by perceived trust, performance expectancy, effort expectancy, facilitating conditions and hedonic motivations, all of them exerting a significant effect. Purchase intention is a good predictor of purchase behavior for all groups, with paths higher than 0.65.

4.2. Results of the multigroup analysis

Prior to multigroup analysis, two tests ensure both model and metric invariance of the construct measures. First, all measurement models comprise exactly the same items (42), after removing items with loadings lower than 0.5. All items remaining in the models have loadings higher than 0.5, and most of them are higher than 0.7. Second, loadings for every construct should be the same, assuming metric invariance between groups (Chin & Dibbern, 2010). A permutation-based procedure for multi-group analysis shows that only 6 (under 25 years old vs. 26-45 years old), none (under 25 years old vs. over 45 years old), and 1 (26-45 vs. over 45 years old) of the 42 items are significantly different, representing 14.3%, 0%, and 2.4% of the total, respectively.

Assuming metric invariance according to previous results (Henseler, 2011), the analysis continues with the multi-group tests, that comprises two main steps: OTG and pairwise group

comparisons. OTG (Sarstedt et al., 2011) assesses whether the null hypothesis that path coefficients are equal across the three groups can be rejected. F_R values in Table 4 confirm at least one significant difference between segments for every relationship of the model.

Table 3: Results of the OTG analysis

Relation	F_R
Effort expectancy→Purchase intention	974.84
Performance expectancy→Purchase intention	1537.51
Social influence→Purchase intention	10939.12
Facilitating conditions→Purchase intention	129.54
Hedonic motivation→Purchase intention	1833.85
Perceived trust→Purchase intention	3939.54
Perceived risks→Purchase intention	5049.00
Product risks→Purchase intention	14339.77
Facilitating conditions→Purchase behavior	700.70
Purchase intention→Purchase behavior	425.22

Pairwise group comparisons indicate which groups are significantly different from others for every relationship. Multigroup analysis contains two parametric methods and two non-parametric methods (see section 3.3). Table 5 shows the results of the comparisons of the four methods between younger and middle-aged e-shoppers. Path differences are higher or equal to 0.1 only in effort expectancy–purchase intention, facilitating conditions–purchase intention and product risks–purchase intention relationships. Three of the four methods—permutations being the exception—consider that there is a significant difference in the relationship between product risks and purchase intention, and only two of the four methods—parametric non-equivalent variances and Henseler—indicate that there is significant difference in the relationship between facilitating conditions and purchase intention.

Table 4: Results of the multi-group analysis (between under 25 years old and 26-45 years old)

Relation	Diff	$t_{par\text{-}eq}$	$t_{par\text{-}non\_eq}$	p_{perm}	p_{Hen}
Effort expectancy→Purchase intention	-0,100	1,109	-1,402	0,424	0,941
Performance expectancy→Purchase intention	-0,051	0,645	-0,829	0,675	0,797
Social influence→Purchase intention	-0,022	0,457	-0,557	0,758	0,746
Facilitating conditions→Purchase intention	0,111	1,585	**2,063***	0,287	**0,018*****
Hedonic motivation→Purchase intention	-0,044	0,883	-1,055	0,530	0,870
Perceived trust→Purchase intention	0,076	1,088	1,313	0,454	0,094
Perceived risks→Purchase intention	-0,027	0,428	-0,524	0,770	0,703
Product risks→Purchase intention	0,125	**2,109***	**2,489****	0,144	**0,000*****
Facilitating conditions→Purchase behavior	-0,056	0,312	-0,383	0,820	0,657
Purchase intention→Purchase behavior	-0,042	1,012	-1,253	0,478	0,891

*p < 0.05; **p < 0.01; ***p < 0.001

Table 6 summarizes the results of an analogous multigroup analysis for the comparisons between younger and older e-shoppers (under 25 years old vs. over 45 years old), and between middle-aged and older e-shoppers (26-45 years old vs. over 45 years old). Table 6 shows the differences between path estimates and a letter indicating the number of methods that showed significant differences.

Table 5: Results of the multigroup analysis and hypotheses testing

Relation	<25 vs. 26-45	<25 vs. >45	26-45 vs. >45	Hyp.	Supported?

Effort expectancy→Purchase intention	-0.1[e]	0.01[e]	0.11[d]	H1	No
Performance expectancy→Purchase intention	-0.051[e]	**-0.182[b]**	-0.131[c]	H2	No
Social influence→Purchase intention	-0.022[e]	-0.043[e]	-0.021[e]	H3	No
Facilitating conditions→Purchase intention	0.111[c]	**-0.152[b]**	**-0.263[a]**	H4	Partially
Hedonic motivation→Purchase intention	-0.044[e]	0.033[e]	0.077[c]	H5	No
Perceived trust→Purchase intention	0.076[e]	**0.287[a]**	**0.211[b]**	H6	No
Perceived risks→Purchase intention	-0.027[e]	0.029[e]	0.056[e]	H7	No
Product risks→Purchase intention	**0.125[b]**	0.057[e]	-0.068[d]	H8	No
Facilitating conditions→Purchase behavior	-0.056[e]	-0.006[e]	-0.05[e]	H9	No
Purchase intention→Purchase behavior	-0.042[e]	-0.064[e]	-0.022[e]		

Significant differences in: [a] Four methods; [b] Three methods; [c] Two methods; [d] One method; [e] None.

From the results, the four methods consider that the differences are significant only for facilitating conditions–purchase intention and perceived trust–purchase intention relations. In all cases marked as [b], permutations is the method for which the difference is not significant. Similarly, by observing the cases noted as [c], the most restrictive methods are permutations and the parametric approach assuming equivalent variances. Nonetheless, the p-values of the latter are just slightly above 0.05. Henseler et al.'s (2009) procedure is the least restrictive because it is the only method that finds significant differences in the cases noted as [d].

From Table 6, hypotheses 1,3,5, 7 and 9 are not supported because there are no significant differences across groups. Hypothesis 2 is not supported either because performance expectancy is higher for older e-shoppers. Hypothesis 4 is only partially supported because, even though all differences are significant, the effect of facilitating conditions on purchase behavior is higher for younger e-shoppers than for middle-aged e-shoppers. Hypothesis 6 is not supported because the influence of perceived trust is higher for younger consumers. Lastly, hypothesis 8 is not supported because none of the paths are significant for any group.

5. Conclusions

This study analyzes the differences in the acceptance and use of e-commerce between segments of electronic consumers belonging to groups of different ages. The multigroup analyses comprise five methods that report different results. Surprisingly, none of the hypotheses are fully supported, and only one is partially supported.

The study contributes to theory by validating UTAUT2 in an e-commerce context. The findings from the empirical analysis suggest that age may not be moderating the relation between predictors and e-shopping behavior. This might invalidate its relevance as segmentation variable for online shopping. It appears that, once the older e-shoppers overcome the barriers to online shopping, the differences with younger consumers disappear. Nevertheless, online retailers can take advantage of the findings from this study, by adapting their marketing strategies according to the differences in the factors that predict purchase intention in every segment. Furthermore, regardless of consumers' age, retailers should lower risk perceptions and avoid interferences in the purchasing process so that consumers do not perceive that they are not in control of the process. This recommendation is particularly important in the case of older shoppers. On the other side, increasing the perception of trust (e.g. using social networks to keep a direct contact with customers) might be consistent with young consumers' needs.

Methodologically, the results of the analysis suggest that OTG is a less restrictive method, considering that OTG detects significant differences that none of the other methods detect between any of the groups. Further research should include OTG in multigroup analysis of

more than two groups to confirm the results from this study. The analyses also find that apparently both parametric approaches behave similarly, but non-parametric methods in general show opposite results, with permutations being very restrictive and Henseler et al.'s (2009) method being very permissive.

While most of the respondents have previous experience with online shopping, this research lacks perspective from non-shoppers. This limitation of the sample might affect generalization of results about the moderating effect of age from this study. A broader study should consider completing the sample with non-experienced (or at least with limited e-shopping experience) participants. Finally, future research should further explore the well-established measures for effort expectancy and performance expectancy, based on the results of the HTMT method—note that the original study only used the traditional discriminant validity assessment methods available in previous PLS-SEM analysis software packages.

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The moderating effects of personal and situational characteristics on the image, satisfaction and future behavioral intention with ports of calls.

Completed Research Paper

Elena Carvajal-Trujillo
University of Huelva
carvajal.trujillo@dem.uhu.es

Silvia Sanz Blas
University of Valencia
silvia.sanz@uv.es

Abstract

The aim of this study is to examine the moderating effects of cruise passengers' gender, age, education, and prior experiences on a Mediterranean port of call. We analyze the process of image formation and the influence that image and passenger satisfaction has on future behavioral intentions. The partial least squares technique (PLS) is applied to test the hypotheses developed with a sample of 492 cruise passengers. Our findings show that: (1) gender, age, education, and experience have a moderating influence on the image of ports of call, on cruise passengers' satisfaction, and on future behavioral intentions derived from cruise passengers' satisfaction; (2) prior experience has a moderating influence on the image formation of ports of call.

Keywords: *Destination image, Future behavioral intention, Cruise, Moderation.*

1. Introduction

Cruise tourism has received little study thus far (Sun et al., 2014). Most studies have focused on the Caribbean region (Andriotis & Agiomirgianakis, 2010) as it features in the majority of cruise itineraries—37.3% in 2013 (Florida-Caribbean Cruise Association, 2013). The Mediterranean Sea is the second choice for cruise itineraries, in particular as this region has experienced significant growth in cruise tourism in recent years. In spite of this growth, there is still little research on Mediterranean cruise tourism (Pranic et al., 2013). Furthermore, most cruise studies have focused on a single cruise line (Andriotis & Agiomirgianakis, 2010), and there are few cruise studies on specific ports of call. The literature lacks research exclusively focused on cruise ports (Sun et al., 2014). In particular, Xie et al. (2012) and Pranic et al. (2013) highlight the need to carry out more studies that analyze aspects related to cruise passengers' behaviors—such as their perceptions and experiences—at the port of call, and not only on board.

On another note, there are no existing cruise studies on the effect that moderating variables have on cruise passengers' behavior (Petrick, 2004). Moderating variables are gaining salience in the marketing literature and investigators have acknowledged their important role in predicting consumers' behavior (Walsh et al., 2008). In the tourism context, the literature review shows that an array of studies have analyzed the moderating influence of prior experience in different contexts. The effect of prior experience has also been analyzed in the process of the destination image formation and its influence on future behavioral intention (Rodríguez Molina et al., 2013). However, there is no academic literature as yet that has analyzed the moderating effect of prior experience on ports of call and destinations, and their

relation to behavioral variables. In addition, this is the first research to study the moderating effect of prior experience in the relationship of influence of image on satisfaction.

The tourism literature has also analyzed the moderating effect of tourist personal characteristics (e.g., age, gender, education) in different contexts. Although some tourism studies suggest the need to analyze the moderating effect of tourist personal characteristics (San Martin et al., 2013), there are no extant studies that analyze these characteristics and their moderating effect on behavior. In the tourism context, this is the first study to analyze the moderating impact of gender, age and education in the relationship between image and satisfaction and in the process of destination image formation. Considering the lack of research, this paper focuses on ports of call, in particular on a city that is a port of call for Mediterranean cruises: Valencia in Spain. This paper aims to: 1) evaluate the moderating effects of cruisers' prior experience, gender, age, and education in the process of destination image formation; 2) examine the moderating role of cruisers' prior experience, gender, age, and education in the relationship between image–satisfaction, image–future behavioral intention, and satisfaction–intention. The reason for choosing Valencia is that in addition to being the second port of call for Spanish cruises (CLIA Europe, 2013), it is also one of the main destinations for international tourism (Rausell, 2010).

2. Literature Review and Research Hypotheses

During their tour, cruises stop at different ports of call, so that tourists can visit cruise destinations (Andriotis & Agiomirgianakis, 2010). Cruise lines choose ports of call that bring cruisers satisfactory experiences and reject those ports of call that their customers find unsatisfactory (Henthorne, 2000).

2.1. Gender, age and education as moderating variables

Regarding gender, social role theory (Matzler et al., 2008) explains gender differences in consumers' behavior. In the literature, research studies have shown that gender moderates the relationship between satisfaction and loyalty (Matzler et al., 2008), as well as the relationship between image and intention (Matzler et al., 2008). As destination image (Prayag, 2012) and satisfaction (Matzler et al., 2008) can vary depending on gender, it is logical to suppose that gender also moderates the relationship between the two constructs.

The literature review also confirms that the importance accorded to cognitive dimensions (factors) that define a destination image varies according to social demographic characteristics such as gender (Beerli & Martín, 2004). In the same way, San Martín and Rodríguez del Bosque (2010) recognize that gender has a direct effect on the choice of a vacation destination. Based on these arguments, we suggest that gender will moderate the image formation process of a port of call, as well as the relationships between image, satisfaction, and behavioral intention. Thus, we propose the following hypotheses for ports of call: H1: The dimensions of destination image are moderated by the cruise passenger's gender. H2: The effect of destination image on cruise passengers' satisfaction with a port of call is moderated by their gender. H3: The effect of cruise passengers' satisfaction on their behavioral intention with regard to the port of call as a destination is moderated by their gender. H4: The effect of destination image on passengers' behavioral intention with regard to the port of call as a destination is moderated by passengers' gender.

Different theories explain the differences in consumers' behavior in terms of their age (Matzler et al., 2008). Research studies have shown that age moderates the relationship between satisfaction and loyalty (Matzler et al., 2008), as well as the relationship between

image and intention (Han et al., 2009). As both satisfaction (Matzler et al., 2008) and image (Prayag 2012) can vary according to age, it is logical to suppose that age will also moderate the relationship between the two constructs.

Previous studies also show that age can moderate the process of destination image formation (San Martín & Rodríguez del Bosque, 2010). Based on these arguments and the empirical evidence, we propose the following hypothesis: H5: The dimensions of destination image are moderated by cruise passengers' age. H6: The effect of destination image on cruise passengers' satisfaction with the port of call is moderated by their age. H7: The effect of cruise passengers' satisfaction on their behavioral intention with regard to the port of call as a destination is moderated by their age. H8: The effect of destination image on passengers' behavioral intention with regard to the port of call as a destination is moderated by their age.

Consumers' behavior also varies according to level of education. Consequently, we can expect that consumers with a higher level of education search for additional information about a destination besides the information given by image and satisfaction; in contrast, consumers with a lower level of education will base their purchase decision on the information given by image and satisfaction with the destination. There is little analysis of the moderating role of education in the literature (Evanschitzky & Wunderlich, 2006). Previous studies have shown that education moderates the relationship between satisfaction and loyalty (Mittal & Kamakura 2001). Research has also shown that both loyalty (Evanschitzky & Wunderlich, 2006) and destination image (Prayag, 2010) vary according to the level of people's education. Taking this into account, it is logical to suppose that education will also moderate the relationship between image and satisfaction.

In addition, education can moderate destination image formation. Based on these arguments and the empirical evidence, we propose the following hypotheses: H9: Destination image dimensions are moderated by cruise passengers' level of education. H10: The effect of destination image on cruise passengers' satisfaction with the port of call is moderated by their level of education. H11: The effect of cruise passengers' satisfaction with the port of call on their behavioral intention is moderated by their level of education. H12: The effect of destination image on passengers' behavioral intention with regard to the port of call as a destination is moderated by their level of education.

2.1. Prior experience as moderator variable

Previous studies have argued the need to analyze the differences between first-time and repeat visitors (Petrick, 2004). The intensity of the relationships between image, satisfaction, and future behavioral intention can vary according to situational factors, such as tourists' prior experience (Rodríguez Molina et al., 2013). Previous research carried out in the non-cruise tourism context has confirmed the moderating effect of prior experience on the relationship (1) between satisfaction and intention (San Martín et al., 2013), (2) between image and satisfaction (Chi, 2012), and (3) between image and intention (Faullant et al., 2008). The importance of cognitive factors in determining a destination image can also vary according to prior experience (Beerli & Martín, 2004). We thus propose the following hypotheses for ports of call: H13: The dimensions of destination image are moderated by cruise passengers' prior experiences. H14: The effect of destination image on cruise passengers' satisfaction with a port of call is moderated by their prior experience. H15: The effect of cruise passengers' satisfaction with a port of call on their behavioral intention is moderated by their prior experience. H16: The effect of destination image on cruise passengers' behavioral intention is moderated by their prior experience.

Figure 1 graphically represents the different research hypotheses.

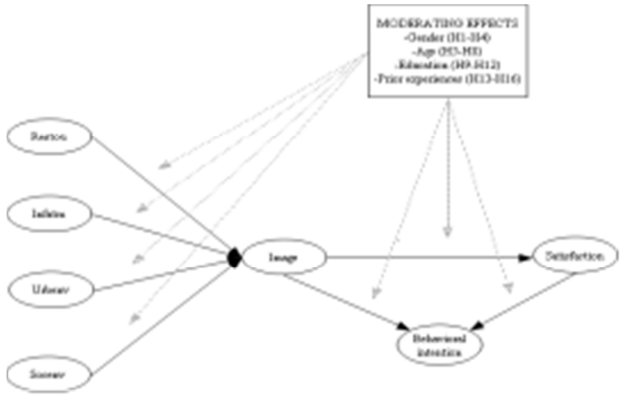

Figure 1: Research model and hypotheses

3. Research Methodology

Our target population was cruise passengers who disembarked in the port of Valencia between April and July 2013, i.e., they were cruise passengers who visited Valencia as a port of call, transiting as tourists. As the population size was unknown, several non-random samplings were made to choose the sample (San Martín & Herrero, 2012). First, a quota sample was used to match the target population in terms of age and nationality (San Martín et al., 2013). Second, a convenience sample was used to select the required number of subjects (Hung & Petrick, 2011), and was combined with the variables of age and nationality given by the quota sample (San Martín et al., 2013).

Personal data were collected through a questionnaire completed by a group of trained interviewers who confirmed that all respondents had visited Valencia City during their stop at the port of call. We had a sample of 492 valid responses. The sample was composed of 54.8% males and 45.2% females. Group ages were as follows: 29.7% ≤ 35 years; 37% 35–54 years; 33.3% ≥ 55 years. The levels of education were as follows: 36.6% did not have a bachelor's degree, and 63.4% had a bachelor's degree or higher.

In the proposed model, we developed an ad-hoc questionnaire to measure each construct. The measurement items for the proposed model were adapted to the specific context of this study. The items in the questionnaire were also validated through two opinion panels, one for cruise passengers and the other for cruise tourism experts (Bigné et al., 2009).

In this research, destination image was measured using a multi-attribute approach addressing the overall image following the type of approximation used by most studies. We measured the cognitive aspects of destination image for a set of attributes using fifteen items (Table 1) generated from the literature review (Barroso Castro et al., 2007) and rated on a five-point scale. Overall satisfaction was measured using three items (Table 1) (Oliver, 1980; Flavián et al., 2006). For measuring future behavioral intention, we used two proxies: intention to revisit the destination and intention to recommend the destination. The response format applied was a five-point scale and we used three items (Table 1) (Zeithaml et al., 1996; Cater & Zabkar, 2009).

We used descriptive statistics and PLS structural equation modeling. PLS simultaneously evaluates both the measurement model and the structural model. We decided to use this technique for the following reasons: (1) PLS is appropriate for analyzing measurement models of both formative and reflective items (Diamantopoulos & Winklhofer, 2001); (2) compared to covariance-based SEM, PLS has many advantages in estimating interaction effects (Chin et al., 2003). In our PLS analysis, we used the SmartPLS 3.2.0 software (Ringle et al., 2014).

The moderating effects of gender, age, education and prior experience were analyzed through a multi-group comparison approach (Henseler & Fassott, 2010). For each moderating variable, the responses were classified into two groups. Using PLS, we estimated the path coefficients for each group (Sarstedt et al., 2011). Finally, we analyzed the differences between path coefficients. Significant coefficients were interpreted as having moderating effects. To determine the significance of the differences between the estimated parameters for each group, we applied Henseler's nonparametric approach (Henseler et al., 2009).

4. Results

4.1. Underlying dimensions of cognitive image

Before testing the proposed hypotheses, we carried out principal components analysis to determine the number of dimensions that comprised cognitive image. Exploratory factor analysis of the image scale enabled us to reduce the information into four dimensions (Table 1): tourism resources (Restou), infrastructure of the city and atmosphere (Infatm), urban environment (Urbenv), and socioeconomic environment (Socenv). These four dimensions represented 70.05% of the variance (Kaiser–Meyer–Olkin: 0.838).

In the model proposed, image was conceived as a first-order multidimensional reflective construct and as a second-order formative construct. Thus, the dimensions of destination image (tourist resources, infrastructure of the city and atmosphere, urban environment, socioeconomic environment) were assumed to be interacting with their items in a reflective way and with the destination image in a formative way. The image dimension items were optimally weighted and combined using the PLS algorithm to create latent variable scores. As a result, first-order dimensions became the observed indicators of second-order dimensions.

4.2. Measurement and structural model

Our model found the commonly-accepted guidelines (Roldán & Sánchez-Franco, 2012), for item and construct reliability, and for convergent validity. According to Henseler et al. (2015) for discriminant validity we employed the heterotrait-monotrait ratio of correlations (HTMT) (Henseler et al., 2015). HTMT values remain below threshold of 0.9. This approach had a superior performance that the Fornell-Larker criterion (Henseler et al., 2015). Table 1 and Table 2 indicated the results of the measurement and structural model assessment respectively. Consistent with Hair et al. (2011), bootstrapping (5000 resamples) was utilized to generate standard errors and t-statistics. The R2 values exceed the minimum level of 0.10 (Falk & Miller, 1992) (Table 2).

Table 1: Measurement model

Construct/ Dimension/ Indicator	VIF	Weight	Loading	*t*-value	Composite reliability	AVE
Image (second-order factor)					n.a	n.a
Tourist Resources	1.426	0.234			0.904	0.704
Restou1. Tourist information is wide and adequate.			0.904	51.76		
Restou2. Tourist signs are appropriate.			0.858	28.93		
Restou3. Tourist services provided for the cruise (shuttle bus, tourist office, etc...) are sufficient.			0.887	36.15		
Restou4. Tourist attractions /places to visit are varied.			0.710	12.87		
Infrastructure of the city and atmosphere	1.838	0.726			0.944	0.600

Infatm1. There is a rich and varied gastronomy/ a wide variety of restaurants.			0.7409	24.86		
Infatm2. There is a good variety of shops and many facilities for shopping.			0.824	39.05		
Infatm3. There are enough leisure activities.			0.758	24.32		
Infatm5. It is a quiet city.			0.734	25.52		
Infatm6. Residents are friendly and welcoming.			0.735	25.57		
Infatm7. The weather is nice.			0.731	25.28		
Urban environment	1.371	0.212			0.910	0.835
Urbenv1. There is a good urban environment with low levels of environmental pollution (traffic, noise, fumes, etc.).			0.908	36.33		
Urbenv2. Street/area cleaning is optimal.			0.919	46.25		
Socioeconomic Environment	1.816	0.027			0.926	0.863
Socenv1. Shops have a good price-quality relationship.			0.953	71.98		
Socenv2. Restaurants have a good price-quality relationship.			0.904	32.47		
Satisfaction (reflective)					0.976	0.932
Sat1. I am satisfied with my visit to Valencia.			0.957	71.20		
Sat2. My decision to visit Valencia was good.			0.967	82.57		
Sat3. I feel good about visiting Valencia.			0.972	103.84		
Behavioral intention (reflective)					0.911	0.777
Int1. I would say positive things about Valencia to my friends and relatives.			0.955	128.57		
Int2. I would recommend Valencia to anyone who asks me for advice.			0.959	176.72		
Int3. I would visit Valencia on another occasion.			0.706	15.24		

Note: A: male; B: female; C: low age; D: high age; E: not have at least a bachelor's degree; F: have a bachelor's degree or higher; G: first time visitors; H: repeat visitors.

Table 2: Structural model

Ho	(β)	Weights (loading)	*t*-value (bootstrap)	R^2
H1: Image→satisfaction	0.495***		8.325	
H2: Satisfaction→behavioral intention	0.807***		15.516	
H3: Image→behavioral intention	0.037^{ns}		0.521	
Formative measures				
Restou →image		0.234 (0.6724)	3.988	
Infatm→image		0.727 (0.9514)	4.876	
Urbenv →image		0.200 (0.6643)	3.819	
Socenv →image		0.028 (0.6546)	0.165	
Effects on satisfaction				0.245
Effects on behavioral intention				0.682

Note: *p<0.05; **p<0.01; ***p<0.001; ns – not significant

4.2. Multi-group analyses

Male and female group sizes were 216 and 276, respectively. Age grouping was done using a median split (Han et al., 2009). The median value was 49 years old, with a total of 14 cases within the median. These cases were excluded for more accurate analyses. The group

below the median included 237 subjects, and the group above the median comprised 241 subjects. These age groups were labeled low and high age groups to distinguish them from the median. To test the moderating role of educational level, respondents were divided into two groups (Hwang et al., 2013): (1) tourists without a bachelor's degree (n = 180), and (2) tourists who had a bachelor's degree or higher (n = 312). The control variables tested (gender, age, and education) had no effect.

The participants were assigned to one of two groups according to their prior experience as follows: the first group comprised 309 tourists who were on their first visit, and the second group comprised 183 repeat visitors. To ensure that group differences were exclusively based on their prior experience, we corroborated that variables such as gender, age, and education were not exerting a confounding effect on the relationships established. For this purpose, we applied comparisons between the participants' destination experience and these variables using cross frequency tables and an X2 test. Our results showed that the correlations between destination experience and participants' gender (X2= 2.260; p=0.133), age (X2= 1.033; p=0.309), and level of education (X2= 0.000; p=0.992) were not statistically significant. Table 3 shows the standardized coefficients and t-test differences in the multi-group model coefficients.

Table 3: Multi-group analysis. Test results.

	Image			Satisfaction			Behaviour intention		
Gender	β^A	β^B	t-test	β^A	β^B	t-test	β^A	β^B	t-test
Image	-	-	-	0.412	0.587	0.002	-	-	-
Satisfaction	-	-	-	-	-	-	0.839	0.741	0.047
Restou	0.285	0.262	0.474						
Infatm	0.062	0.905	0.100						
Urbenv	0.355	0.094	0.351						
Socenv	0.655	0.177	0.105						
Age	β^C	β^D	t-test	β^C	β^D	t-test	β^C	β^D	t-test
Image	-	-	-	0.405	0.692	0.000	-	-	-
Satisfaction	-	-	-	-	-	-	0.827	0.610	0.002
Restou	0.178	0.447	0.125						
Infatm	0.725	0.681	0.427						
Urbenv	0.411	0.200	0.307						
Socenv	0.119	0.169	0.296						
Education	β^E	β^F	t-test	β^E	β^F	t-test	β^E	β^F	t-test
Image	-	-	-	0.738	0.320	0.000	-	-	-
Satisfaction	-	-	-	-	-	-	0.911	0.744	0.046
Restou	0.021	0.361	0.295						
Infatm	0.899	0.687	0.287						
Urbenv	0.277	0.389	0.135						
Socenv	0.348	0.297	0.150						
Previous experience	β^G	β^H	t-test	β^G	β^H	t-test	β^G	β^H	t-test
Image	-	-	-	0.466	0.818	0.000	-	-	-
Satisfaction	-	-	-	-	-	-	0.815	0.467	0.000
Restou	0.266	0.176	0.046						
Infatm	0.821	0.402	0.042						
Urbenv	0.075	0.276	0.164						
Socenv	0.030	0.652	0.022						

Note: A: male; B: female; C: low age; D: high age; E: not have at least a bachelor's degree; F: have a bachelor's degree or higher; G: first time visitors; H: repeat visitors.

Our results show that gender, age, and education moderate the positive relationships between image and satisfaction (H2, H6, and H10 are supported), and the relationships between satisfaction and behavioral intention (H3, H7, and H11 are supported). This can be explained by the significant differences between groups (male/female, low age/high age, and non-bachelor's degree/bachelor's degree or higher). However, there are no differences in the

dimensions that contribute to the image formation of groups. Thus, H1, H5, and H9 are not supported.

Focusing on gender and age, we make two observations: (1) the effect of satisfaction on behavioral intention is greater in the first group (male and low age) than in the second group (β=0.839 and β=0.827, respectively); (2) the effect of image on satisfaction is greater in the second group (female and high age) than in the first group (β=0.587 and β=0.692, respectively). For the participants' level of education, the effect of satisfaction on behavioral intention and the effect of image on satisfaction were greater in the first group (no bachelor's degree) than in the second group (bachelor's degree or higher), at β=0.911 and β=0.738, respectively.

Prior experience also moderates the relationship between image and satisfaction (H14 supported), and the relationship between satisfaction and behavioral intention (H15 supported). Our results show that image determines satisfaction to a higher degree when tourists have visited the destination more than once (β=0.818). Even so, the effect of first-time visitors' satisfaction on their behavioral intention is greater (β=0.815).

The dimensions that contribute to image formation show different values for first-time visitors than for repeat visitors. The most important dimension within the first-time visitors group is the infrastructure of the city and atmosphere (Infatm) dimension, followed by the tourism resources (Restou) dimension. The urban environment (Urbenv) and socioeconomic environment (Socenv) dimensions are not significant. In contrast, all dimensions are significant within the group of repeat visitors, especially the socioeconomic environment (Socenv) dimension. This implies that H13 finds empirical support.

5. Discussion and Conclusions

The objective of the study was to evaluate the moderating effects of cruise tourists' prior experience, gender, age, and education in the process of destination image formation, and to analyze the moderating role of their prior experience, gender, age, and education in the relationship between image–satisfaction, image–future behavioral intention, and satisfaction–intention. The model was tested to verify the hypotheses with respect to personal and situational characteristics.

Concerning the academic contribution of this study, we have to highlight that there are studies in the literature about the proposed model with regard to influence of image and satisfaction in the future behavioral intentions. However, this study is a pioneering research in the field of empirical analyses regarding future behavioral intentions of cruise passengers to a port of call. The novelty of this research lies in the study of cruise passengers' image formation, their satisfaction, and their future behavioral intentions with regard to a port of call in the Mediterranean region where there is still little research on Mediterranean cruise tourism. In addition, this research analyzes the moderating role of gender, age, and education (personal characteristics), and the moderating role of prior experience (situational characteristic) proposed in the model. A relevant contribution, in the tourism context, is made by the significant relationships of the moderating effect of tourists' gender, age, education, and prior experience on the relationships between destination image and destination satisfaction.

Our findings indicate that cruise passengers' image of a port of call has a positive and direct influence on their satisfaction with their destination. In the same way, cruise passengers' satisfaction with a port of call has a direct and positive effect on their future behavioral intentions regarding the destination. Surprisingly, the destination image of ports of call has no influence on cruise passengers' future behavioral intentions.

Our main theoretical contribution is the study of the moderating effects of gender, age, education, and prior experience on factors related to a destination. Our findings show that the influence of destination image and satisfaction on cruise passengers' future behavioral intentions strengthens with the following variables: (1) personal characteristics of gender, age, and education; (2) prior experience of a destination.

With respect to the personal characteristics of gender, age, and education, these personal characteristics show differences in (1) the influence of satisfaction on future behavioral intentions, and (2) the influence of destination image on satisfaction. Specifically, our findings indicate that for the male, low age, non-bachelor's degree group, the effect of satisfaction on future behavioral intention is higher than in the female, high age, bachelor's degree or higher group, consistent with Matzler et al.'s (2008) result in which the satisfaction of the male group was higher that than of the female group. The result for age as a moderator in the relationship between satisfaction and future behavioral intentions highlights the higher future behavioral intentions in the group of 48 years and younger than the group 50 years and over. This result is consistent with Homburg and Giering (2001). The result for education as a moderator in the relationship between satisfaction and future behavioral intentions indicates higher behavioral intentions for the group of cruise passengers without a bachelor's degree than in the group of cruise passengers possessing a bachelor's degree or higher. This result is consistent with Mittal et al.'s (2001) findings (Evanschitzky & Wunderlich, 2006).

Our results indicate that for the female, high age, bachelor's degree or higher group, the effect of image on satisfaction is higher. As this is the first study in the tourism context to examine the moderating influence of tourists' gender, age, and education on the relationships between destination image and destination satisfaction, we cannot compare our results to the previous literature. A relevant contribution is made by analyzing the moderating effects of gender, age, and education in the relationship between image and satisfaction because is the first research to confirm these moderating effects.

In contrast to the hypotheses formulated, gender, age, and education do not moderate the different dimensions that contribute to image formation. Baloglu (1997) obtained similar results when he analyzed the moderating effect of gender and education on image formation. Our results for age are in contrast to the finding in Beerli and Martín's (2004a) study. As in this study, San Martín and Rodríguez del Bosque (2010) found that education did not moderate the dimensions that formed destination image.

On a different note, the previous experience of first-time and repeat visitors in ports of call show differences in (1) the dimensions used for image formation, (2) the influence of satisfaction on future behavioral intentions, and (3) the influence of destination image on satisfaction. We also find differences between first-time visitors and repeat visitors regarding image formation. There are only two significant dimensions for first-time visitors: the infrastructure of city and atmosphere dimension and the tourism resources dimension, the latter dimension being the most important. This means that first-time visitors are more sensitive to the infrastructure of the city and atmosphere dimension. As for repeat visitors, all dimensions are significant, socioeconomic environment being the most important.

Our findings show that first-time visitors' satisfaction with a port of call has a greater influence on future behavioral intentions than the satisfaction of repeat visitors. This result is consistent with that of San Martín et al. (2013) for non-cruise contexts. For tourist destinations, however, Rodríguez Molina et al. (2013) found no empirical support for the moderating effect of prior experience on the relationship between satisfaction and future behavioral intentions. In contrast, repeat visitors' destination image of a port of call has a greater effect on satisfaction than first-time visitors' destination image. We cannot compare our results to previous literature as this is the first study to examine the moderating influence of previous experience on the relationship between image and satisfaction with a destination.

A relevant contribution is made by analyzing the moderating effects of prior experience in the relationship between image and satisfaction because is the first research to confirm these moderating effects. Rodríguez-Molina et al. (2013) analyzed this moderating effect in the opposite way; they analyzed the relationship between satisfaction and destination image. We therefore suggest that managers of ports of call should consider the aspects analyzed here to contribute to the formation of destination image by increasing visitors' satisfaction.

Future research should study other factors that may influence the variables in the proposed model, such as the perceived value and the service quality. It would also be useful to analyze other potential moderators, such as external information resources (online/offline), visit duration, or motivation for visiting destinations. Finally, this study considered only Valencia in Spain as a port of call and thus some of the results could be specific to this destination. In future studies, it would be of value to select other destinations and cultural settings (Caribbean and Mediterranean ports of call), both to analyze possible variances in the influence of the moderators considered here and to seek greater generalization of the proposed model.

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Effects of Terrorism Fears on Job Attitudes and Turnover Intentions: The Moderating Role of Job Involvement

Omer Farooq Malik
COMSATS Institute of Information Technology
E-mail: omer_farooq@comsats.edu.pk

Abstract

Based on affective events theory and previous research, a model was developed and tested to analyze the effects of terrorism fears on job attitudes (i.e. job satisfaction and affective commitment) and turnover intentions. The study is based on questionnaire data collected from 201 permanent faculty members of public sector universities in Pakistan. Partial least squares structural equation modeling was used to validate the model and found substantial support for study's hypotheses. The results show that fearing future terrorism negatively influences faculty members' job attitudes, and subsequently leads to their intent to leave. Further, job involvement and job attitudes interact to predict turnover intentions. The paper explores an important but still under-researched area of management and organizational interventions to mitigate the detrimental effects of terrorism fears.

Keywords: *Workplace, Fear, Terrorism, Job attitudes, Job involvement, Turnover intentions, Pakistan.*

1. Introduction

Terrorism has recently emerged as a prominent social problem. Terrorism can occur in all parts of the globe though most incidents occur in the Middle East, South Asia, and Africa (Enders and Sandler, 2006). Terrorist attacks produce detrimental effects that are not limited to an isolated geographic region, they are man-made and not natural disasters, and they are not the result of human error or negligence. There are rival actors intending to both cause and prevent terrorist attacks (Knemeyer et al., 2009). Also, terrorist attacks are thought to create a sense of vulnerability and fear that is more pervasive and persistent compared to other types of disasters (Ryan et al., 2003).

Individuals and workplaces targeted by terrorists are not necessarily their primary enemy but may include apolitical and innocent civilians (Inness and Barling, 2005). Nevertheless, it is usually the primary enemy from whom a response is ultimately desired (Drake, 1998). Workplaces that have been affected by acts of terrorism include: government buildings, military installations, embassies, office buildings, shopping malls, trains and subways, aircraft and airports, prisons and police stations, banks, hotels, hospitals, and educational institutions. A growing number of educational institutions have been targeted by terrorists over the past 10 years as they are less protected compared to other targets. For example, the 2004 Beslan school siege in Russia, the 2014 Peshawar school massacre in Pakistan, the 2015 Garissa University College attack in Kenya.

Over time, institutions of higher education invest substantial resources in their employees. Employee turnover is critical from individual, organizational, and industry perspectives (Shaw et al., 1998). An instance of voluntary turnover reflects an employee's decision to terminate the employment relationship. Voluntary turnover incurs significant cost, both in terms of direct costs (replacement, recruitment and selection, training and development, operational disruption; Mobley, 1982; Staw, 1980), and also (and perhaps more importantly) in terms of indirect costs (demoralization, increased workload on stayers, diminished job satisfaction, lowered commitment; Mobley, 1982; Morrell et al., 2004), and the loss of social capital (Dess and Shaw, 2001). Research suggests that intent to leave may be used as a form of coping with increased fear by withdrawing from a threatening situation rather than an increased desire on the part of the employee to voluntarily leave the organization (Rogers and Kelloway, 1997).

The research available on the psychological response of employees to terrorism has mostly been generated following the events of 9/11 and focused predominantly on industrial employees in the United States (Reade, 2009). However, not much research has been conduced to examine how employees in university settings may be affected by terrorism. Towards that end, the main objectives of the study are: (1) to examine the direct effect of fearing future terrorism on job attitudes and turnover intentions, (2) to examine the direct effect of job attitudes on turnover intentions, (3) to investigate whether job attitudes mediate the effect of fear of future terrorism on turnover intentions, and (4) to investigate whether job involvement and overall job attitude interact to predict employee turnover intentions. These issues are explored using data from a sample of faculty members of public sector universities in Islamabad (Pakistan).

The paper proceeds as follows: first, the paper reviews the literature before developing a set of hypotheses. After presenting the conceptual model the paper then explains the measures and discusses research methodology including data analysis techniques. After presenting the results, the paper proceeds with a discussion of findings and offers practical and theoretical implications.

2. Literature Review and Research Hypotheses

2.1. Fear of future terrorism and overall job attitude

In terrorism literature, there is a consensus that a major objective of the perpetrators of terrorist acts is to create fear (Bongar, 2007; Shirom et al., 2008). In the case of terrorism, research has focused almost exclusively on assessing stress reactions in response to discrete events such as the 9/11 terrorist attacks, with little attention paid to ongoing reactions and fears, and particularly how anticipating future terrorist attacks effects people functioning moving forward (Sinclair and LoCicero, 2010). For the purpose of measuring the psychological impact of fearing future terrorism, Sinclair and LoCicero (2007) developed the terrorism catastrophizing scale (TCS) that consists of three subscales: rumination, magnification, and helplessness. According to Sinclair (2010), the concept of rumination has to do with the time and energy that is utilized thinking about potential threat while those who engage in magnification show a tendency to explode the

threat in their minds. Finally, in the context of extreme fear, helplessness sets in when people believe that there is nothing they can do to change the reality.

Judge and Kammeyer-Mueller (2012) defined attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (e.g. job attitudes)" (p. 343). Thus, the concept of evaluation is a unifying theme in attitudes research. Defined as an attitude, job satisfaction is "a positive (or negative) evaluative judgment one makes about one's job or job situation" (Weiss, 2002, p. 175). Organizational commitment, as an attitude, reflects a psychological state linking an individual to the organization based on identification with the organization's values and goals (Meyer and Allen, 1991). In Meyer and Allen's (1991) three-dimensional reconceptualization, affective commitment is the most strongly overlapping in constitutive and operational definition with attitude (Solinger et al., 2008). Further, Hulin (1991) noted considerable theoretical overlap between overall job satisfaction and affective commitment, remarking that the only clear difference between the two is their conceptual target. The target of job satisfaction is one's job or job situation, whereas the target of affective commitment is the entire organization (Hulin, 1991; Schat and Frone). Consistent with the suggestion of Harrison et al. (2006), thus, job satisfaction and affective commitment are conceptualized as indicating an underlying overall job attitude for the purpose of this study.

Whereas there are several antecedents of attitudes (Fried, 1991; Mathieu and Zajac, 1990; Randall et al., 1999), stress is definitely a factor influencing them (Bader and Berg, 2013). For example, in a study on managers in Sri Lanka, Reade (2009) found that employee sensitivity to terrorism (i.e. proxy to gauge the stress level) was negatively correlated with job satisfaction and organizational commitment. In another study amongst managers in Sri Lanka, Reade and Lee (2012) found that employee sensitivity to external stressors was inversely related to organizational commitment. Similarly, Bader and Berg (2013) found that a high level of stress from terrorism decreased expatriate's positive work attitudes toward the organization, team, and job. Nellis (2009) noted that fear of terrorism is a powerful motivator for individuals' behaviors and attitudes. Thus, the following is derived:

H1: Fear of future terrorism has a direct negative effect on overall job attitude.

2.2. Overall job attitude and turnover intentions

Turnover intention is conceived of as a conscious and deliberate willfulness to leave the organization within the near future, and considered as the last part of a sequence in the withdrawal cognition process (Mobley et al., 1978), which also includes thoughts of quitting and intentions to seek out alternatives (Hom et al., 1992; Tett and Meyer, 1993), in either a passive or an active job search (Kirschenbaum and Weisberg, 1994). There is consistence evidence showing that turnover intentions are the strongest cognitive precursor of actual turnover (Tett and Meyer, 1993). The voluntary turnover of valuable employees affects organizational functioning (Staw, 1980) and, thus, should be eliminated or at least reduced to the level where the overall balance within the

organization is not subjected to negative transformations (Carmeli and Weisberg, 2006). The Mobley model (1977) cogently explained the process of how job dissatisfaction can lead to employee turnover. Mowday et al. (1984) and Lee (1988) in their studies demonstrated that other job attitudes such as organizational commitment and job involvement can also be validly linked to employee turnover via the Mobley model when substituted for job satisfaction. There is strong evidence suggesting that job attitudes reflecting negative evaluation of the job and of the employing organization influence withdrawal cognitions (e.g. Carmeli and Weisberg, 2006; Fisher 2002; Meyer et al., 2002; Naumann et al., 2000). Therefore, the following is hypothesized:

H2: Overall job attitude has a direct negative effect on turnover intentions.

2.3. Fear of future terrorism and turnover intentions

The Mobley model (1977) gives recognition to the fact that for some individuals, the decision to quit may be an impulsive act rather than based on a subjectively rational decision process. Supporting this idea, Parasuraman (1982) in his study demonstrated that felt stress strongly predicted voluntary turnover, suggesting that turnover is an unpremeditated and likely impulsive behavioral response to experienced stress. Chang and Lyons (2012) found a significant positive relationship between emotional strain and turnover intentions. In the same vein, Rogers and Kelloway (1997) results showed that fearing future violence did not predict affective commitment. However, fear did predict individuals' intent to leave the organization. These findings suggest that intent to leave is a form of coping with increased fear by withdrawing from a dangerous situation rather than an increased desire to leave the organization on the part of the employee (Rogers and Kelloway, 1997; Zapf and Gross, 2001). Hence, the following is expected:

H3: Fear of future terrorism has a direct positive effect on overall job attitude.

2.4. Mediating role of overall job attitude

Affective Events Theory (AET) defines judgment-driven behaviors as "well considered decisions and specifically, those behaviors where the overall evaluation of the job enters into that decision." These are contrasted to affect-driven behaviors that can be "of a relatively short duration and high variability" (Weiss and Cropanzano, 1996, p. 52). Thus, according to AET, judgment-driven behaviors are mediated by attitude, whereas there is a direct relationship between affective reactions and affect-driven behaviors. AET focuses on job attitudes that are formed over time and are relatively stable, such as job satisfaction and organizational commitment (Russell and Eisenberg, 2012). In support of these ideas, Fisher (2002) found that turnover intentions were better predicted by job attitudes than by affective reactions. In addition, she showed that helping behavior was more strongly related to positive affective reactions than to job attitudes. Bader and Berg (2013) in their study found that job attitudes mediate the relationship between terrorism-induced stress and expatriate performance. Fear of future terrorism is therefore likely to change job attitudes by creating disfavor towards the organization and job. In

turn, negative job attitudes are expected to increase employees' intention to leave the organization (Malik et al., 2014). Thus, the following is derived:

H4: Overall job attitude mediates the effect of fear of future terrorism on turnover intentions.

2.5. Moderating role of job involvement

Job involvement is defined as the extent to which an individual identifies psychologically with his/her job (Blau, 1985). In their conceptual model linking job involvement and organizational commitment to turnover intentions, Blau and Boal (1987) proposed that, beyond the main effects of the two job attitudes on turnover intentions, job involvement and organizational commitment would also interact in their relationships with turnover intentions. Supporting this idea, Sjöberg and Sverke (2000) found that the involvement by commitment interaction significantly predicted the variation in turnover intentions. In the same vein, Martin and Hafer (1995) found that the interaction of job involvement and organizational commitment predicts turnover intentions. Thus, the following is expected:

H5: Job involvement positively moderates the negative relationship between overall job attitude and turnover intentions. Specifically, the negative relationship between overall job attitude and turnover intentions will be weaker (stronger) when job involvement is high (low).

The study hypotheses are summarized in Fig. 1.

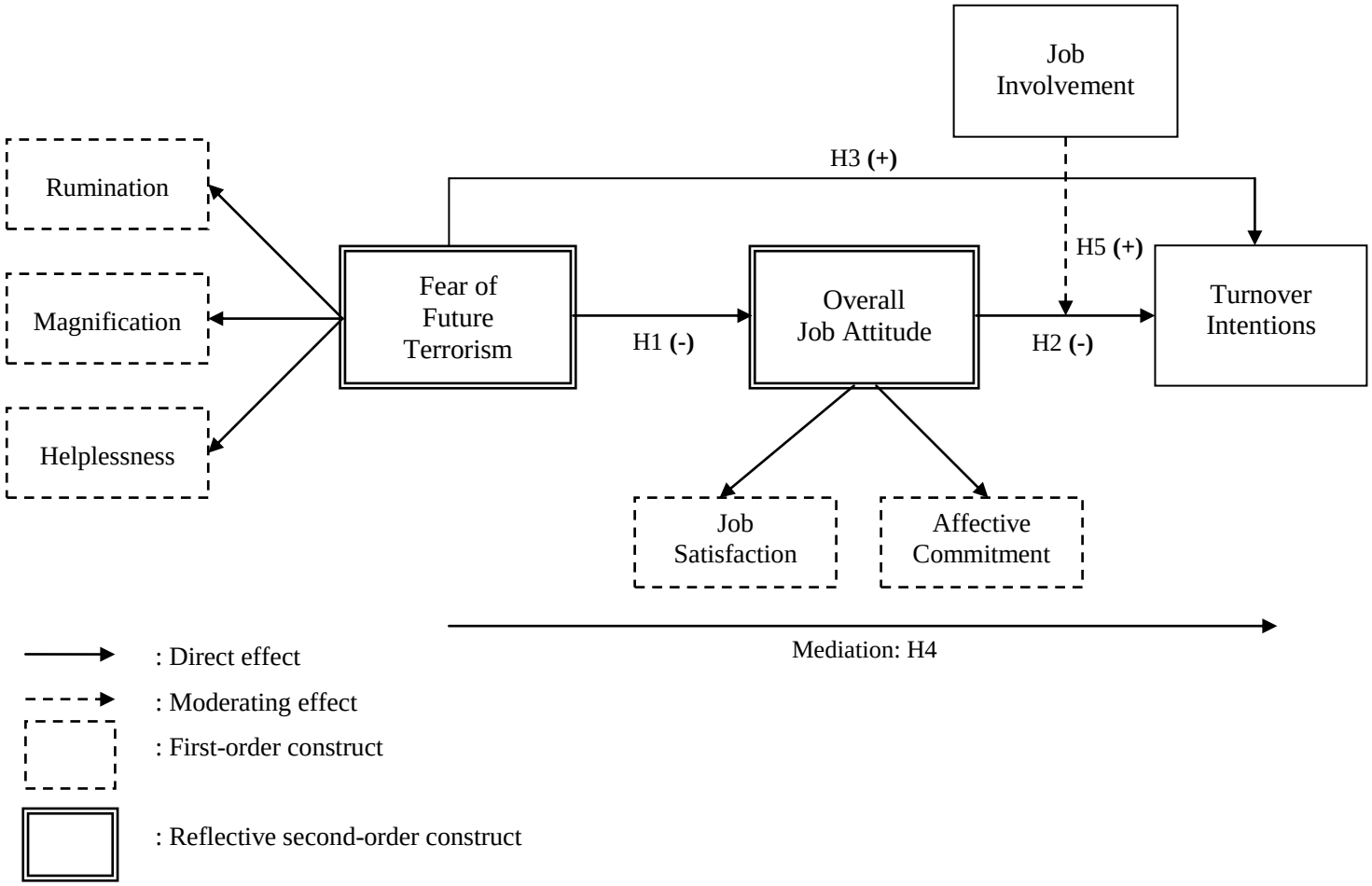

Fig. 1. Conceptual framework.

3. Methodology

3.1. Research setting and sample

In the global war on terror, Pakistan became not only the frontline fighter, but also the frontline target of terrorism. According to Political Terror Scale (PTS; Gibney et al., 2011), Pakistan is amongst the countries that are most vulnerable to terrorist attacks and terror has expanded to the whole population. The study was conducted immediately after the December 14, 2014 terrorist attack on the Army Public School in Pakistani city of Peshawar in which 132 schoolchildren were killed. All public and private educational institutions in Punjab (province of Pakistan) and Islamabad Capital Territory (ICT) were closed after the incidence owing to precarious security situation in the country. Data were collected anonymously through a self-administered questionnaire from permanent faculty members of public sector universities in ICT using convenience sampling. Of the initial 500 questionnaires sent out, retuned questionnaires numbered 216, yielding a 43% response rate, and 201 usable questionnaires. Sixty-three percent of the respondents were

male. The average age of respondents was 34 years, and the average organizational tenure was 5 years. Respondents were well-educated, with all holding a Bachelor's degree or higher.

3.2. Measures

3.2.1. Fear of future terrorism

Fear of future terrorism was measured with 13 items from Sinclair and LoCicero's (2007) TCS comprising three subscales. Composite reliability (CR) was 0.913 for rumination, 0.954 for magnification, 0.942 for helplessness, and 0.939 for overall catastrophizing. The three subscale raw scores were transformed to standard scores based on a representative sample of adults living in the United States with a mean of 50 and standard deviation of 10. The scores can range from a low of 0 to a high of 100. Higher scores on the scales indicate greater terrorism catastrophizing as reflected by rumination, magnification, and helplessness (Sinclair and LoCicero, 2007). For the study sample the means for rumination and magnification are about one standard deviation higher than the general population mean of 50, while helplessness was at the population mean (see Table I).

3.2.2. Overall job attitude

As discussed earlier, this study specifies overall job attitude as a second-order construct, comprising two first-order reflective constructs i.e. job satisfaction and affective commitment. Job satisfaction was measured with 5 items developed by Brayfield and Rothe (1951). Affective commitment was measured with 6 items developed by Meyer et al. (1993). CR was 0.970 for job satisfaction, 0.972 for affective commitment, and 0.974 for overall job attitude.

3.3.3. Turnover intentions

Turnover intentions were measured with 3 items developed by Sjöberg and Sverke (2000). CR for the scale was 0.911.

3.2.4. Job involvement

Job involvement was measured using 6 items from Kanungo's (1982) Job Involvement Scale. CR for the scale was 0.948.

4. Data Analysis

A two-stage analytical procedure was used to analyze the data. Firstly, a confirmatory factor analysis (CFA) was conducted to assess the measurement model. Secondly, the structural model was examined. Specifically, SmartPLS 2.0 was used to conduct the analysis (Ringle et al., 2005). Bootstrapping with 201 cases and 1,000 re-samples was used to assess the path significance. The second-order constructs, fear of future terrorism

and overall job attitude, were approximated using the repeated indicators approach (Lohmöller, 1989; Wold 1982).

Table I. Mean, standard deviation, intercorrelations of the latent variables for the first-order construct.

Construct	Mean	SD	1	2	3	4	5	6	7
1. Rumination[a]	59.926	4.231	**0.801***						
2. Magnification[a]	62.433	6.235	0.694	**0.881***					
3. Helplessness[a]	50.974	3.170	0.647	0.662	**0.931***				
4. Job Satisfaction[b]	3.173	1.304	-0.612	-0.573	-0.605	**0.935***			
5. Affective Commitment[b]	3.047	1.502	-0.574	-0.469	-0.593	0.571	**0.944***		
6. Turnover Intentions	2.389	0.876	0.408	0.354	0.470	-0.491	-0.514	**0.883***	
7. Job Involvement	3.023	0.874	-0.296	-0.152	-0.397	0.503	0.487	-0.374	**0.858***

[a] First-order constructs of the higher-order construct fear of future terrorism.
[b] First-order constructs of the higher-order construct overall job attitude.
* Square root of the AVE on the diagonal (in bold).

5. Results

5.1. Assessment of the measurement model

To check the properties of the measurement scales, CFA was conducted to assess reliability, convergent validity, and discriminant validity of the scales. Most item loadings were greater than 0.7. All average variance extracted (AVEs), CRs and alpha exceeded the cut-off values of 0.5, 0.7, and 0.7, respectively (Bagozzi and Yi, 1988; Nunnally, 1978; Hulland, 1999; Hair et al., 2013). The lowest AVE (0.641) and CR (0.910) are for rumination subscale; however, these values are well-above their recommended threshold levels. Thus, convergent validity was established because all the indicators load much higher on their hypothesized construct than on other constructs (own loading are greater than cross loadings; Chin, 1998, 2010; Grégoire and Fisher, 2006). Besides, the square root of each construct's AVE is greater than its highest correlation with any other construct, thus ensuring discriminant validity (Chin, 2010, 1998; Fornell and Larcker, 1981). Consequently, the measurement model was considered satisfactory with the evidence of adequate reliability, convergent validity, and discriminant validity and was employed for assessing the structural model.

5.2. Assessment of the structural model

In order to assess the structural model, the path coefficients, including an assessment of their significance, the coefficient of determination (R^2), and the Stone-Geisser Q^2 (Chin, 1998; Stone, 1974; Geisser, 1975; Henseler et al., 2009; Hair et al., 2012) were examined. Overall satisfaction of the model is reflected in the coefficient of determination (R^2) of the endogenous latent variables, a common indicator in multiple regression analysis. The results of the baseline model using an inner model path weighting scheme shows a R^2 of 0.271 and 0.317 for overall job attitude and turnover intentions, respectively. Blindfolding procedure (omission distance = 7) to evaluate Stone-Geisser criterion revealed Q^2 values greater than 0 for overall job attitude and turnover intentions, thus providing support for the model's predictive relevance (Chin, 1998; Hair et al., 2013).

5.2.1. Path coefficients

Results show that fear of future terrorism is negatively related to overall job attitude (β = -0.521, p < 0.01), supporting H1. Overall job attitude is negatively related to turnover intentions (β = -0.447, p < 0.01), supporting H2. Moreover, fear of future terrorism is positively related to turnover intentions (β = 0.147, p < 0.05), supporting H3.

5.2.2. Mediating role of overall job attitude

The mediation hypothesis was analyzed applying the product-of-coefficients approach (Preacher and Hayes, 2008, 2004). Accordingly, the sampling distribution of 'path a' (path coefficient from fear of future terrorism to overall job attitude) and 'path b' (path coefficient from overall job attitude to turnover intentions) was bootstrapped using 1,000 re-samples. Results show that overall job attitude partially mediates the relationship between fear of future terrorism and turnover intentions (a×b = 0.233; 95% CI = 0.148, 0.286; VAF = 57%). Thus, H4 is supported.

5.2.3. Moderating role of job involvement

PLS product indicator approach (Chin et al., 2003) was applied to detect the moderating effect of job involvement on the relationship between overall job attitude and turnover intentions. To test the possibility of such effect, mean-centered indicators of the predictor (overall job attitude) and the moderator (job involvement) were multiplied to create an interaction construct (overall job attitude × job involvement) to predict turnover intentions (Chin et al., 2003; Henseler and Fassott, 2010).

Following the guidelines of Chin (2010) and Chin et al. (2003), a bootstrap resembling procedure was performed to assess whether the interaction effect is significant. The results of 1,000 re-samples indicated that path coefficient of 0.201 for the interaction construct is significant at p < 0.01 (t-value = 6.174). As suggested by Henseler and Fassott (2010), the moderating effect was further assessed by comparing the proportion

of variance explained (as expressed by the coefficient of determination R^2) of the main effects model with the R^2 of the interaction model (i.e. 0.332 - 0.317 / 1 - 0.332).

The results showed that the size of the moderating effect is small (f^2 = 0.02; Cohen 1988). Consequently, it is confirmed that job involvement moderates the relationship between overall job attitude and turnover intentions, thus supporting H5. Fig. 2 illustrates the ordinal relationship between job involvement and overall job attitude in the prediction of turnover intentions. The graph clearly demonstrates that low levels of job attitude have a stronger negative effect on employee turnover intentions in the low job involvement condition compared to employees in high job involvement condition (see Fig. 2).

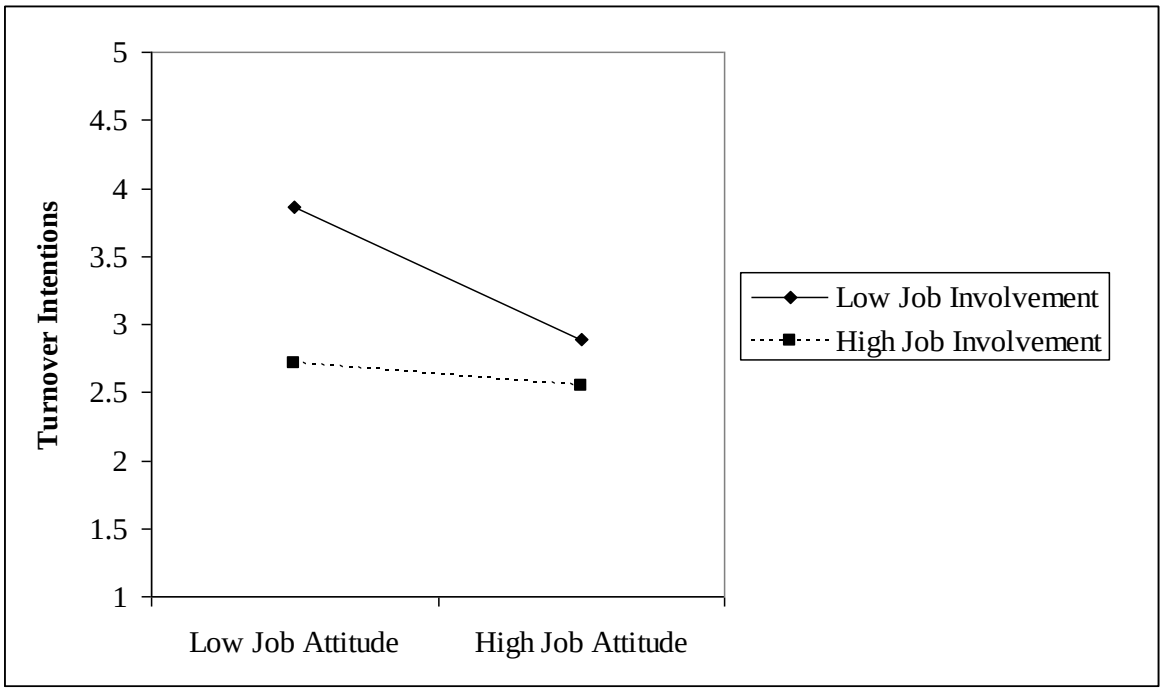

Fig. 2. Plot of the interaction between overall job attitude and job involvement in predicting turnover intentions.

6. Discussion

Results show that fearing future terrorism negatively and significantly predicts overall job attitude. The finding is consistent with previous research suggesting that when psychological contract of safety is unmet, employees are likely to hold the organization responsible because employees may expect that organizations can and should maintain their workplaces a safe and trusting place (e.g. Hershcovis and Barling, 2010; Howie, 2007). When trust is compromised between employees and employers; consequently, there can be reciprocity in negative attitudes toward the organization (e.g. lowered organizational commitment; Reade and Lee, 2012) and job (e.g. distancing oneself from work; Bader and Berg, 2013). By bringing the extra-organizational factors (i.e. fear of terrorism) into the employee attitudes model, the results call attention to the need for

extending the existing models that typically assume that the level of employee job attitudes is determined by internal organizational factors.

The study found a significant negative relationship between overall job attitude and turnover intentions. This is consistent with previous research suggesting that job attitudes reflecting negative evaluation of the job and of the employing organization influence withdrawal behaviors such as intent to turnover (e.g. Bader and Berg, 2013; Naumann et al., 2000). As positive attitudes serve as a necessary predictor to desirable behaviors, it is important mangers be cognizant of the attitudes their employees hold. It behooves human resource managers to design and support programs and initiatives to help shift employee attitudes in a positive direction.

Results also show that fear of future terrorism has a direct positive effect on turnover intentions. This suggests that employees who perceive high levels of danger in their jobs are likely to report stress-related withdrawal behaviors of turnover (Grant and Wade-Benzoni, 2009). Specifically, in the case of particularly intense or long-lasting levels of death anxiety that employees find emotionally overwhelming, the outcome can be the permanent withdrawal behavior of turnover, as employees seek to protect themselves by transitioning to jobs with less exposure to mortality cues (Zaccaro and Stone, 1988).

Further, the results show that overall job attitude partially mediates the effect of fear of future violence on turnover intentions with a point estimate of 0.233. According to AET (Weiss and Cropanzano, 1996) judgment-driven behaviors such as turnover are well considered decisions and specifically, those behaviors where the overall evaluation of the job enters into that decision. Consistent with this assumption, the finding of this study suggests that fearing future terrorism is likely to change job attitudes by creating disfavor towards the organization and job itself. In turn, negative job attitudes are expected to increase employees' intent to leave.

Finally, the results show that job involvement positively moderates the negative relationship between overall job attitude and turnover intentions. The practical implication of this finding is that, if reduced turnover is a goal, organizations will generally benefit from enhancing their employees' levels of job involvement, and their attitude toward the job and organization. Interestingly, the interaction between job involvement and overall job attitude suggests that employees with low job involvement can be more positively influenced to reduce their turnover intentions by increasing their job satisfaction and affective commitment than can employees with high job involvement (Martin and Hafer, 1995). The literature proposes that job involvement, as a function of its origin in early socialization experiences (Kanungo, 1979), is more stable than job satisfaction and organizational commitment. This suggests that if job involvement is difficult to increase, then attempts to build organizational commitment and enhancing job satisfaction become more important to reduce employee turnover (Sjöberg and Sverke, 2000).

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Information systems capabilities and organizational agility: Understanding the mediating role of absorptive capacity when influenced by a hierarchy culture

Completed Research Paper

José L. Roldán
Universidad de Sevilla
jlroldan@us.es
Carmen Felipe
Universidad de Sevilla
cfelipe@us.es

Antonio L. Leal-Rodríguez
Universidad Loyola Andalucía
alleal@uloyola.es

Abstract

Organizational agility (OA), as a key dynamic capability, is a firm's ability to enable sensing environmental changes and responding efficiently and effectively to them. This study explores this topic further by analyzing the part played by the information systems capabilities (ISC) variable as an antecedent of OA, and absorptive capacity (AC) as a mediator construct. Furthermore, we test the negative moderating role of hierarchy culture (HC) in the AC–OA link. Using partial least squares (PLS) and the PROCESS macro, we find evidence of these relations proposed, and the existence of a conditional mediating situation generated by HC.

Keywords: *organizational agility, information systems capabilities, absorptive capacity, hierarchy culture, partial least squares (PLS), mediating analysis, moderating effect, conditional mediation model.*

1. Introduction

Organizations are currently facing highly turbulent environments, which are mainly characterized by strong doses of dynamism, complexity and uncertainty. These conditions have led to hypercompetitive markets where the survival of companies is certainly threatened. In such a context, knowing the mechanisms that allow organizations to detect, adapt and offer the proper response to the environment's changes becomes especially relevant, as this might lead firms to attain a greater success by exploiting emerging opportunities and new sources of competitive advantages. Therefore, the concept of organizational agility (OA) appears as a key issue concerning organizational survival and success.

Agile organizations are those that are able to effectively operate within hypercompetitive, unpredictable and constantly changing environments (Goldman, Nagel & Preiss, 1995). Thus, OA can be defined as the firm's capability to sense the changes of the environment and respond efficiently and effectively to them (Ashrafi et al., 2005). Assuming the dynamic capabilities theory as a reference framework (Teece, Pisano, & Shuen, 1997), OA is identified as one of the key dynamic capabilities for organizations in order to achieve sustainable competitive advantages (Sambamurthy, Bharadwaj, & Grover, 2003) and to survive in highly dynamic environments (Nijssen & Paauwe, 2012).

This topic has been attracting the attention of academic research since the mid-1990s and has been assessed by multiple disciplines. This has led to successive limitations of the concept of agility, removing it from its general aspect of organizational capacity (Charbonnier-Voirin, 2011). In addition, over the last years, the focus of research on the technological aspect of business has led to forgetting other contextual organizational factors equally or even more relevant, such as culture, communication and leadership (Crocitto & Youssef, 2003). Basically, the core of these studies has been the role of information systems capabilities (ISC) in achieving a higher level of OA.

This paper hence aims to cover such research gaps inherent to OA that the prior literature has until now failed to do. Therefore, we mean to answer the following questions: (1) From an inclusive point of view, what is OA? (2) What are the antecedents of OA? Can we consider other variables apart from ISC (e.g., absorptive capacity)? (3) What are the links between such antecedents? Do ISC affect OA directly or through an indirect relationship? (4) Could the presence of certain cultural values become a moderator of the aforementioned relation?

The paper proceeds as follows. The next section presents the theoretical background together with the research model and hypotheses. The third section comprises a description of the research methodology. The fourth section presents the results of the different data analyses carried out. Finally, we bring together the discussion and implications.

2. Literature Review and Research Hypotheses

2.1. Approaching the concept of organizational agility

The concept of organizational agility has its roots in two prior related concepts: organizational adaptability (a reactive aspect) and organizational flexibility (a proactive aspect) (Sherehiy, Karwowski, & Layer, 2007). In this vein, OA involves a firm's ability to sense and respond to environmental changes (Overby, Bharadwaj, & Sambamurthy, 2006). The contribution of Sambamurthy et al. (2003) is quite remarkable. They state that OA comprises three interrelated dimensions: customer agility (leveraging the voice of customers to gain market intelligence), partnering agility (learning from business partners to enhance the firm's response to the market) and operational agility (rapid process redesign to exploit dynamic marketplace conditions). Therefore, following Charbonnier-Voirin (2011), we define OA as the intentional response capability developed by the organization to enable it to act efficiently in a highly turbulent environment, not only by reacting rapidly to change, but also through its potential of action in anticipating and seizing opportunities, in particular through innovation and learning.

2.2. The relationship between information systems capabilities and organizational agility

The concept of information systems capabilities (ISC) comes from the use of the resource-based theory in the information technologies (IT) research field. This theory enabled the establishment of a framework to assess the strategic contribution of information systems (IS) resources to the company (Wade & Hulland, 2004). Under such a perspective, the firm's IS resources (assets and capabilities) that are inimitable and valuable may lead to achieving sustained competitive advantages (Ravichandran & Lertwongsatien, 2005).

Bharadwaj (2000) defines ISC as the firm's abilities to mobilize and deploy IT-based resources in combination or jointly with other resources and capabilities. These are skills, competences and abilities upon which the value of the physical IT resources can be leveraged (Doherty & Terry, 2009). Wade and Hulland (2004) describe three types of ISC: inside-out

(deployed from inside the firm in response to market requirements and opportunities), outside-in (externally oriented, placing an emphasis on anticipating market requirements), and spanning capabilities (needed to integrate the firm's inside-out and outside-in capabilities).

There is a lack of consensus in the scientific literature concerning whether the impact of ISC on OA is positive or negative. On the one hand, some researchers supporting the negative impact argue that limitations of inflexible IT systems may result in a rigidity which hinders or even impedes the adaptation to the environment's requirements (Overby et al., 2006). On the other hand, Sambamurthy et al. (2003) consider that ITs are generators of the digital options through which OA is positively affected. This is not only because they allow the creation of new information-based products and services, but also because they enable the coordination of internal processes and the building of new interorganizational relationships. Lu and Ramamurthy (2011) show that ISC have a direct effect on agility, indicating that firms need to continually develop superior IT capabilities in order to successfully manage and exploit their resources, with the aim of building agile organizations.

With the support of this line of the literature, we posit that properly deployed and managed ISC can provide tools and instruments for organizations to enhance their capabilities to sense and respond to environmental changes. Therefore we postulate the following hypothesis:

H1: The firm's information systems capabilities (ISC) are positively linked to its organizational agility (OA).

2.3. The mediating role of absorptive capacity in the relationship between ISC and OA.

Within the current dynamic environment, organizational learning has become a key success factor for firms. The study of absorptive capacity (AC) is hence perfectly embedded within such a scenario. Cohen and Levinthal (1990) initially defined AC as the firm's ability to recognize the value of new external knowledge, assimilate it and apply it to commercial ends. Zahra and George (2002) later developed an extension of the AC concept, broadly defining it as a set of organizational routines and processes through which firms acquire, assimilate, transform and exploit knowledge in order to produce a dynamic organizational capability. These four activities are complementary and build upon each other to produce AC.

Liu, Ke, Wei, and Hua (2013) indicate that ISC are key factors for the development of higher order capabilities, such as the AC. In fact, some IS functions, such as developing knowledge repositories, effective information retrieving mechanisms, or enabling collaboration and communication between knowledge producers (experts) and knowledge seekers, play a key role in the firm's AC enhancement (Ashrafi, Xu, Kuilboer, & Koehler, 2006). In this vein, Cepeda-Carrión, Cegarra-Navarro and Jiménez-Jiménez (2012) consider that ISC support organizations' AC, since they enable new knowledge to be combined with past knowledge in order to be exploited.

There is still is a gap for researchers concerning the tie between AC and OA. Regarding OA, Lu and Ramamurthy (2011) suggest as a future research line the study of the mechanisms for developing routines and structures that facilitate learning and experimentation, and improve capacity building. A company with a stronger AC is more prepared to perceive changes in the markets and to learn from experience (Malhotra, Gosain, & Sawy, 2005). Ashrafi et al. (2005) state that there are no empirical studies in the literature to explain how and why investment in knowledge acquisition drives OA, and propose two concepts - AC and dynamic capabilities - as enablers for achieving agility. Hao, Yu and Dong (2011) point out the mediating role of AC by its translating knowledge management systems usage into higher order organizational capabilities, i.e., agility and innovativeness

To sum up, ISC lead to an enhanced AC, and a greater AC might improve the agility of

the organization. Based on this logic and previous research, we thus hypothesize:

H2: The relation between information systems capabilities (ISC) and organizational agility (OA) is mediated by absorptive capacity (AC).

2.4. The moderating effect of a hierarchy culture in the relationship between AC and OA.

Different organizational values generate disparate knowledge management (KM) behaviors and these will lead to varying outcomes (Alavi, Kayworth & Leidner, 2006). While some cultural values, such as openness and trust, can induce positive KM behaviors (e.g., knowledge contribution and sharing), which will lead to innovation, there are other values that might lead to dysfunctional KM behaviors (e.g., information hoarding) and, hence, negative results such as organizational rigidity. This means organizational culture may become a barrier that hinders AC and its effects if it remains excessively rigid and control-oriented.

Using the competing values framework (Cameron & Quinn, 2011), we have focused on the hierarchy culture (HC), which is often labeled as bureaucratic, top-down focused, rule-oriented, and by-the-book (Zammuto, Gifford & Goodman, 2000). This cultural typology is based upon minimal ambiguity levels and an excessive sense of safety, predictability, efficiency, stability, uniformity, etc. In short, it can be sustained that HC is a cultural typology essentially oriented toward efficiency and internal control. Moreover, its values are internally focused and are thus more aligned with keeping a static and rigid hierarchical structure than pursuing business opportunities in the market. We hence hypothesize:

H3: Hierarchy culture (HC) moderates (decreasing) the link between absorptive capacity (AC) and organizational agility (OA).

3. Research Method

3.1. Sample and data collection

We have chosen innovative classified sectors as the population for this study. These industries can be considered as hypercompetitive, requiring a flexible and quick response from organizations. The sector selection has been carried out using the classification developed by the Spanish National Institute of Statistics (Cotec, 2009) of high and medium-high technology industries. This generated a population of 2,360 firms. An off-line survey was used to gather data. Because the level of analysis is the organization, the respondent of the questionnaire was a senior management member. After one mailing effort, the outcome was 172 usable surveys (a 7.3% response rate). The organizations participating belonged primarily to the computer systems design (26.7%), machinery manufacturing (18%) and chemical (17.4%) sectors. Other industries were included in the manufacturing sectors of transportation equipment (8.1%), electrical equipment (7.6%), and computer and electronic products (7%). According to the European Union classification, 23.8% of the firms participating were large enterprises, with more than 250 employees. Of the respondents, 23.8% belonged to the research and development department, followed by the marketing department (20.9%), general management (14%), and the engineering department (9.3%). Most of the respondents were male (66%), whereas women represented 34%.

3.2. Measures

The review of the literature allowed us to identify validated measures for each construct.

Our efforts focused on making the necessary adjustments to the context of the study (i.e., the Spanish language and setting). A pilot test of the survey was conducted in order to assess the content validity. The ISC variable, as a superordinate multidimensional construct, was measured by eight items adapted from Wade and Hulland (2004). To assess AC as a superordinate multidimensional construct, we adapted 21 items from Jansen, Van Den Bosch and Volberda (2005). OA was also modeled as a superordinate multidimensional construct and measured by eleven items adapted from Lu and Ramamurthy (2011), Yang and Liu (2012), Bradley, Pratt, Byrd, Outlay, and Wynn (2012), and Tallon and Pinsonneault (2011). The measurement of the HC variable used an adaptation of the scale appearing in Cameron and Quinn (2011). This variable has been modeled as a unidimensional construct shaped by six reflective items. Finally, we controlled the size (number of employees) and the age (number of years since the founding) of the firm. All the variables were measured on the basis of seven-point Likert scales, except controls.

3.3. Data analysis

We have used Partial Least Squares (PLS) path modeling to test the research model. The choice of PLS is based on the following reasons (Roldán & Sánchez-Franco, 2012): (1) The focus of the study is the prediction of the dependent variables; (2) the sample (n = 172) is not very large; (3) the research model is complex according to the type of relationships (direct, mediated and moderated) described in the hypotheses and the levels of dimensionality; (4) this study uses latent variables scores in the subsequent analysis of predictive relevance, particularly in the implementation of the two-stage approach for modeling multidimensional constructs (Wright, Campbell, Thatcher, & Roberts, 2012); and (5) the nature of most theoretical constructs is defined, as we rely on a composite measurement model with a reflective design approximation, which means that indicators and dimensions represent different facets but are expected to be correlated (Henseler, 2014). This way, constructs are modeled as composites of their indicators without error term (Fornell, 1982). This study uses SmartPLS v. 3.2 software (Ringle, Wende, & Becker, 2015) for the PLS analysis, and PROCESS macro 2.13 (Hayes, 2013) for the moderated mediation analysis.

4. Results

4.1. Measurement model

First, the indicators and dimensions satisfy the requirement of reliability since their loadings are, in general, greater than 0.7 (Table 1). In order to accomplish this result, we carried out an item trimming process with some weak items of the AC instrument. In addition, some items of the HC construct also had weak loadings. Notwithstanding, we have decided to retain them in order to support the content validity of the scale. Due to size limitations, we only show loadings for dimensions.

Second, all multidimensional constructs and dimensions meet the requisite of construct reliability, because their composite reliabilities (CR) are greater than 0.7. Third, these latent variables attain convergent validity since their average variance extracted (AVE) surpasses the 0.5 level or are very near to it (Table 1). Lastly, Table 2 shows that all variables achieve discriminant validity following both the Fornell-Larcker and the $HTMT^{.90}$ criterion, however, the AC and OA variables may have a discriminant validity problem according to the $HTMT^{.85}$ criterion (Henseler, Ringle & Sarstedt, 2014).

Table 1: Measurement model results

Construct/*Dimension*	Loading	CR	AVE
Information systems capabilities (SMC)		**0.934**	**0.824**
Outside-in capabilities	0.876	0.908	0.832
Spanning capabilities	0.937	0.935	0.878
Inside-out capabilities	0.910	0.940	0.796
Absorptive capacity (SMC)		**0.899**	**0.691**
Acquisition	0.763	0.839	0.511
Assimilation	0.802	0.892	0.735
Transformation	0.919	0.862	0.611
Exploitation	0.834	0.793	0.563
Organizational agility (SMC)		**0.921**	**0.795**
Operational agility	0.860	0.911	0.773
Customer agility	0.946	0.912	0.776
Partnering agility	0.866	0.885	0.611
Hierarchy culture (reflective construct)		**0.851**	**0.492**

Notes: CR: composite reliability; AVE: Average variance extracted; SMC: superordinate multidimensional construct

Table 2: Measurement model. Discriminant validity

	Fornell-Larcker Criterion							Heterotrait-Monotrait Ratio (HTMT)					
	ISC	AC	OA	HC	Age	Size		ISC	AC	OA	HC	Age	Size
ISC	**0.908**						ISC						
AC	0.665	**0.831**					AC	0.761					
OA	0.638	0.765	**0.892**				OA	0.716	0.885				
HC	0.455	0.467	0.503	**0.701**			HC	0.508	0.504	0.548			
Age	0.064	0.099	0.144	0.157	**n.a.**		Age	0.069	0.102	0.151	0.175		
Size	0.199	0.131	0.132	0.125	0.327	**n.a.**	Size	0.212	0.141	0.137	0.131	0.327	

Notes: ISC: information systems capabilities; AC: absorptive capacity; OA: organizational agility; HC: hierarchy culture. Fornell-Larcker Criterion: Diagonal elements (bold) are the square root of the variance shared between the constructs and their measures (AVE). Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements. n.a.: non-applicable.

4.2. Structural model

Table 3 includes the main parameters obtained for the four models under study in the structural assessment. Model 1 describes the significant total effect (c = 0.642***) of ISC on OA once the effect of controls (age and size) has been considered. Model 2 shows how the direct effect of ISC on OA decreases, although it remains significant (c' = 0.236***), when AC is included. This supports H1. Furthermore, paths a and b_1 are significant. Therefore, both the decrement manifested in the direct effect (c') and the significance of the regression coefficients a and b_1 would be suggesting the potential existence of an indirect effect of ISC on OA via AC as a mediator (H2). Nonetheless, the key condition to determine such a mediating effect is to test the significance of $a \times b_1$ (Hayes, 2009). With this aim in mind, we have obtained the value for this indirect effect ($a \times b_1$ = 0.401) from SmartPLS, which is significant (Table 4). This output supports H2. Consequently, we assume a partial mediation of the AC in the relation between ISC and OA since the direct (H1 = c') and the indirect (H2 = $a \times b_1$) effects are both significant (Baron & Kenny, 1986). In addition, we have calculated the variance accounted for (VAF) index (Hair, Hult, Ringle, & Sarstedt, 2014), which determines the size of the indirect effect ($a \times b_1$) in relation to the total effect (c). When the VAF has an outcome between 20% and 80%, a partial mediation can be expected. This occurs in our case, given that the VAF for the indirect effect is 62.45% (Table 4). Finally, we have sought to take a further step forward by computing the standardized root mean square residual (SRMR), as the root mean square discrepancy between the correlations observed and the model-implied correlations (Hu & Bentler, 1999) for the model with the total effect and the

Table 3: Structural model results.

Relationships	Model 1	Model 2	Model 3	Model 4		Support
	SRMR cfm = 0.054	SRMR cfm = 0.047				
		R^2_{AC} = 0.442 / Q^2_{AC} = 0.297	R^2_{AC} = 0.442	R^2_{AC} = 0.442		
	R^2_{OA} = 0.426 / Q^2_{OA} = 0.321	R^2_{OA} = 0.621 / Q^2_{OA} = 0.484	R^2_{OA} = 0.636	R^2_{OA} = 0.647	f^2	
H1: ISC → OA	(*c*) 0.642*** (12.799) [0,563; 0,727]	(*c*') 0.236*** (3.150) [0.106; 0.353]	(*c*') 0.199** (2.645) [0.061; 0.305]	(*c*') 0.203** (2.769) [0.071; 0.314]		Yes
ISC → AC = *a*		0.665*** (15.118) [0.606; 0.748]	0.665*** (15.392) [0.605; 0.746]	0.665*** (15.237) [0.603; 0.745]		
AC → OA = b_1		0.603*** (8.387) [0.492; 0.725]	0.563*** (7.806) [0.437; 0.674]	0.528*** (7.280) [0.383; 0.625]		
HC → OA = b_2			0.143^{++} (2.645) [0.080; 0.258]	0.141^{++} (2.711) [0.069; 0.239]		
H3: HC × AC → OA = b_3				-0.117* (-2.073) [-0.269; -0.093]	0.035	Yes
Control variables:						
Age	0.115^{+} (2,150) [0.038; 0.215]	0.075^{ns} (1.915) [0.019; 0.146]	0.059^{ns} (1.518) [-0.002; 0.127]	0.050^{ns} (1.335) [-0.009; 0.114]		
Size	-0.031^{ns} [-0.106; 0.057]	-0.019^{ns} (0.340) [-0.095; 0.085]	-0.019^{ns} (0.338) [-0.089; 0.087]	-0.017^{ns} [-0.084; 0.081]		

Notes: ISC: information systems capabilities; AC: absorptive capacity; OA: organizational agility; HC: hierarchy culture; cfm: composite factor model
t values in parentheses. Bootstrapping 95% confidence intervals bias corrected in square brackets (based on n = 5000 subsamples)
***p < .001; **p < .01; *p < .05 (based on t(4999), one-tailed test). t(0.05, 4999) = 1.645; t(0.01, 4999) = 2.327; t(0.001, 4999) = 3.092.
$^{++}$p < .01; $^{+}$p < .05; ^{ns}: not significant (based on t(4999), two-tailed test). t(0.05, 4999) = 1.960; t(0.01, 4999) = 2.577; t(0.001, 4999) = 3.292.

Table 4: Summary of mediating effect tests.

Total effect on OA (Model 1)					Direct effects on OA (Model 2)					Indirect effect on OA (Model 2)						
			BCCI					BCCI					BCCI			
	Path	*t*	Lower	Upper		Path	*t*	Lower	Upper		Point estimate	*t*	Lower	Upper	Sig	VAF
ISC (*c*)	0.642***	12.271	0.554	0.723	H1: ISC (*c*')	0.236***	3.150	0.106	0.353	**H2**: ab_1 (via AC)	0.401***	7.527	0.324	0.499	Yes	62.45%
Control variables																
Age	0.115^{+}	2.150	0.038	0.215	Age	0.075^{ns}	1.915	0.019	0.146							
Size	-0.031^{ns}	0.631	-0.106	0.057	Size	-0.019^{ns}	0.340	-0.095	0.085							

Notes: ISC: information systems capabilities; AC: absorptive capacity; OA: organizational agility.
BCCI: Bias corrected confidence interval. Bootstrapping based on n = 5000 subsamples.
VAF: Variance accounted for.
***p < .001 (based on t(4999), one-tailed test). t(0.05, 4999) = 1.645; t(0.01, 4999) = 2.327; t(0.001, 4999) = 3.092.
$^{+}$p < .05; *ns*: not significant (based on t(4999), two-tailed test). t(0.05, 4999) = 1.960; t(0.01, 4999) = 2.577; t(0.001, 4999) = 3.292.

model with the indirect effect. Following Henseler et al. (2014), we have determined the SRMR for a composite factor model. This provides the exact fit of the composite factor model, thus constituting a confirmatory composite analysis. Model 1 (total effect) achieves a SRMR composite factor model of 0.054, which means an appropriate fit assuming the usual cut-off of 0.08 (Hu & Bentler, 1999). However, the SRMR composite factor model for Model 2 is still better: 0.047. This would imply an additional support for the mediating role of AC.

The moderation hypothesis (H3: b_3) of the hierarchy culture (HC) in the path between AC and OA is tested using the product-indicator technique (Chin, Marcolin, & Newsted, 2003). Model 3 includes HC and Model 4 adds the interaction term (HC×AC = b_3) (Table 3). The result seems to support H3 (b_3 = −0.117*) (Table 3, Model 4) (Figure 1). Moreover, the overall effect size for b_3 achieves an f^2 value of 0.035, which exceeds the minimum threshold of 0.02 (Chin, Marcolin, & Newsted, 2003).

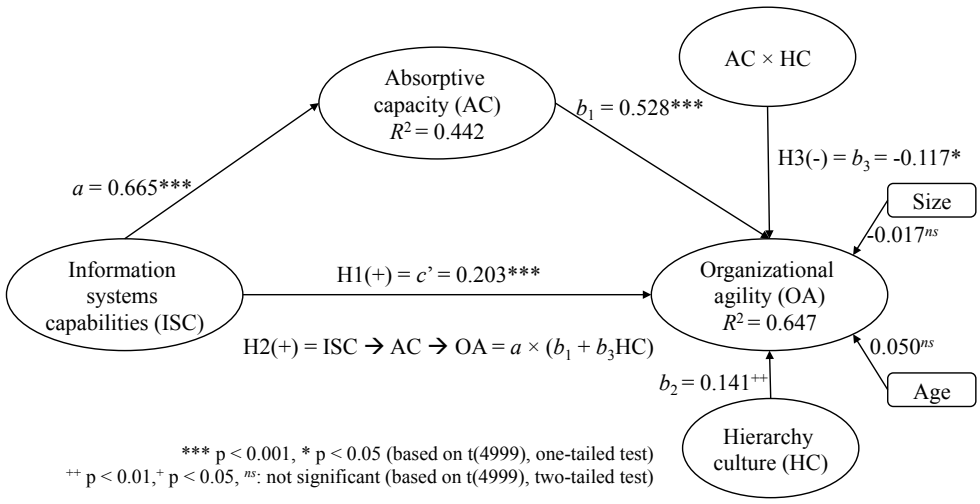

Figure 1: Model with a conditional indirect effect (Model 4)

The support for H3 together with the significant indirect effect (a×b_1) generates the emergence of a moderated mediation (Hayes, 2013). This involves the dependence of the indirect effect (a×b_1) on the value of HC (b_3), which would act as a moderator variable. As AC's effect on OA is contingent on the HC variable, so is ISC's indirect influence on OA. Following Hayes (2013), such an indirect impact is a × (b_1 + b_3HC).

In order to estimate this conditional indirect effect, we have applied the PROCESS macro developed by Hayes (2013). Using latent variable scores from SmartPLS 3 as input, PROCESS produces estimates and bias-corrected 95% bootstrap CI for the indirect effect at different values of HC as a moderating construct. Table 5A shows that the indirect effect of ISC on OA through AC is consistently positive and decreases as the HC values increase. A 95% CI bias-corrected bootstrap for the conditional indirect effect is above zero for the different values of HC. This indirect impact is significant in all the scenarios analyzed. Hence, AC partially mediates ISC's influence on OA, although this indirect effect decreases as HC increases its value. Finally, Table 5B contains an index of moderated mediation (−0.0512) (Hayes, 2015), which is also significant.

Last of all, the significant direct effect (non-hypothesized) of HC on OA (Models 3 and 4, Table 3) deserves to be commented on. In spite of its negative moderating influence on the path between AC and OA (Model 4), we find some evidence of a positive influence of the values associated with HC on the OA achieved by firms.

Table 5: Conditional indirect effect analyses

A) Conditional indirect effect of ISC on OA at values of HC as moderator					
				BCCI	
Mediator	HC	Effect	Boot SE	Lower	Upper
AC	-1.0029	0.4079	0.0604	0.3025	0.5412
AC	0	0.3565	0.0596	0.2531	0.4877
AC	1.0029	0.3051	0.0668	0.1881	0.4502
Note: Values for HC (moderator) are the mean and plus/minus one standard deviation (SD) from mean					
				BCCI	
Mediator	HC	Effect	Boot SE	Lower	Upper
AC	-1.3581	0.4261	0.0623	0.3146	0.5628
AC	-0.6497	0.3898	0.0589	0.2863	0.5203
AC	0.0638	0.3533	0.0596	0.2507	0.4856
AC	0.6185	0.3248	0.063	0.2162	0.4634
AC	1.2783	0.291	0.0697	0.1702	0.4419
Note: Values for HC (moderator) are 10th, 25th, 50th, 75th, and 90th percentiles					

B) Index of moderated mediation				
			BCCI	
Mediator	Index	SE (Boot)	Lower	Upper
AC	-0.0512	0.0223	-0.0994	-0.01

Notes: ISC: information systems capabilities; AC: absorptive capacity; OA: organizational agility; HC: hierarchy culture. Control variables: Age and Size on OA. BCCI: Bias corrected confidence interval. Bootstrapping based on n = 5000 subsamples.

5. Discussion

Organizations must develop capabilities which connect them permanently to their environment and their stakeholders, and which enable them to transform captured information into rapid and precise responses. This paper has posited OA as a clear example of this type of mechanism. This study also contributes to enhancing the recent research on the firm's strategic efforts and endeavors to find mechanisms that lead to improving OA, proposing a model with ISC and AC as its antecedents. Firstly, we find support for the direct relationship between ISC and OA, a link that was not completely clear in the previous literature. Secondly, from a mediation point of view, we also provide evidence of the existence of an indirect effect of ISC on OA through AC. Results reveal that the influence of ISC on OA is more an indirect than a direct effect. This means that the firm's ISC will impact on OA enhancement concerning the extent to which it is capable of generating AC. Thirdly, we find support for the hypothesis suggesting the negative moderating role of HC on the AC-OA link.

This work presents some significant academic implications. First, while previous studies have suggested that ISC can enable organizational agility (Sambamurthy et al., 2003; Lu & Ramamurthy, 2011), empirical evidence has been scarce, focused on partial aspects and lacking a framework to explain how ISC influence a firm's OA (Trinh-Phuong et al., 2012). This work tries to fill this gap, by developing and testing a comprehensive model, all of whose variables are defined in their most inclusive form of organizational capabilities.

Second, our results shed light on the existing gap concerning the potential impact of ISC on OA enhancement, and through which mechanisms they act. Furthermore, according to our results, we conclude that AC partially mediates the ISC-OA relationship

Thirdly results also indicate the counter effect of HC on the AC-OA link, acting as a moderator variable that decreases the direct link mentioned. Although the presence of cultural values associated with HC can hinder the positive effect of AC on OA, the indirect relationship remains significant.

This negative moderating effect surprisingly contrasts with a non-hypothesized direct

positive effect of HC on OA. This result, which is theoretically quite controversial, might be explained by the fact that some of the characteristic values that shape this culture are in line with some of the attributes that customers and other stakeholders are demanding from firms within the current economic crisis scenario. In this sense, customers are nowadays challenging firms to satisfy their preferences while remaining efficient and controlling their costs. Such a situation may hence require patterns associated with an HC typology (i.e., the emphasis on standardizing processes, the stress on controlling, the bureaucratic approach, etc.) This finding opens up possibilities for further research related to the influence of external factors on the relationship between ISC and OA (Chen et al., 2014)

This study also has clear managerial implications. Our results reveal that, in order to enhance OA, organizations ought to improve their ISC while being able to develop their AC. Although the importance of ISC as an antecedent of OA has gradually gained recognition, how to develop and to put it into practice still remains uncertain. Our paper suggests that managers should foster and deploy the firm's knowledge absorption mechanisms to effectively maximize the impact of IS efforts and investments on achieving agility.

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Effect of competitive tactics on performance: The case of the pharmaceutical industry.

Completed Research Paper

Julen Castillo-Apraiz
Universidad del País Vasco/Euskal Herriko Unibertsitatea UPV/EHU
julen.castillo@ehu.eus

Jesus Matey
Universidad del País Vasco/Euskal Herriko Unibertsitatea UPV/EHU
jesus.matey@ehu.eus

Abstract

Competitive tactics play a key role in explaining different levels of organizational performance since they are the linkers between strategy formulation and implementation. This study focuses on two main competitive tactics, namely, Quality-Oriented Competitive Tactic (Quality) and Cost-Oriented Competitive Tactic (Cost), which are the ones that are closely related to Porter's generic competitive strategies. Apart from that, we will analyze two other important competitive tactics, namely, Innovation-Oriented Competitive Tactic (Innovation) and Marketing-Oriented Competitive Tactic (Marketing) which will mediate the relationship between the main tactics and performance. Hence, we try to adopt an integrative posture by viewing competitive tactics in the pharmaceutical industry as inextricably linked, forming the fundamental pillars on which sustainable competitive advantage could be established.

Keywords: *Competitive tactics, Performance, Pharmaceutical industry.*

1. Introduction

Prior research indicates that competitive tactics play a key role understanding an organization's sources of performance. They are linkers between strategy formulation and implementation; that is, they are necessary tools that help operationalize competitive strategy, forming the fundamental pillars on which sustainable competitive advantage can be established.

Several extant studies derive from the work of Dess and Davis (1984). These studies have focused on the relationships between each competitive tactic and performance, but there is a lack of a global model which includes not only the main competitive tactics but also the relationships between them. To help fill this gap, this paper contributes to the literature in analyzing the relationship between the competitive tactics that are closely related to Porter's generic competitive strategies (Porter, 1980, 1985, 1991), namely Quality-Oriented Competitive Tactic (Quality) and Cost-Oriented Competitive Tactic (Cost) and the two tactics that mediate the relationship between those tactics and performance, namely Innovation-Oriented Competitive Tactic (Innovation) and Marketing-Oriented Competitive Tactic (Marketing).

We contribute on this issue by focusing on the pharmaceutical industry, specifically on the German pharmaceutical industry, which is often the source of benchmarking data due to its high level of profitability.

Managers and researchers should adopt a more integrative posture by viewing competitive tactics as inextricably linked, forming the fundamental pillars on which sustainable competitive advantage could be established. It is important to know the impact of each competitive tactic on performance since managers are often facing resource shortages and they need to focus on what leads on a higher performance.

2. Literature review and conceptual model

2.1. Competitive tactics

Competitive tactics are tools that help us translate into more concrete actions a strategy that is already formulated. They help firms implement their strategies (Barney, 2002). Thus, competitive tactics reflect the strategic orientation of the firm (Akan, Allen, Helms, & Spralls, 2006).

There is a lack of consensus about the concept of competitive tactics. In fact, some authors who have label this concept differently. For instance, Bourgeois (1980) talks about *competitive weapons,* while Allen and Helms (2006) talk about *specific strategic practices*. Other studies (e.g., Ferrier, Fhionnlaoich, Smith, & Grimm, 2002; Fernández & Usero, 2009; Otero & Varela, 2008) analyze *competitive actions*. Green, Lisboa and Yasin (1993) use the concept of *competitive methods* used previously by Dess and Davis (1984). Dess and Davis (1984) argue that "these competitive methods provide a means for characterizing the strategies of competitors within an industry" (p. 470).

Competitive tactics, whatever definition is used, are linked to the performance of firms, which is the dependent variable in our study. It is important to consider performance in a broad sense in order to capture a great part of its meaning (see Section 3.2).

The competitive tactics that will be analyzed, which are based on Dess and Davis (1984) and Robinson and Pearce (1988), are *Quality, Cost, Innovation* and *Marketing*. The major features of each competitive tactic applied to the pharmaceutical industry are described below.

The two main tactics, which are closely related to Porter's generic competitive strategies, are Quality and Cost (not mutually exclusive). Quality involves acquiring a high level of reputation in the industry, investing in process research, development and innovation (R&D&I), having strict quality control procedures and extensive customer service. Quality is an important tactic mainly for pioneers, which are firms that are more focused on quality; by definition, pioneer firms try to be first-to-market. Cost involves making a great effort for reducing costs, trying to have lower prices than the ones of the competitors, focusing on low price marked segments etc. This tactic would be more effective in the case of followers, which are firms that wait until the loss of patent protection of the drugs that were developed by pioneers.

The other two competitive tactics are Innovation and Marketing. They also play an important role in the model since they mediate the relationships between the main tactics and performance. Innovation consists of developing new drugs and developing and refining the existing ones, focusing in specialized products and in high-priced segments. Marketing consists of trying to gain strong brand identification, focusing on promoting and advertising and on its quality and trying to innovate in marketing techniques.

Firstly, Innovation mediates the relationship between Cost and performance *(mediation 1)*. Zahra and Covin (1993) conclude that cost orientation is positively related to innovation orientation, whereas surprisingly Radas (2005) does not conclude that firms focusing on a cost orientation innovate less than the ones that follow mainly a quality orientation. Hilman and Kaliappen (2014) do demonstrate that Innovation partially mediates the relationship

between Cost and performance, with a positive relationship between the variables. Nevertheless, we argue that firms focusing on a cost orientation would not be the ones that would take advantage of a bigger orientation to innovation (Robinson & Pearce, 1988; Zahra, 1993). In other words, we defend that Cost would have a negative impact on Innovation, since an emphasis on a cost reduction would make it difficult to discover new drugs or develop the existing ones.

Secondly, Marketing mediates the relationship between Quality and performance *(mediation 2)*. Some works defend that Marketing and Quality are interrelated, highlighting the impact of Marketing on performance (e.g., Lai, 2003; Lai & Cheng, 2005; Lai, Yeung, & Cheng, 2012). Du and Wan (2008) defend that an emphasis on Quality needs the mediation of Marketing in order to have a significant impact on performance, whereas Homburg, Krohmer and Workman (2004) conclude that this mediation is partial.

Thirdly, we propose that Marketing mediates the relationship between Innovation and performance *(mediation 3)*. Both followers and pioneers need to make the customers see the benefits of their products but it is more important in the case of pioneers since their drugs add incremental benefits to the ones that are already been commercialized. Pioneers are said to be the ones benefitting more from an innovation orientation, and as proposed by Geroski and Murfin (1990), when benefits of Marketing are to be sustainable in the long term, an aggressive technological posture is appropriate. This posture is usually closely linked to the innovation level.

The research hypotheses to be tested are:

Hypotheses 1-4: Quality-Oriented Competitive Tactic (1), Cost-Oriented Competitive Tactic (2), Innovation-Oriented Competitive Tactic (3) and Marketing-Oriented Competitive Tactic (4) have a positive impact on performance.

Hypothesis 5: The direct relationship between Cost-Oriented Competitive Tactic and performance is mediated by Innovation-Oriented Competitive Tactic.

Hypothesis 6: The direct relationship between Quality-Oriented Competitive Tactic and performance is mediated by Marketing-Oriented Competitive Tactic.

Hypothesis 7: The direct relationship between Innovation-Oriented Competitive Tactic and performance is mediated by Marketing-Oriented Competitive Tactic.

3. Research methodology

3.1. Sample and data collection

Our population comprises all the German pharmaceutical firms operating under the 2834 SIC code, based on Dun & Bradstreet Database (928 firms). We chose German pharmaceutical firms as the sample for this study because this German industry is a clear source of benchmarking data, that is, the results obtained using the data from the German pharmaceutical industry could be extended to many other countries. Using the computer-assisted telephone interviewing (CATI) procedure and conducting stratified proportional sampling that covered the original population, 200 valid responses were obtained from CEOs in the German pharmaceutical industry with the help of a German institute. The sample represents around 21.6% of the population. The sample was stratified (stratified proportional sampling) by firm size (measured by the total number of employees), federal state, and turnover. In order to obtain 200 valid responses, 597 managers were interviewed; thus, the final response rate was around 33.5%. For every firm in the sample, we collected data associated with the 3-year period immediately before and after the enactment of the Act on

the Reform of the Market for Medicinal Products (AMNOG) in 2011, trying to avoid the effect of the law on the relationships. The data were collected in mid-2014.

The Ten Times Rule is a rule of thumb which gives the researcher an approximation of the required sample size. We took into account the largest number of predictors for a particular dependent variable, in this case 4 (Chin, 2010). Then, the minimum would be 4.10=40. Nevertheless, a power analysis must be conducted in order to ensure accuracy, given that sample size is extremely dependent on the particular SEM model (Chin, 1998). Taking the work of Cohen (1992, Table 1) as a reference point and keeping in mind that we are testing a multiple regression model, the effect size value is 0.15, if we consider the average effect of observed effects is to be medium. Since the level of significance is 5%, a minimum of 84 observations would be needed, following Cohen (1992, Table 2). That is, over than 84 observations would be needed if the investigator wants to verify the statements with a power of 80%. We conducted an additional power analysis using the G*Power software following Faul, Erdfelder, Lang and Buchner (2007), and we reached the same conclusion as that in the first power analysis.

Thus, with a sample size of 400, we exceeded the threshold required. Therefore, we can conclude that our sample was representative of the population. Although the sample size is big, it does not pose a problem due to the partial nature of the partial least squares PLS regression technique (Chin, 2010).

3.2. Measures

Following Diamantopoulos, Sarstedt, Fuchs, Sebastian and Wilczynski (2012), the dependent and independent variables were measured using the means of multiple items on 5-point Likert scales, ranking from 1 ("much below the average") to 5 ("much above the average"). Consistent with prior research, we adapted the existing measurement scales for the competitive tactics that were validated in the extant literature (e.g., Dess & Davis, 1984; Robinson & Pearce, 1988; Ruiz-Ortega & García-Villaverde, 2008) thereby ensuring high reliability of our results.

The measurement scale for performance was based on Akan et al. (2006) and Allen and Helms (2006). On the one hand, most researchers agree that multiple measures offer a rich perspective that cannot be provided by a single approach. On the other hand, respondents may be reluctant to give the figures. We take into account the increase in the number of employees following the publication of prior studies (e.g., Davis & Pett, 2002; Durand & Coeurderoy, 2001; Lee, Koo, & Nam, 2010).

3.3. Results of data analysis

The data analysis was performed using the partial least squares structural equation modeling (PLS-SEM) technique, which is a useful multivariate method in strategic management (Hair, Sarstedt, Pieper, & Ringle, 2012). We used the SmartPLS 3 Professional (Ringle, Wende, & Becker, 2014) software. Figure 1 shows the final structural model (Model 4). All the constructs are defined in a reflective way since the causality goes from the variable to the items (Podsakoff, Shen, & Podsakoff, 2006).

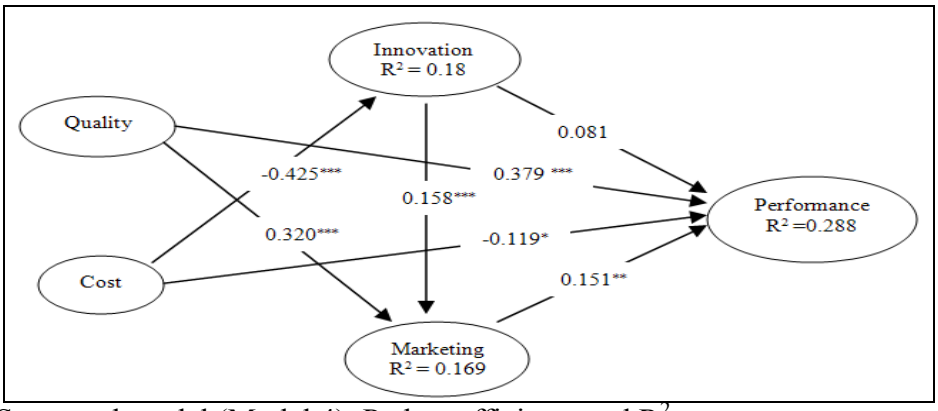

Figure 1: Structural model (Model 4): Path coefficients and R^2
Note: Lohmöller settings were used. The pairwise deletion algorithm was used to handle missing data.
*** p < .01; ** p < .05; * p < .1

Following Klarner, Sarstedt, Hoeck and Ringle (2013), we engaged in a step-by-step analysis of the structural model. Model 1 is composed of the two main tactics, namely, Quality and Cost, and performance. Model 2 is composed of the main tactics and *mediation 1*, Model 3 of the main tactic and *mediation 2* and Model 4 of the main tactics and *mediation 1*, *mediation 2* and *mediation 3,* simultaneously (Figure 2).

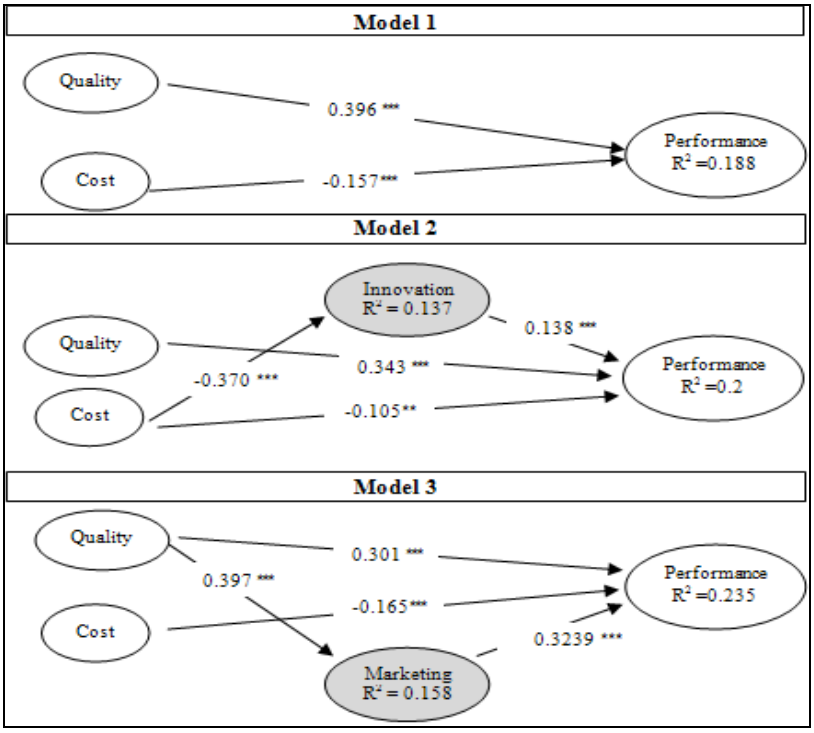

Figure 2: Structural model with separate analysis of mediators: Path coefficients and R^2
*** p < .01; ** p < .05; * p < .1

Before analysing Model 4, both measurement model and structural model assessments were conducted firstly for Model 1, Model 2 and Model 3. Some of the results of the measurement models' assessments are shown in Table 1. The smallest factor loadings in those models are 0.692, 0.692 and 0.695, respectively. Both composite reliability (CR) and average variance extracted (AVE) meet common thresholds of 0.7 for CR (Nunally & Bernstein, 1994) and 0.5 for AVE (Fornell & Larcker, 1981). Cronbach's alpha is considered as a conservative measure of internal consistency reliability. Cronbach's α values are above or

very close to 0.7 (Nunally & Bernstein, 1994). We assessed the discriminant validity using the heterotrait-monotrait ratio of correlations (HTMT), following Henseler, Ringle and Sarstedt (2014). In all cases values are below the threshold of 85% (Kline, 2011). Following Henseler et al. (2014), we report the standardized root mean square residual (SRMR), which are respectively 0.049, 0.095 and 0.039, that is, fair fit or close, following Browne and Cudeck (1993).

Table 1: Evaluation results: Measurement model–Model 1, Model 2 and Model 3

	Model 1			**Model 2**			**Model 3**		
Constructs/ indicators	CR	Cronbach's α	AVE	CR	Cronbach's α	AVE	CR	Cronbach's α	AVE
Quality	0.808	0.683	0.512	0.808	0.683	0.512	0.808	0.683	0.512
Cost	0.886	0.810	0.722	0.887	0.810	0.724	0.886	0.810	0.722
Innovation				0.804	0.698	0.507			
Marketing							0.926	0.891	0.761
Performance	0.949	0.935	0.757	0.949	0.935	0.757	0.949	0.935	0.757

Note: CR = Composite reliability; AVE = Average variance extracted.

The Structural model assessment of Model 1, Model 2 and Model 3 is shown in Table 2. The target constructs' percentage of variance explained (R^2) is a key criterion. The explanatory level of the models is around 20%. The Stone-Geisser criterion Q^2 values are obtained from running blindfolding procedures and range above the threshold level of zero, indicating that the exogenous constructs have predictive relevance for the endogenous construct under consideration. There are no collinearity problems since each construct's tolerance measured by the variance inflation factor (VIF) is higher than 0.2 and lower than 5. Boostrapping has been used to assess the significance of path coefficients.

Table 2: Assessment of structural model–Model 1, Model 2 and Model 3

	Model 1			**Model 2**			**Model 3**		
Endogenous constructs	R^2		Q^2	R^2		Q^2	R^2		Q^2
Innovation				13.7%		0.047			
Marketing							15.8%		0.117
Performance	18.8%		0.14	20%		0.149	23.5%		0.176
Path	Path coeff.	VIF	*t*-value	Path coeff.	VIF	*t*-value	Path coeff.	VIF	*t*-value
Quality→ Performance	0.396	1.003	10.105 ***	0.343	1.207	7.230 ***	0.301	1.191	6.594 ***
Cost→ Performance	-0.157	1.003	3.579 ***	-0.105	1.173	2.089 ***	-0.165	1.004	4.009 ***
Cost→ Innovation				-0.370	1.000	8.201 ***			
Quality→ Marketing							0.397	1.000	8.679 ***
Innovation→ Marketing									
Innovation→ Performance				0.138	1.394	2.779 ***			
Marketing→ Performance							0.239	1.189	5.106 ***

Note: Path coeff. = Path coefficient. The cross-validated redundancy measure Q^2 is derived from the blindfolding procedure with an omission distance of 7. The *t*- values are derived from the bootstrapping procedure with 400 cases, 5,000 samples, and the pairwise deletion algorithm. VIF = variance inflation factor.
*** p < .01; ** p < .05; * p < .1

Assessing *mediation 1* (model 2), *mediation 2* (model 3) and *mediation 3* (model 4), we need to compare each model with model 1, model 1 and model 2, respectively.

In order to assess the *mediation 1*, we checked first if Cost → Performance path is statistically significant in model 1 (*t* value of 3.579, $p < 0.01$). Then, we checked that both indirect effects were significant in Model 2 (Cost → Innovation path's *t* value= 8.201, $p < 0.01$; Innovation → Performance path's *t* value=2.779, $p < 0.01$). Considering the sample mean in boostrappings, the direct effect decreased (in model 1 it was 0.163 whereas in model 2 it is 0.106). Following Preacher and Hayes (2004; 2008), we calculated the standard deviation (0.018) of the indirect effect of all the 5000 subsamples. Dividing the original value of the path coefficient obtained in the bootstrapping (0.105) by the standar deviation (0.018) we obtained the *t* value of the indirect effect (5.83, $p < 0.01$), which was significant. The variance accounted for (VAF) was 33%, that is, there is a *partial mediation* (Table 3).

Similarly, we assessed *mediation 2* and *mediation 3*. Since VAF was in both cases larger than 20% (24% and 34%, respectively), both are also *partial mediations* (Table 3).

Table 3: Separate analysis of mediating effects

	Mediation 1 (Model 2) INNOVATION				**Mediation 2 (Model 3)** MARKETING				**Mediation 3 (Model 4)** INNOVATION & MARKETING			
	Dir.	Ind.	Tot.	VAF	Dir.	Ind.	Tot.	VAF	Dir.	Ind.	Tot.	VAF
Qual. → Perf.					0.301	0.095	0.396	**24%**				
Cost → Perf.	-0.105	-0.051	-0.156	**33%**								
Inn. → Perf.									0.084	0.045	0.13	**34%**

Note: Qual. = Quality; Perf. = Performance; Inn. = Innovation; Dir = Direct effect; Ind. = Indirect effect; VAF= Variance accounted for.

The results of the final model (Model 4) are shown in Figure 1. Table 4 and Table 5 present the assessment of the measurement model. Assessing the internal consistency reliability, all the CR values were above 0.7. Cronbach's α values are above or very close to 0.7. Convergent validity was assessed using AVE values. All the values were above or very close to 0.5. We assessed discriminant validity using HTMT. In all cases, the values were below the threshold of 85% (Kline, 2011). The SRMR is 0.07 (a fair fit following Browne and Cudeck, 1993). Table 6 shows the assessment of the structural model.

Table 4: Evaluation results. Measurement model–Model 4

Constructs/indicators	Loading	Composite reliability	Cronbach's α	AVE
Quality-orientated Competitive Tactic		0.797	0.663	0.497
- Extensive customer service (Q_custom)	0.713			
- Process oriented R&D&I (Q_proIDi)	0.712			
- Strict quality control (Q_qu_contr)	0.633			
- Reputation in industry (Q_repu)	0.756			
Cost-orientated Competitive Tactic		0.890	0.8816	0.731
- Low-priced market segment (C_low_p_s)	0.871			
- Lowest cost per unit (C_lowcost)	0.781			
- Pricing below competitors (C_price_b)	0.908			
Innovation-Oriented Competitive Tactic		0.799	0.678	0.498
- New product development (I_NPD)	0.722			
- High-priced market segments (I_highPseg)	0.690			
- Specialised products (I_special_pt)	0.733			
- Develop and refine established products	0.676			

(I_stablish)				
Marketing-Orientated Competitive Tactic		0.918	0.879	0.738
- Influence in distribution channels (M_distr)	0.747			
- Innovation in marketing techniques (M_mk_tech)	0.836			
- Promote and advertise above industry (M_promo)	0.919			
- Efforts in quality of advertising (M_q_adv)	0.921			
Performance		0.943	0.927	0.736
- Growth in number of employees (P_EMPLOYEE)	0.738			
- Total asset growth (P_asset)	0.897			
- Net income growth (P_income)	0.846			
- Overall performance / success (P_overall)	0.903			
- Total revenue growth (P_revenue)	0.858			
- Market share growth (P_share)	0.893			

Note. AVE = Average variance extracted.

Table 5: Discriminant validity assessment: Heterotrait-monotrait ratio of correlations–Model 4

	Cost	Innovation	Marketing	Performance	Quality
Cost					
Innovation	-0.491				
Marketing	-0.033	0.374			
Performance	-0.255	0.421	0.353		
Quality	-0.225	0.639	0.49	0.619	

Table 6: Assessment of structural model: Model 4

Endogenous constructs	R^2	Q^2
Innovation	0.18	0.067
Marketing	0.169	0.111
Performance	0.288	0.208

Path	Path coefficient	Collinearity (VIF)	f^2	*t*-value	Bias corrected 95% CI (direct effects)	Bias corrected 95% CI (indirect effects)
Quality→ Performance	0.379	1.325	0.072	5.560***	[0.250;0.513]	[0.006;0.098]
Cost → Performance	-0.119	1.236	0.021	1.820*	[-0.258;-0.012]	[-0.109;0.013]
Cost→ Innovation	-0.425	1.000	0.115	6.768***	[-0.559;-0.326]	
Quality → Marketing	0.320	1.199	0.096	4.934***	[0.205;0.458]	
Innovation → Marketing	0.158	1.199	0.042	2.480**	[0.050;0.299]	
Innovation → Performance	0.081	1.470	0.006	1.338	[0.005;0.239]	[0.001;0.061]
Marketing → Performance	0.151	1.219	0.051	2.401**	[0.025;0.274]	
Cost → Marketing						[-0.122;-0.017]

Note: The cross-validated redundancy measure (Q^2) is derived from the blindfolding procedure with an omission distance of 7. The effect size (f^2) allows the assessment of a construct's contribution to an endogenous latent variable. The *t*- values are derived from the bootstrapping procedure with 400 cases, 5,000 samples, and the pairwise deletion algorithm. VIF = variance inflation factor. CI = Confidence interval.
*** p < .01; ** p < .05; * p < .1

4. Results and conclusion

This study attempts to shed some light on the important issue of competitive tactics since they play a key role in understanding the sources of performance of organizations.

Managers and researchers should adopt a more integrative posture by viewing competitive tactics as inextricably linked, forming the fundamental pillars on which sustainable competitive advantage could be established. We seek to fill a gap in the business literature by

developing an integrative framework that outlines the relationships between the main competitive tactics.

We conducted a step-by-step analysis to test the hypotheses. For the main competitive tactics, our findings reveal that Quality (Table 6; path coefficient of 0.379, $p < 0.01$) has a positive influence on performance, confirming Hypothesis 1. Surprisingly, Cost has a negative effect on performance (Table 6; path coefficient of -0.119, $p < 0.1$), not supporting Hypothesis 2. Following Dess, Lumpkin and Covin (1997), "(...) since the cost leadership scale assesses this strategic attribute rather than the change in this attribute, the negative correlation with profitability is not counterintuitive as it may initially appear" (p. 688).

Confirming Hypothesis 5, the direct relationship between Cost and performance is mediated by Innovation. Likewise, Hypothesis 6 is supported, that is, the direct relationship between Quality and performance is mediated by Marketing.

Marketing has a significant impact on performance (Table 6; path coefficient of 0.151, $p < 0.05$), confirming Hypothesis 4.

In Model 2, that is, before including Marketing in the analysis, Innovation had a significant effect on performance (Table 2; path coefficient of 0.138, $p < 0.01$). Nevertheless, when both Innovation and Marketing (Model 4) were included, the significant mediating effect of Marketing between Innovation and performance (Hypothesis 7) caused the rejection of Hypothesis 3, that is, Innovation has not a significant effect on performance (Table 6; path coefficient of 0.081, $p > 0.1$).

Considering the effect size (f^2) values (Table 6), researchers and managers should also take into consideration that, with the exception of the effect of Cost on performance, the largest contribution of a construct towards explaining the variance of performance is Quality. Hence, in the pharmaceutical industry managers really need to focus on quality.

5. Limitations and directions for further research

As with any empirical research, our study is not without limitations. Firstly, only the main competitive tactics were included as predictors of performance in this study. Other constructs (such as capabilities) could have been included for a better explanation of performance. Further, we have analyzed restricted aspects of performance only. Secondly, the managers were not asked for objective measures since "German managers, for example, emphasize privacy of information to a greater extent than managers in other cultures" (Homburg et al., 2004, p. 1336). We think that respondents would have been reluctant to give the figures. The relative comparisons of the managers' responses might be problematic due to the subjectivity of perceptions. However, following Spanos and Lioukas (2001), we think that managers' perceptions properly reflect the strategic behavior of their firms. Thirdly, since we studied German pharmaceutical firms, it must be acknowledged that the path coefficients could differ significantly across countries and sectors, that is, the results should be extrapolated with extreme caution.

The effect of competitive tactics on performance differs depending on the moment of entry of the business, that is, entry timing is considered a key factor that warrants attention. Researchers can go a step further considering the moment of entry as a discrete variable and using, for example, the theoretical Golder and Tellis's (1993) definition of market pioneering, that is, market pioneers are the first businesses who sell their products in a concrete product category. The sample could be divided into two (Pioneers vs. Followers) like some authors suggested (e.g., Covin, Slevin, & Heeley, 1999; Kerin, Varadarajan, & Peterson, 1992; Shamsie, Phelps, & Kuperman, 2004) or even into three groups (Pioneers vs. Early Followers vs. Late Followers) following other works (e.g., De Castro & Chrisman, 1995; Durand &

Coeurderoy, 2001; Ruiz-Ortega & García-Villaverde, 2008). Then, the path coefficients for every group could be analyzed. Conducting a multigroup analysis it could be assessed whether differences in the path coefficients are statistically significant.

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Quality management practices, knowledge management and key business results in SMEs and large organizations: a multi-group analysis

Completed Research Paper

Arturo Calvo-Mora
University of Seville
schmidt@us.es

Antonio Navarro-García
University of Seville
anavarro@us.es

Manuel Rey-Moreno
University of Seville
mrmoreno@us.es

Rafael Periáñez-Cristóbal
University of Seville
rafacris@us.es

Abstract

Following the Total Quality Management philosophy and the knowledge management (KM) approach, this contribution aims to study the influence of process management methodology (PMM) and partner management (PM) on KM, and the relationships between this variable and key business results. The conceptual model is tested on a sample of 225 Spanish companies. PLS-SEM approach was used to test the research model. In order to assess the moderating effects of organisational size, a multi-group approach was adopted using two subsamples with large companies and small and medium-sized enterprises (SMEs). The findings indicate that the use of PMM and partner involvement are key factors for KM to have a significant impact on the key business results (KBR). Moreover, the organisational size is determinant when analysing the effect of PMM and PM on KM.

Keywords: *Knowledge management, EFQM Model, Moderating effects, Organisational size.*

1. Introduction

The literature contributes evidence of relationships and synergies between total quality management (TQM) practices and knowledge management (KM). In this sense, the more studied topics refer to how quality management favours knowledge creation (Linderman et al., 2004), knowledge transfer and the complete process of creation, sharing and application of knowledge (Molina et al., 2007). Various studies (Bou-Llusar et al., 2009; Kim et al., 2010) show how excellence models offer a suitable reference framework for the implementation of TQM. Benavides and Quintana (2003) maintain that similarities exist between KM activities and the evaluation criteria of the EFQM Model.

However, there is a lack of research that empirically analyses the suitability of the EFQM Model as a reference framework for a KM implementation and how it can positively influence the key results of the organisation. Neither are there research studies which use a horizontal reading of the EFQM Model to analyse questions related to TQM and KM. The horizontal reading of the EFQM Model through the transverse axes is a powerful tool for analysing important concepts of the organisation, although it is not as obvious as the traditional reading through criteria and sub-criteria. In this study, the transversal analysis of the EFQM Model allows KM to be analysed in organisations which have been subjected to the evaluation process, taking into account that KM is not contemplated in any specify criterion of the

model. More specifically, it will be attempted to analyse two important aspects for the effectiveness of KM: PMM (Asif et al., 2013) and the management of external alliances (Daud et al., 2011), because, knowledge management must begin with the knowledge that the organisation obtains from its internal processes, as well from its main partners and external collaborators. In addition, the effectiveness of KM will be analysed through the impact on the key business results (KBR).

Finally, the previous practices and the results can be seen to be conditioned by the size of the organisation. Thus the organisational characteristics of SMEs, such as informality at the process level, person-to-person contact, limited human resources, limited financial assets, limited access to technology or shortage of time, could encourage the management of their knowledge (Durst and Edvardsson, 2012; McAdam and Reid, 2001). For that reason, the present study attempts to reach the following objectives: (1) Confirm the reliability and validity of the horizontal reading of the EFQM Model for studying key aspects of KM, (2) Analyse the relationships between three transverse axes of the EFQM Model (PMM, PM and KM) and KBR, (3) Study the moderating effect that organisational size can have on the relationships between the previous variables.

2. Integrating TQM, EFQM Model and KM

TQM is a comprehensive management philosophy oriented towards achieving excellent results in relation to stakeholders (Prajogo and McDermott, 2005). In order to attain these results, it is crucial to be able to count on the commitment and involvement of all the people in the organisation, as well as the use of certain management tools, techniques and practices. The principles and practices for TQM to produce the desired effects on an organisation's performance are called critical factors (e.g., leadership, strategic planning). Kim et al., (2010) show how excellence models offer a suitable reference framework that facilitates the implementation and improvement of TQM. In Europe, the EFQM Model is the best-known and most widespread reference when introducing and improving a TQM system. Bou-Llusar et al., (2009) point out how the use of the EFQM Model guarantees that the management practices employed form a coherent system.

Knowledge is a flow that combines values, experiences, abilities and attitudes that facilitate a framework of analysis for the assessment and new incorporation of experience and information (Davenport and Prusak, 1998). For Ju et al., (2006), TQM and KM have points in common: orientation towards results; the search for stakeholder satisfaction or a people focused management approach. Thus, certain critical factors of TQM such as top management commitment, PMM, employee training and empowerment or PM, have a positive effect on the KM process. Linderman et al., (2004) go further, by considering that TQM and KM seek the same objective: to create and use tacit and explicit knowledge more efficiently, at individual and collective level, to continuously improve and to obtain better results. Molina et al., (2004) confirm that companies which follow principles and practices of quality, strengthen the transfer and transferability of knowledge. Molina et al., (2007) emphasise the importance of technical and social aspects of quality and KM so that the knowledge transfer process is efficient. Daud et al., (2011) examine the influence of social and hard factors of TQM in the acquisition, generation and application of knowledge. The results indicate that behavioural or social aspects of management favour KM processes to a greater extent in comparison with TQM technical factors. Specifically, human capital is the main factor that influences KM processes. In short, KM processes do not make sense if they are not developed systematically. To be competitive, organisations need to continuously generate and assimilate knowledge and new capabilities. Therefore, TQM as a management philosophy based on

continuous improvement, innovation and learning can serve as a context and support for the start-up and later development of KM.

Benavides and Quintana (2003) maintain that the EFQM Model constitutes an element of stimulus and fundamental support to KM, and that there are important relationships between the critical activities of KM and the fundamental concepts of excellence and criteria of the EFQM Model.

The aim of the EFQM Model is to support organisations to achieve business excellence through continuous improvement, learning and innovation. The model presents a non-prescriptive working framework which analyses the relationships between what an organisation does and the results that it is able to attain. The EFQM Model includes eight fundamental concepts of excellence and nine criteria. The fundamental concepts outline the foundation for achieving sustainable excellence in any organisation. They can be used as the basis to describe the attributes of an excellent organisational culture. The criteria that the model proposes represent the indicative elements of the degree of progression which a certain organisation follows to achieve excellence. These criteria, or dimensions, are specified in five agents (leadership, policy and strategy, partnerships and resources, people and process), and four results (customers, employees, society and key results). Moreover, the EFQM Model has a dynamic nature. It indicates that activities such as innovation, learning or creativity, boost and empower the impact that the model's agents have on the results (EFQM, 2003).

However, the EFQM Model is not a set of unconnected criteria. On the contrary, it presents a series of related practices which offer high levels of continuity and coherency. The interpretation of the relationships between the criteria are shaped by the so-called transverse axes. The existence of these axes implies that, by adopting a systemic management approach, when starting up improvement projects in any one of the processes or practices of the organisation, effects will be obtained in more than one criterion. This means global improvements in the organisation cannot be achieved if the different aspects of the criteria of the model are not simultaneously approached as interdependent elements.

3. Research model and hypotheses

The research model is based on the extent to which the organisation can improve its key results through KM, for which it will have to apply PMM, as well as having the participation and involvement of its strategic partners in the process. Moreover, the relationship between these variables may be affected by organisational size (Figure 1).

3.1. Process management methodology and knowledge management

PMM includes the following activities: assignment of proprietors or those responsible for the processes; implementation of standardised systems for its management; establishment of objectives and monitoring and measurement systems; and systems of analysis and improvement of these processes. These activities need to document the processes, in order to describe what the organisation does and, consequently, to make its knowledge and capacities explicit (Tang and Tong, 2007). Therefore, PMM facilitates the creation of knowledge (Asif et al., 2013), as the processes include concepts, methods and techniques to support the design, implementation and analysis of the activities that generate value. Accordingly, the information derived from the activities that form the processes are transformed into knowledge. PMM also favours the storage and the transfer of knowledge (Molina et al., 2007) when cooperating to transform it from tacit to explicit. Therefore, we propose the following hypothesis:

H1: Process management methodology positively affects knowledge management.

3.2. Partner management and knowledge management

Companies that maintain excellent relationships with their partners can take advantage of synergies and access and exchange new or complementary knowledge, which allow the generation of value for both parties (Daud et al., 2011). This exchange of knowledge can even be obtained without having to produce explicit knowledge, as it can be made through the exchange of people or groups with common objectives and cultures which will be able to work together effectively (Davenport and Prusak, 1998). Confidence between the partners is an important factor that influences the effectiveness of knowledge transfer. Confidence is associated with the belief that organisations act coherently and according to expectations (Spekman et al., 2002). Confidence is closely related to the risk and the protection of knowledge. A reduction in confidence between organisations will be translated into a greater risk of losing critical knowledge. On the contrary, confidence will encourage the actors to actively share their knowledge, ensuring that this will not be used against their objectives (Linderman et al., 2004). Therefore, it is hoped that an organisation that has greater levels of confidence in its collaborative relationships with its partners, manages knowledge in a better manner (Loke et al., 2012). Accordingly, we propose the following hypothesis:

H2: Partner management positively affects knowledge management.

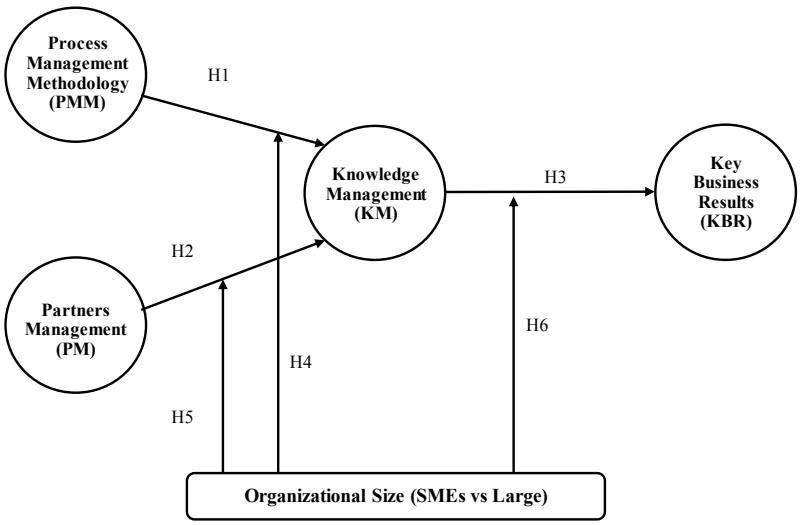

Figure 1: Research model and hypotheses

3.3. Knowledge management and key business results

The KBR in the EFQM Model attempt to measure what the organisation obtains in relation to its strategic results and planned yield. More specifically, the strategic key results of the economic-financial type, as well as those of a non-economic nature, are analysed which show the success achieved by the implementation of the strategy. The positive relationship between KM and financial results has been confirmed in the study of Tanriverdi (2005). More specifically, Tarí and García-Fernández (2013) reach the conclusion that the processes of creation, transfer and application of knowledge influence economic results through greater product diversification, greater customer loyalty and increased automatic control over the work. The key economic-financial and non-economic indicators used by the organisation to measure its operational efficiency were also investigated. Hence, Zack et al., (2009) indicate how knowledge management contributes to improving the operational results through the

development of a global vision of the company, empowerment, improvement in decision making, reduction of errors, teamwork or the training and qualification of the workers. Therefore, the following hypothesis is proposed:

H3: Knowledge management positively affects key business results.

3.4. The moderating role of organisational size

The management of SMEs must be based on a philosophy and a perspective different from those of larger sized organisational units. Gray and Mabey (2005) indicate that size influences the decision making processes and strategic choices of companies. In small businesses, the important decisions are taken day to day, with the short term view predominating and planning is not given its due importance. Also, the simpler organisational structure in SMEs entails greater centralisation in decision making.

Another important factor that limits the competitiveness of SMEs is their difficulty in accessing resources, especially those of a financial and intangible nature. It is difficult for SMEs to access capital markets which is why it is more complicated for them to take advantage of cutting-edge technological knowhow or to contract highly qualified employees. Innovation in SMEs tends to be more informal and ad hoc, which may lead to a short-term viewpoint. Furthermore, innovation in SMEs is usually linked with development orientation, through the continuous improvement of PMM, whereas that of large companies is usually linked with research (Laforet, 2013).

The smaller size and the lesser specialisation of the workforce lead to a greater probability of collaboration and cooperation between the employees, which largely favours the processes of creation, transfer and application of knowledge. Along this line, Durst and Edvardsson (2012) indicate that size must be considered an important factor when attempting to understand how knowledge is managed, although empirical studies are contradictory in many cases. In this sense, for McAdam and Reid (2001), SMEs are less advanced, having a mechanistic approach to knowledge (based on repetitive procedures and practices) and a lack of investment in KM approaches and systems. Finally, there is another factor which limits the competitive position of the SMEs, and that is their lesser negotiating power with customers, suppliers, distributors and other partners.

Regarding results, McAdam and Reid (2001) concluded that SMEs and large organisations have much to gain by developing effective KM systems. These benefits are related to cost reduction and an improvement in quality and efficiency. The SMEs reflect a greater emphasis on the commercial benefits of KM, whereas large organisations see greater benefits for the business through more efficient planning. Accordingly, the following hypotheses are proposed:

H4: Organisational size moderates the relationships between process management methodology and knowledge management.

H5: Organisational size moderates the relationships between partner management and knowledge management.

H6: Organisational size moderates the relationships between knowledge management and key business results.

4. Method: sample, measurements and data analysis

The sample consisted of 225 Spanish companies that had been subjected to self, and external assessment on the basis of the EFQM Excellence Model. Considering Size as a categorical variable, the sample was split into two groups (SMEs =146; Large companies =

79). To this end, the Recommendation of the European Commission 96/280/EC was followed. In this sense, SMEs will be considered to be those companies which employ less than 250 people, whose annual business volume does not exceed 50 million euros or whose annual general balance sheet figures do not exceed 43 million euros.

The variables and their respective measurement indicators were obtained from the transverse axes of the EFQM Model (EFQM, 2003). In this work, and according to the objectives considered, three transverse axes were selected (KM, PMM and PM), as well as the KBR (see Table 1). The data were collected from the assessment processes according to the RADAR (Results-Approach-Deployment-Assessment and Review) logic which the EFQM Model uses to score the level of excellence of organisations. The RADAR logic is a dynamic assessment framework and a powerful management tool that provides a structured approach to questioning the performance of an organisation.

Two stages were developed in the data analysis using a variance-based, structural equation modelling (partial least squares -PLS-; SmartPLS 3.1.9. software was used -Ringle and Wende, 2014-). (1) For the whole sample, the research models depicted in Figure 1 were tested allowing the assessment of the measurement model and the testing of the linkages proposed between constructs (Roldán and Sánchez-Franco, 2012). (2) The moderating effects of Size were analysed through a multi-group comparison approach, due to the Size type of variable being categorical (Henseler and Fassott, 2010). For this purpose, responses were divided into two groups, depending on Size (group 1 = SMEs; group 2 = Large company). Then, with the use of PLS the path coefficients were estimated for each group or subsample (Sarstedt et al., 2011). Finally, the differences between the coefficients' paths were analysed. If they are significant, they can be interpreted as having moderating effects. To determine the significance of differences between the estimated parameters for each of the groups, two approaches were followed. On the one hand, the parametric approach was used considering both equal variances and different variances (Chin, 2000). On the other hand, a non-parametric confidence approach was applied (Sarstedt et al., 2011). An example of multi-group comparisons considering organisational size as a moderator variable can be consulted in Real, Roldán and Leal (2012).

5. Results

Given that the measurement model has been designed as composite (indicators are expected to be correlated, dropping an indicator from the measurement model alters the meaning of the construct, measures of internal consistency and reliability do only make sense if the composite approximates a reflective construct) following a reflective approach (we assume that these indicators are correlated) (Henseler, 2014). In addition, our model is oriented to prediction. Its assessment has to be based with regard to reliability and validity (Roldán and Sánchez-Franco, 2012). Subsequent PLS path model analysis reveals that all measures meet the commonly suggested criteria for measurement model assessment as described, for example, by Henseler et al., (2009), and Hair et al., (2012). In this vein, loadings of both indicators and dimensions exceed the 0.707 threshold. Consequently, indicators and dimensions are reliable. Constructs and dimensions present high internal consistency, as its composite reliability indices are above 0.7. In addition, the convergent validity is achieved for all latent variables because the average variance extracted (AVE) ratios exceed the 0.5 benchmark (Table 1).

Table 1: Measurement model

Construct/Indicator (**EFQM Sub-criteria**)	Total Sample; n= 225			SMEs; n= 146			Large companies; n= 79		
	Loadings	Composite Reliability	AVE	Loadings	Composite Reliability	AVE	Loadings	Composite Reliability	AVE
Process management methodology (PMM)		0.912	0.722		0.916	0.732		0.909	0.715
1b. Development of a process management system and to assign its proprietors	0.871			0.879			0.869		
2d. Identify and develop the key process diagram	0.867			0.885			0.841		
5a. Description of the system to design and to manage processes	0.777			0.752			0.816		
5b. Description of the system oriented to the improvement of processes	0.880			0.899			0.855		
Partner management (PM)		0.924	0.753		0.925	0.754		0.926	0.757
1c. Involvement of the leaders with suppliers and partners	0.866			0.855			0.890		
2a. Establish needs and expectations	0.916			0.909			0.927		
2c. Balance needs and expectations	0.871			0.881			0.863		
4a. Manage alliances	0.814			0.827			0.796		
Knowledge management (KM)		0.892	0.735		0.891	0.732		0.896	0.743
2b. Contributions of knowledge to the policy and strategy of the organisation	0.894			0.902			0.889		
3b. Identification, development and maintenance of the knowledge in the personnel	0.849			0.872			0.813		
4e. Management of the organisation's knowledge	0.827			0.788			0.881		
Key business results (KBR)		0.953	0.911		0.959	0.921		0.944	0.894
9a. Operational results	0.952			0.958			0.942		
9b. Strategic results	0.957			0.961			0.950		

On the other hand, Table 2 shows the discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE of each latent is greater than its correlations with any other latent variable (Fornell and Larcker, 1981). Moreover, we used the Heterotrait-monotrait (HTMT) ratio of correlations (Henseler, Ringle, & Sarstedt, 2015). In this vein, all values are under 0.85. Thus, the discriminant validity is reached, and it can be concluded that the main constructs measure different aspects.

Table 2: Discriminant validity

Fornell-Larcker	Total Sample; n= 225				SMEs; n= 146				Large companies; n= 79			
	PMM	PM	KM	KBR	PMM	PM	KM	KBR	PMM	PM	KM	KBR
PMM	**0.850**				**0.856**				**0.846**			
PM	0.820	**0.868**			0.821	**0.868**			0.821	**0.870**		
KM	0.806	0.802	**0.857**		0.822	0.804	**0.856**		0.791	0.819	**0.862**	
KBR	0.561	0.660	0.677	**0.954**	0.532	0.706	0.722	**0.960**	0.626	0.583	0.611	**0.946**

Note: Diagonal elements (bold) are the square root of the variance shared between the constructs and their measures (average variance extracted). Off-diagonal elements are the correlations among constructs

HTMT	Total Sample; n= 225				SMEs; n= 146				Large companies; n= 79			
	PMM	PM	KM	KBR	PMM	PM	KM	KBR	PMM	PM	KM	KBR
PMM												
PM	0.827				0.826				0.803			
KM	0.818	0.821			0.819	0.847			0.809	0.837		
KBR	0.610	0.729	0.778		0.558	0.772	0.818		0.718	0.652	0.713	

In summary, according to the PLS analyses, the measurement model is completely satisfactory for our model, both with the whole sample and with each subsample (SMEs and large companies). In addition, the proposed measurement model does not vary when the size of the company is taken into account. That is, factor loadings for the same indicators are invariant between SMEs and large companies, guaranteeing the metric invariance (Afonso, et al., 2012) (Table 3).

Table 4 shows the results of the structural model assessment. Consistent with Hair et al., (2013), bootstrapping (5000 resamples; one-tailed Student t distribution with (n-1) degrees of freedom) was used to generate standard errors, t-statistics, and percentile 95% confidence intervals. This analysis was carried out both for the total sample and for the two subsamples. The three main paths are significant, except for the PMM and KM relationship in the large

companies subsample. The endogenous constructs achieve R^2 values between 0.373 and 0.521 for KBR, considering those values of moderate character (Chin, 2010). In the case of the knowledge factor, R^2 varies between 0.785 and 0.848. In this case, this is higher than the substantial level indicated by Chin (2010). The predictive relevance of the theoretical/structural model is assessed with the cross-validated redundancy index (Q^2) for endogenous constructs. Since all Q^2 values are greater than 0, evidence was found that our model has predictive relevance (Chin, 2010). In addition, Table 4 shows the amount of variance that each antecedent variable explains on each dependent variable, the greater value being obtained in the case of the suppliers/partners variable when explaining the explained variance of the KBR (67%). Also, Table 4 shows that the indirect effects are significant for the whole sample, with significant differences being generated, according to the size of the company, in the effect generated by PMM on KBR through KM. Therefore, in small companies, designing a good PMM from the point of view of the application of the EFQM model can be vital for knowledge generation and obtaining good results. In the PM-KM-KBR relationship, the size did not generate significant differences (Table 4).

Table 3: Metric invariance assessment multi-group analysis

Construct/Indicator	Diff (SME-L)	Parametric Test t-value	Welch Satterthwait Test (t-value)	**Construct**/Indicator	Diff (SME-L)	Parametric Test t-value	Welch Satterthwait Test (t-value)
PMM				**KM**			
1b.	0.001	0.273 ns	0.265 ns	2b.	0.013	0.544 ns	0.496 ns
2d.	0.044	1.415 ns	1.273 ns	3b.	0.059	1.096 ns	0.959 ns
5a.	0.064	0.825 ns	0.826 ns	4e.	0.093	1.296 ns	1.601 ns
5b.	0.043	0.916 ns	0.777 ns				
PM				**KBR**			
1c.	0.035	0.900 ns	0.965 ns	9a.	0.016	0.955 ns	0.856 ns
2a.	0.018	0.742 ns	0.803 ns	9b.	0.011	1.010 ns	0.979 ns
2c.	0.018	0.548 ns	0.507 ns				
4a.	0.031	0.568 ns	0.560 ns				
ns = not significant							

Once the metric invariance was guaranteed in the measurement model and the structural model tested, the multi-group analyses were performed for the hypotheses 4–6, allowing the testing of the moderating role of organisational size on the relationships included in the research model. Firstly, the parametric approach is applied. The moderating effect is examined using a t-test with pooled standard errors. This approach requires the data to be distributed normally and/or that the variances of the two samples are not too different from one another –*tParam* (EV)-. In the case of assuming there are different variances for the two samples, a Welch-Satterthwait test -*tParam*(NEV)- can be applied (Sarstedt et al., 2011). Both tests have been applied in the comparison, obtaining similar results (Table 5). As can be seen, statistical support is found for H4 and H5, but not for H6. The same result is derived from the application of the non-parametric approaches (the bias –correct 95% confidence intervals). In this case, if the parameter estimate for a path relationship of one group (Table 4) does not fall within the corresponding confidence interval of another group (Table 5) and vice versa, there exists no overlap and it can be assumed that the group-specific path coefficients are significantly different with regard to a significance level α (Sarstedt et al., 2011). This condition is fulfilled for H4 and H5, but not confirmed for H6.

Table 4: Direct and indirect effects multi-group comparison. Bias-correct 95% confidence intervals

	Total Sample; n= 225			SMEs; n= 146			Large companies; n= 79		
Effects on endogenous variables	**Direct effect**	***t*-value (bootstrap)**	**Explained variance**	**Direct effect**	***t*-value (bootstrap)**	**Explained variance**	**Direct effect**	***t*-value (bootstrap)**	**Explained variance**
Knowledge management	**(R^2 = 0.798 / Q^2 = 0.580)**			**(R^2 = 0.785 / Q^2 = 0.564)**			**(R^2 = 0.848 / Q^2 = 0.609)**		
H1: Process management methodology	0.252***	4.919	20.40%	0.344***	5.256	28.28%	**0.113ns**	**1.507**	8.94%
H2: Partner management	0.675***	13.672	54.13%	0.581***	8.798	46.71%	0.826***	13.069	67.65%
Key business results	**(R^2 = 0.458 / Q^2 = 0.416)**			**(R^2 = 0.521 / Q^2 = 0.476)**			**(R^2 = 0.373 / Q^2 = 0.331)**		
H3: Knowledge management	0.677***	17.473	45.83%	0.722***	19.940	52.13%	0.611***	7.269	37.33%
Indirect effect	Total sample			SMEs Vs. Large companies					Significance
PMM→ KM→ KBR	**0.171**			**0.248**			**0.069**		Sig.
Percentile 95% bootstrap confidence intervals	[0.114; 0.228]			[0.163; 0.336]			[-0.022; 0.161]		
PM→ KM→ KBR	**0.456**			**0.419**			**0.504**		Nsig
Percentile 95% confidence intervals	[0.386; 0.534]			[0.314; 0.533]			[0.344; 0.669]		

*** $p < 0.001$, (based on $t(4999)$, one-tailed test); $t(0.05, 4999) = 1.645$, $t(0.01. 4999) = 2.327$, $t(0.001, 4999) = 3.092$; Bootstrapping based on n = 5.000 subsamples; ns = not significant
Sig. denotes a significant difference -indirect effect- at 0.05; Nsig. denotes a non-significant difference -indirect effect- at 0.05.

Table 5: Multi-group comparison test results and Bias-corrected 95% confidence intervals

Relationship	|diff|	$t_{Parametric}$(EV)	$t_{Parametric}$(NEV)	Confidence Intervals SMEs	Confidence Intervals Large Companies	Significance
H4 (SME-L) PMM→KM	0.231	2.242**	2.354**	[0.317, 0.572]	[-0.041, 0.254]	Sig.
H5 (SME-L) PM→KM	0.244	2.448**	2.706**	[0.455, 0.702]	[0.707, 0.955]	Sig.
H6 (SME-L) KM→KBR	0.111	1.396 ns	1.210 ns	[0.655, 0.794]	[0.445, 0.769]	NSig.
	Notes: ** Significant at 0.05 (two-tail t distribution, one-sided test) ; ns = not significance			*Notes:* Sig. denote a significant difference at 0.05; Nsig. denote a non-significant difference at 0.05:		

Finally, the overall model was measured through standardized root mean square residual (SRMR) composite factor model (Henseler et al., 2014). Thus, the values obtained for the complete model (0.075) for large companies model (0.073) and SMEs model (0.079) give below the limit recommended value of 0.08 (Hu and Bentler, 1999).

6. Discussion and conclusions

The results support the reliability and validity of the measurement model (Tables 1 and 2), both for the model that represents the whole sample of companies and for the subsamples that represent the SMEs and the large companies. In addition, the property of metric invariance is verified, that is to say, the measurement model does not change when dividing the original sample into two subsamples (Table 3). This result supports the universal character of the Excellence Models that can be used as reference for evaluation and improvement by both large organisations and by SMEs (EFQM, 2003). Moreover, the results confirm the high predictive power (R^2) and high predictive validity (Q^2) of the EFQM model as a framework for the implementation and integration of TQM and KM practices. As can be seen in Table 4, the KM and KBR variables display substantial R^2 values ($R^2 > 0.67$) according to Chin (2010), both for the whole sample and for the two subsamples representing the SMEs and large companies. Moreover, the endogenous variables present Q^2 coefficient values above 0, specifically, they display values of $Q^2 > 0.33$.

With respect to the direct effects represented by the H1, H2 and H3 hypotheses, firstly it is highlighted (Table 4) that PM plays a central role in the complete model, and in that representing the SMEs, where there is a significant direct effect on KM (H1). In addition, PM is used with more intensity in the SMEs (0.344) than in large organisations (0.113). In this sense, in the model that represents large companies, the relationship between PMM and KM, although positive, is not statistically significant. In addition, this causes the indirect effect between PMM, KM and KBR to lack statistical significance. This result may be due to greater collaboration and cooperation between employees in the SMEs when putting key processes

into practice (Durst and Edvardsson, 2012) and to the SMEs greater focus on continuous improvement through processes and less towards technological and more radical innovation compared to large companies (McAdam and Reid, 2001). The importance of this factor is also reflected in the high percentages of variance (R^2) of the KM variable in both the complete model (20.4%) and in that representing the SMEs (28.28%).

Secondly, the management of the main partners of the organisations is also a critical variable for KM within the framework of the EFQM model. Thus, the direct effect between PM and KM (H2) is statistically significant both in the model that represents all the companies and in the models segmented according to size (Table 4). In addition, management in large companies emphasises the importance of PM for KM (0.826). This value is far beyond that obtained for this same relationship in the SMEs (0.581). For that reason the indirect effect between these variables and KBR is statistically significant (Table 4). This result may be due to the greater negotiating power that large companies have over their main partners, such as suppliers, providers or distributors (Gray and Mabey, 2005). This crucial role in the model is also observed when analysing the percentage of variance accounted for by the endogenous KM variable in the complete sample (54.13%), as well as in those of SMEs (46.71%) and large companies (67.65%).

Thirdly, it is necessary to emphasize how the specific efforts that companies make to manage their knowledge have a direct and significant effect on the KBR (H4). This effect is confirmed both for the whole sample and for the subsamples that represent the SMEs and large companies (Table 4). In addition, no important differences exist in the values of the indirect effects in this case, although the relationship between KM and KBR is more intense in the SMEs (0.722) than in large companies (0.611), explaining up to 52.13% of the variance of the KBR variable.

Finally, if the results of the moderating effect that the size variable exerts on the direct relationships between the variables of the model are analysed, it is seen that there are significant differences (Table 5) in the relationships between PMM and KM (H4) and between PM and KM (H5). These differences corroborate that indicated in the literature on the distinctive features presented by the management of SMEs with respect to large companies. More specifically, PMM has a greater effect on KM in the SMEs. This may be due to the smaller size and the lower level of specialisation of the workforce, causing a greater probability of collaboration and cooperation between the employees, which to a large extent favours the processes of creation, transfer and application of knowledge. In addition, as noted previously, the SMEs are more focused on continuous improvement through processes and not as much towards technological innovation (McAdam and Reid, 2001). On the contrary, the relationship between PM and KM is more intense in large companies. In this sense, the large companies have greater negotiating power over their main partners (Gray and Mabey, 2005) and have more financial means to know the movements and actions of competitors and other stakeholders.

Finally, it is corroborated that KM can be effective and improve the KBR independently of the size of the organisation, when there are no significant differences between both samples.

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Predictive model selection in partial least squares path modeling

Research-in-Progress

Pratyush Nidhi Sharma
University of Delaware
pnsharma@udel.edu
Galit Shmueli
National Tsing Hua University
galit.shmueli@iss.nthu.edu.tw

Marko Sarstedt
Otto-von-Guericke-University Magdeburg
marko.sarstedt@ovgu.de
Kevin H. Kim (†)
University of Pittsburgh

Abstract

Predictive model selection metrics are used to select models with the highest out-of-sample predictive power among a set of models. R^2 and related metrics, which are heavily used in partial least squares path modeling, are often mistaken as predictive metrics. We introduce information theoretic model selection criteria that are designed for out-of-sample prediction and which do not require creating a holdout sample. Using a Monte Carlo study, we compare the performance of frequently used model evaluation criteria and information theoretic criteria in selecting the best predictive model under various conditions of sample size, effect size, loading patterns, and data distribution.

Keywords: *Partial Least Squares Path Modeling (PLS-PM), Structural Equation Modeling (SEM), Out-of-Sample Prediction, Model Selection, Monte Carlo Study.*

1. Introduction

As researchers our quest is to describe natural processes that interest us with fidelity and economy. We strive to create models that parsimoniously describe reality in the hope that they are generalizable across contexts. Several notions of generalizations exist; the first is *statistical generalization*, where the model estimated from the sample generalizes to the population from which the sample was drawn. In such a case, fitting the same model to a different sample from the same population should yield a similar model. A second type is *scientific generalization*, where the model estimated from the sample generalizes to other populations (e.g., to other contexts). A third type, which is the goal of this paper, is *predictive generalization* where the model estimated from the sample provides sufficiently accurate predictions for new records from that population (out-of-sample prediction). Using a model to generate out-of-sample predictions for new observations is both practically useful as well as essential for scientific model development. Predictive power is useful for assessing the relevance of models, for comparing competing theories, for developing new measures, and more (Shmueli and Koppius, 2011).

In recent years, partial least squares path modeling (PLS-PM) has become increasingly popular in various disciplines to model complex relationships among multiple latent variables, each measured through a number of manifest variables (e.g., Hair et al., 2012a, b; Lee et al., 2011; Ringle et al., 2012). As a composite-based method, PLS-PM has an advantage over factor-

based structural equation modeling (SEM) methods because it yields determinate predictions. Thus, PLS-PM trades optimality for flexibility and the ability to predict (Becker et al., 2013). The ability to predict is one of the most common arguments for using PLS-PM over factor-based SEM, even though most researchers never use any predictive metrics (such as Q^2) or hold-out samples to measure the actual out-of-sample prediction abilities of their models (Ringle et al., 2012). In contrast, the use of R^2 and related measures, which are often mistaken as predictive rather than measures of in-sample explanatory power (Shmueli and Koppius, 2011), is highly common. More precisely, of all the 532 models analyzed in Hair et al.'s (2012a, b) and Ringle et al.'s (2012) reviews of PLS-PM use, 470 models (88.35%) report the R^2, 54 models (10.15%) the Q^2, and 16 models (3.01%) the goodness-of-fit index (GoF), another R^2-based model evaluation measure (Tenenhaus et al., 2004). This almost exclusive focus on a model's explanatory power or in-sample prediction power is problematic as measures such as R^2 or GoF improve with the model's complexity. As a consequence, these indices will almost always favor complex models over simpler ones. In this light, Ringle et al.'s (2012) finding, that PLS models in *MIS Quarterly* are much more complex (e.g., in terms of the number of structural model relationships) compared to those used in factor-based SEM studies in related disciplines is not surprising. This general trend toward more complex PLS models is not restricted to the management information systems field. In marketing and strategic management literatures, Hair et al. (2012a, b) reported similar findings. More importantly, both author groups saw a significant increase in PLS model complexity for papers published in top journals since 2000. Thus, researchers are not only using PLS-PM to analyze more complex models than factor-based SEM, but they are also increasingly testing more complex models than ever before. While the focus on maximizing explanatory power and in-sample prediction using complex models is a worthy goal, there is a real risk that an over-reliance on corresponding measures might tempt researchers to *overfit* their models when their goal is in fact out-of-sample prediction and replicability.

It is a well-confirmed fact among statisticians and applied mathematicians that more complex models often predict poorly out of sample (e.g. Forster and Sober, 1994; Hitchcock and Sober, 2004). A complex model, due to its additional flexibility, might tap spurious patterns in a sample (Myung, 2000). Because such patterns are sample-specific, an overly complex (i.e., overfitted) model will predict poorly and may not be generalizable or replicable by other researchers. In contrast, models with fewer parameters stand a better chance of having higher predictive power and being scientifically replicable (Bentler and Mooijaart, 1989). Thus, researchers using PLS-PM should be aware of the trade-off that exists between model complexity and predictive accuracy. Akaike (1973) showed that this trade-off is achievable, and that an unbiased estimate of a model's out-of-sample predictive accuracy can be obtained by taking into account the fit to the data as well as the model's simplicity. Thus, parsimony plays a crucial role in defining predictive accuracy as a goal in model selection (Hitchcock and Sober, 2004). Therefore, researchers interested in models with predictive power should develop a manageable set of theoretically motivated competing models and then use a set of out-of-sample prediction criteria to select a model that offers the best compromise with model fit and parsimony (Burnham and Anderson, 2002).

Recent research has started to systematically explore PLS-PM's out-of-sample predictive capabilities. For example, Becker et al. (2013) examined the predictive ability of PLS-PM with models including formative constructs, using a modified version of the R^2—which involves a comparison of sample and population composite scores—as a criterion. Evermann and Tate (2014) recently extended this study by comparing out-of-sample prediction of PLS-PM with a

range of different methods, including CBSEM. While both studies make valuable contributions to the literature on PLS-PM, their focus is on researching the method's predictive capabilities. Correspondingly, both author groups rely on a limited set of out-of-sample prediction criteria, which do not directly penalize model complexity and require the construction of a holdout sample for model comparison and selection. Our aim in this paper is to provide researchers with model selection criteria that are tuned to out-of-sample prediction yet do not require a holdout set. Selecting the model with the highest out-of-sample prediction power among a set of potential models is especially useful in exploratory analysis. PLS-PM typically involves some level of exploration. The technique's originator characterized the process of PLS modeling as follows (Wold 1980, pp. 70): "The arrow scheme is usually tentative since the model construction is an evolutionary process. The empirical content of the model is extracted from the data, and the model is improved by interactions through the estimation procedure between the model and the data and the reactions of the researcher."

With this issue in mind, our paper introduces predictive information theoretic model selection criteria to PLS-PM. These criteria allow researchers to guide their model selection efforts in the direction of predictive power, especially in exploratory settings—that is, with an evolving theory base, and under a set of competing models and hypotheses. Each of the model selection criteria described in this study is aimed at selecting the model with the highest out-of-sample prediction power by penalizing model complexity while rewarding model fit. While the information theoretic model selection criteria have a solid standing in the econometrics field (from which PLS-PM originated; Wold (1974)), this is the first study that considers them for model selection in a PLS-PM context. Using a Monte Carlo study, we analyze and compare the performance of the criteria in selecting the best predictive model under various conditions of sample size, effect size, loading patterns, and data distribution.

2. Information theoretic model selection criteria

Model selection criteria that optimize out-of-sample prediction must strike a balance between fitting the particular sample while not over-fitting that sample, so that the model generalizes beyond the particular sample. Achieving this goal is commonly done by combining a measure of model fit with a penalty for model complexity. In the case of linear regression models, one such metric is the adjusted R^2, which includes a penalty proportional to the number of predictors (k) in the model:

$$Adjusted\ R^2 = 1 - [(1-R^2)\ ((n-1)/(n-k-1)]$$

However, the adjusted R^2 lacks formal justification and is not considered a good predictive power metric (Berk, 2008). An alternative specifically designed for predictive purposes is the Final Prediction Error (FPE; Burnham and Anderson, 1998):

$$FPE = \frac{SSE_k}{MSE} + k\lambda_{n,k}$$

Where, SSE_k is the sum of squared errors from a model using k predictors, MSE is the mean squared error using the saturated model with all $p>k$ predictors, and $\lambda_{n,k}$ is a penalty parameter for a model with k predictors and n observations. Two main metrics grounded in information theory emerged from the FPE: Akaike's Information Criterion (AIC; Akaike, 1973) and the Bayesian Information Criterion (BIC; Schwarz, 1978), with variations for small samples (AIC_U, AIC_C, Cp, GM, HQ, and HQ_C; McQuarrie and Tsai, 1998):

$$AIC = \log(SSE/n) + \frac{2k}{n}$$

$$BIC = \log(SSE/n) + \frac{k\log(n)}{n}$$

AIC and BIC represent two streams of model selection criteria, which differ fundamentally in their conceptual underpinnings and assumptions. Most importantly, BIC assumes that one of the models in the consideration set is the underlying data generating model and is designed to select the model most likely (in the Bayesian sense) to coincide with the underlying model. In contrast, AIC does not assume that the underlying data generating model is among the set of models under consideration. Instead, AIC is designed to estimate the relative amount of information lost (using the Kullback-Leibler divergence measure between distributions) when a given model estimated from data is compared to a "true" but unknown data generating process.

AIC's strength as a model selection criterion in terms of predictive power has been shown empirically as well as theoretically (Burnham and Anderson, 1998). For example, Stone (1977) showed that the AIC and leave-one-out cross-validation are asymptotically equivalent. One disadvantage of AIC is that it is asymptotically inconsistent, in the sense that if the set of models includes the "true" model (as in the case of a simulation), then the probability of selecting the correct model does not converge to one as the sample size approaches infinity (Shao, 1993). On the contrary, BIC is consistent and, at the same time, puts a heavier penalty than AIC on model complexity.[1] BIC is also related to cross-validation and was shown to be asymptotically equivalent to leave–ν-out cross-validation, where $\nu = n\,(1 - 1/(\log(n) - 1))$.

In light of the criteria's differences, there is no general agreement whether AIC or BIC should be given preference in empirical applications (Shi and Tsai, 2002). Bearing this in mind, this paper considers AIC, BIC and related metrics in the context of out-of-sample prediction in PLS-PM. Prior research has examined the efficacy of these model selection criteria under various conditions in different methodological context such as mixtures of normal distributions (e.g., Biernacki et al., 2000; Bozdogan, 1994; Celeux et al., 1996), mixture regression models (e.g., Andrews and Currim, 2003a; Hawkins et al., 2001; Becker et al., 2014), and mixture logit models (e.g., Andrews and Currim, 2003b). However, the behavior of these criteria for predictive model selection under various model and data conditions is unknown in the context of PLS-PM with the specific goal of out-of-sample prediction. Against this background, we are currently running a Monte Carlo simulation study to explore their performance in the context of PLS-PM.

3. Monte Carlo simulation study

3.1. Study design

The Monte Carlo study analyzes the out-of-sample predictive power of standard model evaluation criteria (i.e, R^2, adjusted-R^2, Q^2, GoF) and the following information theoretic model selection criteria: AIC, AICc, AICu, BIC, Cp, FPE, GM, HQ, and HQc.

The following experimental conditions will be manipulated:

- Six conditions of sample size (50, 100, 150, 200, 250, and 500).
- Five conditions of varying effect size on a structural path (0.1, 0.2, 0.3, 0.4, and 0.5).

[1] The BIC penalty on the number of predictors *k* increases with sample size *n*, unlike in AIC

- Four data distributions (normal, chi-squared distributed with *df* =3, *t* distributed with *df* =5, and uniform) to reflect normal, positively-skewed, heavy-tailed, and uniform distributions, respectively.
- Four factor loading patterns with different levels of average variance extracted (AVE):
    - Higher AVE & homogenous loadings: (0.9, 0.9, 0.9),
    - Higher AVE & heterogeneous loadings: (0.9, 0.8, 0.7),
    - Lower AVE & homogenous loadings: (0.7, 0.7, 0.7), and
    - Lower AVE & heterogeneous loadings: (0.5, 0.6, 0.7)

In addition to the training data, a holdout set (n=1,000) will be created for each experimental condition to mimic the population that the training sample originates from. The dependent variable of interest is a binary variable that will assume the value 1 if the model selection criteria select the model with the highest out-of-sample predictive accuracy (measured in terms of the RMSE), 0 otherwise.

3.2. Expected results

In light of prior research on the efficacy of information theoretic model selection criteria vis-à-vis their in-sample prediction counterparts, we expect the criteria to clearly outperform the R^2, adjusted R^2, and GoF metrics in terms of out-of-sample prediction. At the same time, we expect Q^2 to perform better than R^2 based criteria. Also, we expect some variation in the information criteria's performance, depending on the factor level constellations. For example, we expect that AICc performs favorably for small sample sizes compared to AIC. In addition, BIC is expected to perform well because the set of models include the data generating model. We are in the midst of running the simulation study and expect to present results at the conference.

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How transformation expectation leads consumers to immediate gratification - A PLS-SEM approach

Research-in-Progress

Yiqing Yu
Sun Yat-sen University
yuyiqing@sysu.edu.cn

Qinghua Zhu
Nanjing University
qhzhu@nju.edu.cn

Abstract

This study explores the mechanism which triggers consumer's immediate gratification behavior. It is proposed that consumer's expectation of meaningful life transformation by acquisition of a product causes her perception of product hedonic and utilitarian value, which can further predict immediate gratification. The positive impact of perception of hedonic value on immediate gratification can be mediated by price sensitivity and moderated by materialism level. The structural model is established for further empirical analysis with PLS-SEM approach. The model suggests different domain of transformation expectation may have conflicting impact on immediate gratification.

Keywords: *Expectation, Immediate gratification, Materialism, Price sensitivity, Perception, PLS.*

1. Introduction

Would you spend two thirds of your monthly income on an iPhone 6 to replace the still well functioning Samsung Galaxy acquired 1 year ago? Quite a few consumers in some countries probably would, and did. Why would they, regardless of the poor affordability, pursue immediate gratification in a way that they will suffer financial insecurity next month? What do they expect from the purchase? This type of purchase behavior epitomizes consumer ́s desire for buying, and more specific, possession, because they believe that their lives will be changed in a significant and meaningful way by the acquisition and use of a product. This is exactly the definition of transformation expectation (Richins, 2011, p. 145). Every consumer may have transformation expectation of possession regardless of her purchase-orientation. Such a possession-based orientation is coined materialism, which is defined by Belk (1984, p. 291) as " ...the importance a consumer attaches to worldly possessions... ". One of the negative consequences of materialism is self-control failure (Fitzmaurice, 2008). From the cognitive perspective it has been empirically evidenced that materialistic thoughts undermine self-control through low level construal (Kim, 2013). It is indeed a comprehensive and extensive approach, but somewhat abstract and hence impractical to address a specific scenario, such as consumer's immediate gratification behavior, as no purchasing-related factors were considered. Therefore, it is necessary to incorporate them into the justification of the cause of immediate gratification and model the consumer's cognitive process. This research seeks to address this gap and further contrast the predictive power of consumer's expectation of possession between high and low level materialists. We begin with investigating the influence of individual's transformation expectation on the perception of product attributes. Next, we link the perception of production attributes to the perception of

price which ultimately predicts immediate gratification. In the end we examine the moderating role of materialism on this relationship.

The present study aims to predicatively investigate immediate gratification, which serves as the primary reason for employing PLS-SEM approach. We establishes structural model to shed light on the causal relationship between transformation expectation and consumer's immediate gratification, and how this relationship differs across the high and low level materialists. The present study theoretically advances the Kim's model (Kim, 2013) to the real purchase setting, and facilitates a subsequent empirical investigation.

2. Understanding perceived product attributes

Product value is a subjective concept that is highly contingent on consumers' evaluation of and attitudes toward the product. As a purchase behavior is triggered by utilitarian and hedonic considerations, consumers probably assign more hedonic value to some products which are considered as hedonic goods, while more utilitarian value to others which are considered as utilitarian goods. In general, hedonic goods provide more experiential consumption, fun, pleasure, and excitement such as designer sunglasses, souvenirs, sports cars, etc., whereas utilitarian goods are primarily instrumental and functional, such as tissue, baking oven, etc. (Strahilevitz & Myers, 1998). Notice that the value of any product for a specific consumer could be a combination of the two values. A hedonic good could have utilitarian value for the consumer and vice versa. A consumer's purchase decision for a watch is primarily based on its precision and design as well. In this sense, the watch has both hedonic and utilitarian value for the consumer. Which value is more weighted depends on consumer's usage and consumption motives (Khan, Dhar, & Wertenbroch, 2004), namely to what extent she expects the product to transform her life. Thus, we can propose that perceived product value can be predicted by consumer's transformation expectation. Grounded on this proposition, we can further distinguish between hedonic and utilitarian value and identify which domain of transformation expectation contributes to hedonic value and which to the utilitarian one.

Richins (2011) has validated that transformation expectation can be neatly classified into four categories, which are mutually exclusive. First, by acquiring the desired object, consumer expects transformation of the Self and other's perceptions of the Self, which can be reflected by improving self-regard and self-confidence, or realizing sense of achievement. Apparently such transformation has little to do with the product functions, but hedonic attributes instead. Second, consumer expects relationship transformation which refers to positive changes in interpersonal relationships ascribed to an acquisition. The cases, such as bigger house to entertain more guests, or perfume to keep a closer distance with lovers, demonstrate that such expectation is affective, and can satisfy human's need to bond, far beyond the instrumental functions of the product. Third, consumer expects hedonic transformation which implies significant increase of positive emotions such as pleasure, excitement, peacefulness and fun. It is usually evoked by sensory experience such as taking a ride on a mountain bike or swimming in a private swimming pool. It is self-evident that these experiences are more likely to be related to hedonic value than utilitarian value (in the case of mountain bike, it is not just a tandem of two tires fixed by a metal frame). These 3 domains of transformation expectation are arguably associated with perceived hedonic value. The cause-effect relationship between them can be further inferred from psychology: Perception is not the passive receipt of the signals resulting from physical or chemical stimulation of the sense organs. Instead, it is shaped by learning, memory, expectation, and attention (Bernstein & Nash, 2005) . Expectation's influence on perception is characterized by top-down processing

of sensory input (Coon & Mitterer, 2012). Therefore we argue consumer's transformation expectation influences perceived product value, and not the other way around. Taken together, we propose:

H 1/2/3: Consumer's expectation of self /relationship/ hedonic transformation has a positive impact on perceived hedonic value. (Fig.)

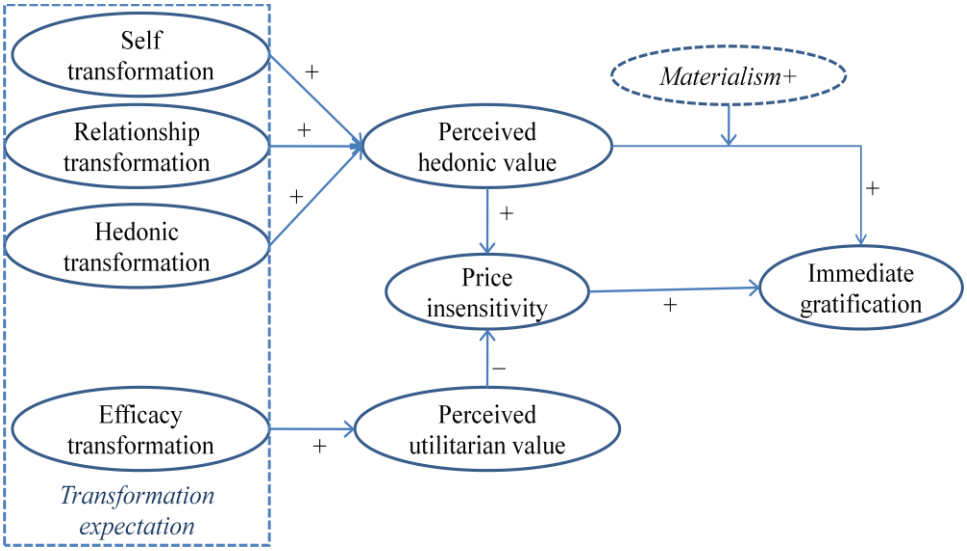

Figure: The proposed structural model

Additionally, as Richins (2011) indicated, consumer expects efficacy transformation. For example, contact lens facilitates doing vigorous exercises such as hockey; a home cleaning robot is not only time-saving but relieves physical burden and makes life less strenuous. Efficacy transformation involves a greater control over one's life and is characterized by convenience or effectiveness. It differs from the aforementioned 3 domains in arousal effect of consumer's perception. In order to get oneself more adapted to the environment and minimize the friction loss during the interaction with the physical world, consumer is more likely to consider the desired product as a facilitator or instrument. Accordingly, it is proposed:

H 4: Consumer's expectation of efficacy transformation has a positive impact on perceived utilitarian value. (Fig.)

3. The perception of product attributes and price sensitivity

Price sensitivity refers to the extent to which individuals perceive and respond to changes or differences in price for products or services (Monroe, 1973). Wakefield and Inman (2003) have found out that: the more hedonic the perceived consumption occasion for a product, the less the price elasticity, and this relationship is attenuated by higher income for hedonic consumption occasions. Please note that in their survey respondents evaluated the use situation on seven-point scales with the anchors like "practical purposes–just for fun", "purely functional–pure enjoyment", and "for a routine need – for pleasure". Apparently, they handled and measured the hedonic and functional nature of the product on a single scale instead of dichotomizing the perception of hedonic and utilitarian value. We argue that it is essential to distinguish the measurement of two perceptions because there are evidences that the positive affective feelings are not the bipolar opposite of negative affective feeling, i.e. they can be independent of each other (Egloff, 1998). As Diener and Iran-Nejad (1986) indicated, if one type of affect is at low intensity, the other type can be at any level from low to high. By the

same token, given the connectedness between hedonic vs. utilitarian goods and affect-rich vs. affect-poor ones (Khan et al., 2004), consumer can arguably have intensive perception of both hedonic and utilitarian value. This case was, however, completely neglected in Wakefield and Inman ́s survey due to the one-dimensional measurement scales. In view of this, we examine this relationship (consumer's perception of product attributes→ price sensitiveness) in a refined way by measuring the perceptions of hedonic value and utilitarian value independently as two latent constructs.

Additionally, we investigate price sensitivity ⑴ by controlling income (Wakefield & Inman, 2003); ⑵ in a reversed way, because it is common sense to propose a positive influential effect on the predicted variable- immediate gratification, since the present study ultimately examines what predicts it. Taken together, the following hypotheses are proposed (Fig.) :

H5: Consumer's perceived hedonic value has a positive impact on her insensitivity to price.

H6: Consumer's perceived utilitarian value has a negative impact on her insensitivity to price.

4. Immediate gratification and the mediating role of price insensitivity

As the introductory case describes, if the consumer purchases iPhone 6, she gains immediate reward (e.g. improved mood) and delayed cost (e.g. the financial plan for next several months will be messed up). Considering that a delayed reward (financial security in, say, next 5 months) is less certain than an immediate reward, she succumbs to such temptation, despite knowing it will incur financial insecurity later. She pursues immediate gratification in a way that she herself may not appreciate in the long run. As Daugherty and Brase (2010) indicated, higher levels of hedonism suggest stronger tendencies to seek out pleasure in the present. Higher levels of hedonism, in parallel, imply an acute sense of product's hedonic value. Thereby, we propose:

H7: Perceived hedonic value has a positive impact on immediate gratification. (Fig.)

Based on H7, we further explore how perceived hedonic value might lead to immediate gratification. As proposed by H5, consumer's sensitivity to the price may to some extent mirror her perception of product attributes. Thereby, we further examine the role of price insensitivity and propose that it explains immediate gratification:

H8: Price insensitivity mediates the relationship between perceived hedonic value and immediate gratification.

5. The moderating role of materialism

According to the definition of materialism, possessions assume a central place in a materialist's life. A possessive person should be "concerned with the loss of possession, prefer the greater control of objects, and inclined to save and retain possessions rather than discard them. (Belk, 1984, p. 291)". Furthermore, Richins and Dawson (1992) measured and validated materialism construct from 3 dimensions: ⑴ Materialists place possessions at the center of their lives; ⑵ They view possessions as essential to their satisfaction and well-being in life; ⑶ They judge their own and others' success by the number and quality of possessions accumulated. We can infer from these descriptions that, ceteris paribus, consumer's perception of hedonic value is more likely to elicit real purchase behavior for high-level materialists than their low counterparts as they attach more importance to

possession and acquisition. Hence, it is worth testing:

H7a: The relationship between perceived hedonic value and immediate gratification is reinforced (attenuated) by high (low) –level materialists. (Fig.)

6. Methodology and implication

The measurement models of constructs "transformation expectation" and "materialism" will be adapted from the validated scales by Richins (2011) and Richins and Dawson (1992). "Price sensitivity" will be measured based on the reversed form of scales proposed by Wakefield and Inman (2003). Since they are all measured reflectively, the consistent PLS (PLSc) will be used to overcome consistency problem (Dijkstra & Henseler, 2015). "Perceived hedonic/ utilitarian value" will be measured in a formative way because it is interesting to identify which domain of perception of hedonic/utilitarian value predicts/ attenuates immediate gratification, e.g. does the improvement of consumer's social status, or of appearance contribute to her immediate purchase? In view of the two formative constructs, it is a composite factor model which can be clearly estimated by PLS (Henseler et al., 2014). By virtue of the fact that this model is not to test and confirm any ready-made theory about the impact of transformation expectation on immediate gratification, this is a prediction-oriented model. Such features of the present work are the evidence that PLS-SEM is the appropriate approach (Hair Jr, Hult, Ringle, & Sarstedt, 2014).

Upon the structural model of the present study, we argue that the impact of transformation expectation on immediate gratification is the consequence of the counterbalance: with self/ relationship/ hedonic transformation expectation eliciting immediate gratification while efficacy one suppressing it. We also expect the survey data will support this proposition.

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A proposal of a research model on internalization of quality standards using PLS

Research-in-Progress

Jorge Pereira-Moliner
University of Alicante, Spain
jorge.pereira@ua.es
José F. Molina-Azorín
University of Alicante, Spain
jf.molina@ua.es

Juan José Tarí
University of Alicante
jj.tari@ua.es
María D. López-Gamero
University of Alicante, Spain
md.lopez@ua.es

Abstract

This paper proposes a structural model to analyze the relationships between drivers of internalization of quality standards, internalization of quality standards, and performance in the Spanish tourism industry. First, the paper proposes hypotheses based on previous studies about internalization of quality standards and then measures to test the research model using partial least squares (PLS) path modelling are presented.

Keywords: *Quality Management Standards, Internalization, Performance, PLS*.

1. Introduction

Most studies on the implementation and certification of quality management standards have measured such implementation through a variable that distinguished those organizations which did have a quality certification from those which did not (Sharma, 2005; Zaramdini, 2007; Benner and Veloso, 2008), thus assuming a homogeneous implementation of the quality standard. More recent studies have gone beyond this notion and analysed a heterogeneous adoption of the quality standards (Naveh and Marcus, 2004; Briscoe et al., 2005; Prajogo et al., 2012), that is, they have considered that those firms implementing a quality standard (e.g. the ISO 9001 standard), may develop its requirements in different ways (Nair and Prajogo, 2009; Boiral, 2011).

A heterogeneous adoption of a quality standard implies, on the one hand, that a firm may show a greater commitment towards the quality philosophy, and therefore develop the standard's requirements to a greater extent. On the other hand, another firm might show a lower interest towards the standard and, as a result, implement its requirements in a more symbolic way. In this latter case, the firm might be interested in obtaining a certificate which allows it to show its customers that it has some quality system, without any concern for what lies behind the certificate, i.e. the requirements of the quality standard.

There is limited research on the effects of internalization on the various dimensions of performance, and on which drivers might influence such relationship. Therefore, the aim of this study is to analyse which drivers, other than reasons for the implementation of a quality standard, may impact both internalization and the relationship between internalization and performance. Similarly, although it seems clear that internalization has effects upon operational and business performance, we are going to examine the impact of internalization on other dimensions of results, such as customer results, people results, and society impact. The contribution of this research work is to examine jointly the relationships between drivers of internalization, internalization, and different performance dimensions (customer results, people results, society impact, and business performance) extending previous research on internalization to tourism industry.

Based on previous studies on internalization and these gaps, first, this research work reviews the literature establishing a relationship between drivers, internalization of quality standards and performance, and proposes hypotheses. Finally, the next section shows the methods of this research work using partial least squares (PLS) path modelling. This paper is a work-in-progress that proposes hypotheses and a research model to test.

2. Literature review and research hypotheses

Most studies on the effects of quality certification upon performance have analyzed the "certification" variable as a dichotomic one, studying whether having or lacking a quality certificate has positive effects upon performance. However, the studies on internalization have considered a heterogeneous implementation, measuring the implementation and certification of a quality system as a set of items. Based on these studies, the reasons for the implementation of a quality system and other drivers may have an influence upon internalization.

The studies on internalization show that there are some factors which may influence this relationship, amongst which those more clearly analysed are the reasons for certification (Boiral and Roy, 2007; Martínez-Costa et al., 2008; Prajogo, 2011). The studies on internalization have also analyzed other drivers which might be considered in the future in order to explain other factors which might facilitate internalization, and thus an impact upon

benefits. These other drivers which might play a role in the relationship between internalization and performance are the following (Briscoe et al., 2005; Naveh and Marcus, 2005; Christmann and Taylor, 2006; Singh, 2008): quality culture, leadership, pressure by stakeholders, innovation environment, and system coordination with suppliers and customers. These studies have shown that these drivers (that we can classify as internal and external drivers) may have positive effects on internalization. Internalization can be measured using two constructs: "daily practices" and "continuous improvement" (e.g., Naveh and Marcus, 2005). Accordingly, the following hypotheses are proposed:

H1.1. External drivers have positive effects on internalization (daily practices)
H1.2. External drivers have positive effects on internalization (continuous improvement)
H2.1. Internal drivers have positive effects on internalization (daily practices)
H2.2. Internal drivers have positive effects on internalization (continuous improvement)

Studies show that the higher the internalization level, the greater the operational and marketing benefits (Briscole et al., 2005; Naveh and Marcus, 2005; Jang and Lin, 2008). This is the case because firms develop the quality standard requirements to a greater extent. However, the effects on business performance are not so conclusive. According to Naveh and Marcus (2005), there could be direct effects of operational performance on business performance, although other factors which might affect this relationship should also be considered. Similarly, Jang and Lin (2008) pointed out that operational performance has an impact on business performance. These ideas show how internalization creates improvements which may impact operational performance such as, for instance, cost reduction, innovation and quality improvement (Nair and Prajogo, 2009). As a consequence, this may create a more open organizational culture which may increase sales (Huarng et al., 1999) and, therefore, may help to improve business performance. In this way, one might think that quality standard has not direct effects on business performance, and that operational performance could be a mediating factor on the effects of internalization on business performance (Naveh and Marcus, 2005; Nair and Prajogo, 2009).

Thus, greater internalization leads to greater benefits, because the firm may improve its management system, for instance, by improving the following processes: (a) planning control (the management may define objectives and indicators more clearly and may carry out periodic reviews of the quality system), (b) training (the firm may offer more training to managers and employees, which clearly will lead to improve in their work), (c) customer satisfaction (the firm may use methods in order to obtain feedback from customers and use such information in order to improve its processes and its products/services), etc.

In addition, quality management literature shows that quality management may have positive effects on customer results, people results, and society impact. Based on this general idea about the effects of quality management on different performance dimensions and previous studies on internalization, it might be interesting to analyze the impact of internalization on other dimensions of results, such as customer results, people results, and society impact. Accordingly, the following hypotheses are proposed:

H3. Daily practices has positive effects on continuous improvement
H4.1. Internalization (daily practices) has positive effects on customer results
H4.2. Internalization (continuous improvement) has positive effects on customer results
H5.1. Internalization (daily practices) has positive effects on employee results
H5.2. Internalization (continuous improvement) has positive effects on employee results
H6.1. Internalization (daily practices) has positive effects on society impact
H6.2. Internalization (continuous improvement) has positive effects on society impact

H7. Customer results have positive effects on business performance
H8. Employee results have positive effects on business performance
H9. Society impact has positive effects on business performance

3. Method

3.1. Population, data collection and variables

The population of this study includes all hotels, travel agencies, restaurants, and country houses (as private organizations), and all tourism information offices and beaches (as public organizations) in Spain with a quality certificate (909 organizations). It was decided to study the whole population by means of a structured questionnaire with closed questions, which was sent in three waves between October 2014 and January 2015 by e-mail and ordinary mail. For the distribution of the questionnaire, support was received from the *Instituto para la Calidad Turística Española (*ICTE: Spanish Tourism Quality Institute), who also distributed the questionnaire among its members by e-mail. The questionnaire was addressed to the quality manager of each tourism organization. Finally, 407 completed questionnaires were received, that is, 47.8% of response rate. Table 1 shows the distribution of the sample by subsectors.

Table 1: Distribution of the sample and population by tourism subsectors

Subsector	Sample (Frequency %)	Population (Frequency %)	Response rate by subsector
Hotels	176 (42.9%)	415 (45.7%)	42.4%
Travel agencies	20 (4.9%)	37 (4.1%)	54.5%
Restaurants	56 (13.8%)	179 (19.7%)	31.3%
Country houses	35 (8.8%)	94 (10.3%)	38.3%
Beaches	48 (11.8%)	88 (9.7%)	54.5%
Tourism information offices	71 (17.1%)	96 (10.6%)	74.0%
TOTAL	407	909	47.8%
Square-Chi	*26.642****		

*** $p \leq 0.001$; ** $0.001 \leq p < 0.01$; * $0.01 \leq p < 0.05$; + $0.05 \leq p < 0.10$

In order to check non-response bias (see Table 1), the variable subsector was used. This variable was applied because it is available for the sample and for the population. Table 1 shows that the frequencies of the sample and the population are related. Non-response bias was also checked following the method proposed by Armstrong and Overton (1977), comparing early respondents to the questionnaire with late respondents. The rationale is that late respondents are more similar to non-respondents that are early respondents. The data set was divided into three groups according to the number of days from initial mailing until receipt of the returned questionnaire. Comparing the first (early respondents) and the third (late respondents) groups of firms, it was confirmed that there were no significant differences in the mean responses for all the variables measured in the questionnaire. Therefore, it is presumed that the sample is not affected by any non-response bias problems, and then this group of organizations that participated in our study can be considered as representative of the population.

Furthermore, as the questionnaire was answered by only one respondent, we checked the presence of common method variance by applying Harman's single factor test (Podsakoff and Organ, 1986). After applying an exploratory factor analysis with Varimax rotation to all the variables measured, they were classified into 16 factors and the first one only explains around 32% of the total variance. Therefore, the observed relationships among constructs are not largely accounted for by the systematic variance associated with the measurement technique.

The variables in this study were measured employing a 7 point Likert scale (Table 2).

Table 2: Measures

External drivers	• Give confidence to customers • Improve public image • Protection and care of the environment • Management commitment
Internal drivers	• Quality culture existing continuous improvement in the organization • Written documentation of the work methods in the organization • Desire to organize and formalize in writing the working methods • Need for collaboration with suppliers / intermediaries • Innovativeness of the organization
Internalization – Daily practices	• The documents created for certification are used in daily practice • The quality system becomes part of daily work routines • External audits are prepared at the last moment • All employees are trained in the notions of total quality and the requirements of the quality standard • The quality policy and the quality system procedures are updated in order to adapt them to daily organizational practices
Internalization – Continuous improvement	• The development of the quality system makes it possible to introduce new improvement practices • The quality standard has led the organization to discover improvement opportunities • Investing in time and resources in the quality standard is a starting point towards the implementation of other more advanced practices • Investing in time and resources in the quality standard helps to reflect on the way work is done in the firm and improve our work • Investing in time and resources in the quality standard is seen as an opportunity to innovate in our organization
Customer results	• Increased customer satisfaction • Increased quality of service • Increased customer loyalty • Increased valuations in web 2.0 and social networks • Reduced customer complaints
Employee results	• Increased employee satisfaction • Increased employee motivation • Increased employee productivity • Improving working conditions of employees • Reduced absenteeism of employees • Reduction of employee complaints
Society impacts	• Increased environmental protection (reduction of resource consumption, pollution reduction) • Improving the ethical behavior of the organization • Increased levels of prevention of risks to health and safety (risk reduction accidents, etc.)
Business performance	• Increased market share • Increased sales • Increased profitability • Cost reduction

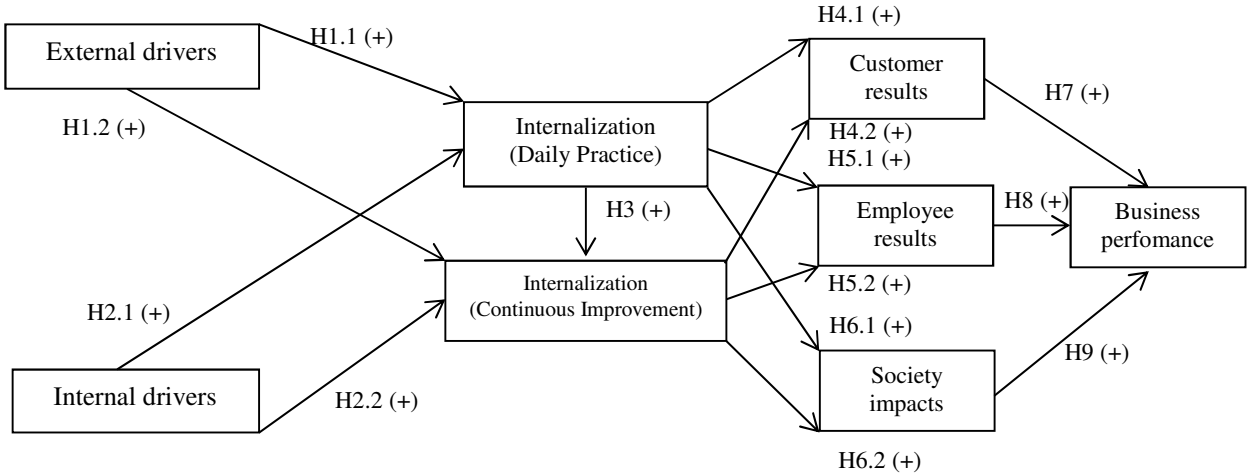
3.2. Statistical analysis using PLS and research model

The next step in this study applies PLS path modelling by means of the SmartPLS 2.0 software. PLS approach allows for the joint use of formative and reflective constructs in the same model. The two internalization constructs are considered as formative and the rest of constructs are reflective. In this way, for the reflective elements of the model, construct reliability, convergent validity and discriminant validity are going to be analyzed. For the formative constructs, different techniques are required from those used for the analysis of the validity of reflective constructs. These include checking for potential multicollinearity between its items and the weights from each item in order to explain its construct.

We are going to calculate the explained variance for each construct (R^2) and the regression or path coefficients (β) between the constructs to evaluate the structural model and, therefore, to test the proposed hypotheses (Figure 1). After carrying out a bootstrap test with 5000 subsamples, the t statistic values are obtained for each β, which makes it possible to determine its significance.

In addition, we are going to test the model showed in Figure 1 grouping our sample into private and public tourism organizations employing multigroup procedures. This multigroup analysis could offer different results of the general model.

Figure 1. Research model



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Exploring customer engagement behavior: construct proposal and its antecedents

Completed Research Paper

Jaime Romero[1]
Universidad Autónoma de Madrid
jaime.romero@uam.es

Shintaro Okazaki
King's College London
shintaro.okazaki@kcl.ac.uk

Abstract

Customer engagement behavior (CEB) receives increasing attention from both academics and practitioners, as it represents one of the key customer profitability determinants. This study attempts to provide a holistic view of CEB by (1) proposing an instrument to measure CEB, and (2) its antecedents. Based on the existent literature, we conceptualize CEB as a formative construct consisting of word-of-mouth (WOM), loyalty program participation, customer interaction, and co-creation, which are determined by relationship quality, rewards, self-enhancement, learning, social integration, and company identification. In attempt to test these propositions, an online survey is conducted with 466 respondents. Our results provide empirical support for our proposed CEB construct, while corroborating five out of the six hypothesized antecedents. In closing, theoretical as well as managerial implications are discussed, while important limitations are recognized and future research directions are proposed.

Keywords: *Co-creation, Customer engagement behavior, Customer interaction, Loyalty program, Word-of-mouth*

1. Introduction

Customer engagement receives increasing attention from marketing academics and practitioners. When customers are engaged, they can contribute to company results through mechanisms other than transactions (i.e., purchases). Focusing on acquisition, retention, and share-of-wallet is no longer enough. Consequently, customer engagement can lead to business opportunities and ensuring profitability (Verhoef et al., 2010). Customer engagement research has adopted two different perspectives. On one hand, customer engagement can be examined from a psychological perspective. Here, customer engagement is defined as a psychological state that occurs because of customer interaction with a focal object, such as brand, in service relationships (Brodie et al., 2011). On the other hand, customer engagement can be examined from a behavioral point of view. In this approach, research is focused more on customer engagement behavior (CEB) than on customer engagement (e.g., Kumar et al., 2010). CEB can be defined as "customer's behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers" (Van Doorn et al., 2010).
In both perspectives, there is a call for further research about the composition as well as the antecedents of CEB (Brodie et al., 2011; van Doorn, 2010). To date, our knowledge of these antecedents typically comes from research about the antecedents of some specific behaviors usually associated with customer engagement, such as word-of-mouth (WOM) or co-creation (e.g., Hennig-Thurau et al., 2004; Bettencourt, 1997). Yet, we still lack an integrative perspective of the antecedents of customer engagement that provides us with a deep

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understanding of the phenomenon; consequently, it is not possible to reach adequate insights for managers. They need a broader and more holistic view of their customers instead of a fragmented perspective that arises when analyzing customers separately through several media and channels. Organizations, especially in B2C markets, are interested in understanding how emotional ties, social influences, service experiences, etc. interact to create customer engagement (Bolton, 2011), which is something that we still ignore (Van Doorn et al. 2010). Adopting a behavioral perspective of customer engagement, this study develops a theoretical model that jointly analyses the antecedents of CEB. In particular, we concentrate our efforts on antecedents that might simultaneously influence CEB. We explicitly omit antecedents that according to previous research only influence a CEB. The remainder of this manuscript is organized as follows: In the next section, we provide the theoretical background of this study, and then we present our research design and its main results. Finally, we discuss our findings and its main implications.

2. Literature Review and Research Hypotheses

2.1. Customer engagement behavior (CEB)

Along with customer purchases, CEB generates value for companies. From a marketing perspective, CEB must be examined in terms of how they can grow or reduce value for the company. In this regard, CEB grows or diminishes firm value through three mechanisms, apart from product purchases: by recommending the brand in exchange of some incentives, by influencing other customers via WOM or through other types of information sharing, and by providing feedback that can be useful for product development or improvement (Kumar et al., 2010). On this basis, we propose CEB as a composite of loyalty program participation, WOM, customer interaction, and co-creation.

Loyalty program incentivizes current customers' recommendations with coupons, free samples, gifts, etc. aiming to incentivize continued patronage and repeated purchase (Ruy and Feick 2007). Loyalty program can reduce acquisition costs and generate future cash flows to companies (Dowling and Uncles, 1997). In contrast, WOM is a non-incentivized behavior in which a consumer informally communicates an experience, evaluation, or recommendation in relation to goods or services to another consumer (Anderson, 1998). Customers can receive information from many personal sources, but its credibility would depend on the type of interpersonal relationships (Godes and Mayzlin, 2004). WOM involves an exchange of marketing information between consumers and plays a key role in modifying consumer attitudes and behaviors regarding products and services (Chu and Kim, 2011), which affects not only acquisition but also retention and share-of-wallet (Kumar et al., 2010). With the spread of information technologies, WOM also takes place in virtual environments, such as customer blogs, emails, websites, online forums, communities, and social networks (Chu and Kim, 2011). Here, the statements made by a customer or prospect customers about a product or a brand are available over the Internet to a large number of people and institutions.

Consumers not only can provide value for the company through their recommendations (incentivized or not), but also can contribute to profitability through customer interaction (van Doorn et al., 2010, Kumar et al., 2010). Customer interaction arises from interactions between the customer and other customers and between the customer and the firm (Grönroos, 2012). In this study, we consider customer interaction to be related to customers' suggestions that facilitate other customers' decision making and enhance their experience with the firm (e.g., van Doorn et al., 2010). On the other hand, co-creation refers to interactions between the customer and the firm that lead to the improvement of current services or the development of new ones. With customer interaction, customers positively impact other customers' attitudes,

hence indirectly providing value for the company. In contrast, by co-creation, customers provide value for the firm directly.

2.2. Antecedents of CEB

As illustrated in Figure 1 we posit that CEB can be driven by six antecedents: relationship quality, rewards, self-enhancement, learning, social integration, and company identification. Some of these antecedents are the result of past customer interaction with products and brands (or in general with companies) or with other customers, while others are expected outcomes of future interactions.

Relationship marketing has extensively studied the outcome of the interactions between companies and customers. The relationship quality summarizes these interactions across time for a customer. Hennig-Thurau and Klee (1997) define relationship quality as the degree to which a relationship is appropriate to meet the consumer needs associated with that relationship. The relationship quality captures the nature of the relationship (Macintosh, 2007). Unlike service quality, this construct takes into account the overall relationship and not only the quality of specific service interactions (Shabbir et al., 2007). The relationship quality has three main components: satisfaction, trust, and commitment (Hennig-Thurau et al., 2002). Several studies have demonstrated that WOM is positively influenced by the relationship quality or some of its components, i.e., commitment, satisfaction, or trust (e.g., Brown et al., 2005; Macintosh, 2007; Hennig-Thurau et al., 2002; Ng, David, and Dagger, 2011).

Relationship quality could also affect customer interaction. Nambisan and Baron (2007) show that positive attitudes toward the firm would stimulate interactions among online users. This happens because customers are aware that sharing information with peer customers somehow benefits the company; therefore, with positive attitudes toward the firm, they are more inclined to benefit the firm indirectly by sharing their knowledge with other customers. The relationship quality summarizes the main attitudes of the customer toward the firm. Therefore, we can also expect that relationship quality can have a positive impact on CEB.

Relationship quality might also influence CEB, given that commitment and satisfaction also appear to impact co-creation. Commitment involves the psychological attachment of consumers who believe in the importance of maintaining their relationship with the company (Morgan and Hunt, 1994). Thus, commitment leads consumers to sacrifice themselves for the welfare of the company, to take care of it, and to perform certain actions that do not depend solely on rewards and punishments. Bettencourt (1997) demonstrates that committed consumers feel involved in the development of the company, which leads to co-creation; they tend to play the role of company consultants. However, he also finds that satisfaction is negatively related to co-creation. The latter could happen because consumers might express ideas that improve service quality only when dissatisfaction arises. In his research, the effect of commitment is slightly higher than the effect of satisfaction and therefore, although low, we expect that the influence of relationship quality on co-creation to be positive.

Rewards are an adequate tool for encouraging recommendations (Wirtz et al., 2012). Particularly, rewards are more effective in the case of weak brands than for strong brands. Customers of strong brands usually do not need huge incentives to participate in loyalty programs. In contrast, customers have to be rewarded more heavily in the case of weaker brands because customers are less confident about recommending the brand and are therefore less motivated to perform such an action (Ryu and Feick, 2007).

H1: Relationship quality directly and positively affects CEB.

H2: Rewards directly and positively affect CEB.

Besides relationship quality and rewards, CEB can also arise from other motivations, particularly the benefits that customers anticipate from such behaviors—the consequences of

CEB can also act as antecedents of these behaviors (Brodie et al. 2011). These benefits are personal and social (Hennig-Thurau et al., 2004; Nambisan and Baron, 2010). The most relevant personal benefits that might influence several CEB are self-enhancement and learning about the product. Self-enhancement is the positive recognition that a customer obtains from others by projecting themselves as intelligent shoppers (Sundaram et al., 1998) or service users. Self-enhancement positively affects WOM (Sundaram et al., 1998; Henning-Thurau et al., 2004). Besides, it also encourages customer interaction. When sharing their experiences or knowledge about the product, customers have the opportunity to grow their prestige and status. This increases customer participation in customer interaction (Wasko and Faraj, 2005). Thus, the higher a customer's expectations of heightening her or his image the more customer interaction will take place. Co-creation activities can help customers fulfill their self-esteem needs (Oyedele and Simpson, 2013) and can be used as a signal of expertise if the contributions of the consumer to the company are somehow visible to others, e.g., in virtual communities (Franke and Sha, 2003). Therefore, self-enhancement can be also positively associated with performing co-creation behaviors.

H3: Self-enhancement directly and positively affects CEB.

Learning about the product is another important benefit that customers obtain from their interactions with other customers (Wasko and Faraj, 2000), and it involves acquiring a better understanding and knowledge about company services and their usage. Through these interactions with other customers, they acquire knowledge that can enhance product usage, particularly for technology-based products. Online environments particularly facilitate learning from other customers (Libai et al., 2010) or, in the case of online communities, from other members (Franke and Sha, 2003). Customers expecting to achieve learning benefits from their interactions with other peers should be prone to perform such behaviors (Nambisan and Baron, 2007, 2010). In addition, customers can also expect to learn from their interactions with companies in co-creation behaviors. Sometimes their suggestions and ideas for product improvement elicit some responses from companies that have a high informational value, such as future developments of the product. Such expected learning might therefore lead customers to co-creation (Nambisan and Baron, 2010).

H4: Learning directly and positively affects CEB.

Social integration includes the feeling that one is a member of a community. This usually provides a chance to interact with other members. This social benefit might be positively related with CEB. For instance, in web-based opinion platforms, WOM allows customers to become part of online communities. The expected interactions with other customers derived from WOM are a reason to perform this CEB (Henning-Thurau et al., 2004). Individuals who value social integration usually enjoy interacting with others, which facilitates knowledge sharing (Xu et al., 2012). Through these interactions, customers set affective relationships that encourage commitment or responsibility toward other individuals (Wasko and Faraj, 2005, Nambisan and Baron, 2010), thus enhancing information sharing. Therefore, the more important a customer considers social integration the higher customer interaction should be. Similarly, customers who value social integration should also enjoy interacting with companies. Therefore, we can also expect that social integration is positively associated with co-creation too.

H5: Social integration directly and positively affects CEB.

Finally, another important antecedent of CEB is company identification, which can be defined as the cognitive connection that a customer makes between her/his own definition and the definition of the company (Dutton et al., 1994). As with relationship quality, this antecedent is not a benefit that customers expect to obtain from specific interactions with the company or with other customers. Company identification might be associated with CEB. Consumers who share common values with a firm have a greater desire to maintain a

connection with it (Morgan and Hunt, 1994) and perform behaviors that are favorable for the company (Bergami and Bagozzi, 2000).

First, company identification favors WOM (Bhattacharya and Sen, 2003). This could happen because consumers say positive things about the company as a means to express their own identity; therefore, the greater the company identification the greater the likelihood is that the individual transmits positive messages about the company (Brown et al., 2005). Secondly, we expect that company identification enhance co-creation, particularly by moderating the impact of self-enhancement and learning (Nambisan and Baron, 2010). Company identification helps customers to build their own identities (Bhattacharya and Sen, 2003), as self-enhancement; therefore, the value that customers obtain from the recognition of other customers due to their contributions to the company might be higher if there is a strong company identification.

H6: Company identification directly and positively affects CEB.

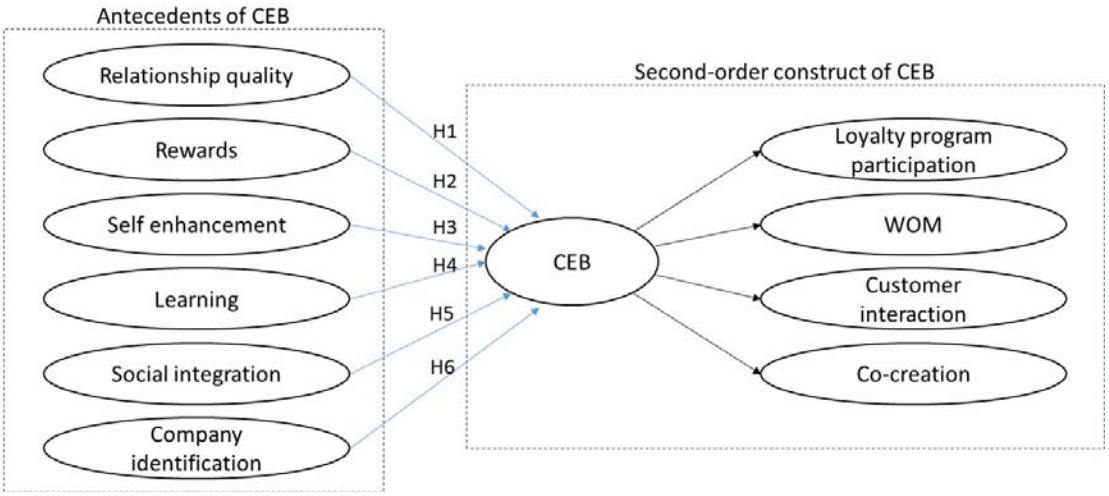

Figure 1: Research model

3. Methodology

3.1. Sample and procedure

For the purpose of this research, we conducted a survey among customers of online travel agencies. These types of agencies provide their services in a virtual environment, which usually facilitates the CEB we considered in this study: WOM, loyalty program participation, customer interactions, and co-creation (e.g., Kim et al., 2013). We focused on specific online agencies in order to ensure the existence of loyalty programs and of platforms that facilitate customers' interactions. In particular, our respondents were customers of one of these two travel agencies: Atrápalo or Logitravel. These companies reward customers through loyalty programs, mainly implemented in social networks, such as Facebook. Our two online travel agencies have also set mechanisms that facilitate customer interactions. They all offer their customers the chance to share their experiences about services that have been booked or purchased through their websites. For instance, in the case of hotels, customers can rate them in terms of several criteria (room cleanliness, location, meals, etc.) and comment on their advantages and drawbacks. These evaluations are taken into account by other customers when making their purchase decisions. Note that these opinions are not focused on the services provided by the company and therefore do not constitute WOM about the travel agencies.

Table 1. Measurement Items

Items	M
WOM (α = 0.95; CR = 0.96; AVE = 0.82; Brown et al. 2005)	
I mention to others that I do business with this OTA (online travel agency).	4.62 (1.46)
I make sure that others know that I do business with this OTA.	4.20 (1.54)
I recommended this OTA to family members.	4.84 (1.36)
I speak positively of this OTA to others.	4.90 (1.36)
I recommend this OTA to acquaintances.	4.92 (1.39)
I recommended this OTA to close personal friends.	5.02 (1.39)
Loyalty program participation (α = 0.93; CR = 0.95; AVE = 0.83)	
I participate in the draws that this OTA organizes at social networks.	3.56 (1.64)
I participate in the contests that this OTA organizes at social networks.	3.55 (1.66)
I would participate in a "bring a friend" program organized by this OTA.	3.89 (1.71)
In general, I participate in the activities organized by this OTA in which I can win a reward.	3.88 (1.63)
Customers' interactions (α = 0.90; CR = 0.94; AVE = 0.83)	
I assess and share with other users my opinions and experiences about the products and services of this OTA on the company website.	4.21 (1.60)
I write comments in the blog and/or in the profile of this OTA in social networks (e.g., Facebook, Twitter, etc.).	3.64 (1.70)
I write comments in the forums on this OTA.	3.59 (1.74)
Co-creation (α = 0.93; CR = 0.95; AVE = 0.75; Bettencourt et al. 1997)	
I let this OTA know of ways that they can better serve my needs.	4.53 (1.55)
I make constructive suggestions to this OTA about how to improve its service.	4.27 (1.63)
If I have a useful idea of how to improve service, I give it to someone at this OTA.	4.17 (1.65)
When I experience a problem at this store, I let someone know so they can improve the service.	4.68 (1.52)
If I notice a problem, I inform an employee of this OTA even if it does affect me.	4.21 (1.55)
If this OTA gives me good service, I let them know.	4.70 (1.59)
Relationship quality (α = 0.91; CR = 0.93; AVE = 0.70; Ng, David, and Dagger 2011)	
Overall, I am satisfied with this OTA.	5.32 (1.03)
I am very happy with this OTA.	5.27 (1.06)
This OTA can be trusted.	5.47 (1.12)
This OTA is trustworthy.	5.47 (1.13)
I am very committed to this OTA.	4.36 (1.40)
I believe that I will continue to use this OTA frequently in the future.	5.28 (1.17)
Rewards (α = 0.97; CR = 0.97; AVE = 0.91)	
I find the sweepstakes organized by this OTA attractive.	4.44 (1.48)
I find the contests organized by this OTA attractive.	4.42 (1.46)
I find the activities organized by this OTA in which I can win a prize attractive.	4.53 (1.46)
In general, I find the prizes and presents by this OTA attractive.	4.62 (1.48)
Self-enhancement (α = 0.91; CR = 0.94; AVE = 0.80; Henning-Thurau et al. 2004)	
I regularly visit this OTA (its website, social networks, etc.), because	
I like telling others that I have made a good choice.	4.44 (1.40)
I like when I can tell others about my buying success.	4.67 (1.38)
I like telling others about a good experience.	4.80 (1.38)
My contributions show others that I am a clever customer.	4.30 (1.53)
Learning (α = 0.86; CR = 0.94; AVE = 0.88; Nambisan and Baron 2007)	
I regularly visit this OTA (its website, social networks, etc.), because	
I enhance my knowledge about the service, related services, and their uses.	4.62 (1.27)
I obtain solutions to specific service use related problems.	4.46 (1.28)
Social integration (α = 0.95; CR = 0.97; AVE = 0.91; Nambisan and Baron 2007)	
I regularly visit this OTA (its website, social networks, etc.), because	
I expand my personal/social network.	4.30 (1.37)
I enhance the strength of my affiliation with the customer community.	3.92 (1.47)
I enhance my sense of belongingness to this community.	3.95 (1.52)
Company identification (α =NA; CR =NA; AVE =NA; Bergami and Bagozzi 2000)	
I identify with this OTA	4.55 (1.26)

Our data was collected using a web-based survey. Online surveys are increasingly used in market research and produce results comparable with other data collection methods, particularly if respondents are familiar with online contexts (Deutskens et al., 2006), which they are in our research. The survey was conducted by a professional marketing research firm. Our respondents were asked about the CEB considered in this study and their antecedents in terms of the online travel agency they use the most. The respondents who participated in the study were randomly selected using stratified sampling (n=466). Their demographics are representative of Internet users in Spain who browse the Internet for travel and accommodation purposes. Of the respondents, 47.42% are women and 52.58% are men (48.06% and 51.94% in the population of these Internet users in Spain). Regarding their age, 15.24% of the respondents are 16–44 years of age (15.74% in the population), 29.18% are 25–34 years (29.34%), 27.04% are 35–44 years (26.43%), 17.60% are 45–55 years (17.74%), and 10.94% are older than 55 years (10.66%).

3.2. Measures

Most of our measures were based on prior research and adapted to the context of online travel agencies. The original measures were loyalty program participation and customer interactions, and rewards. These measures were consistent with standard practices of the two online travel agencies we considered for this study. CEB has been proposed as a type II reflective-formative second-order construct (Ringle et al., 2012). That is, CEB is considered as a second-order formative construct whose items are reflective first-order constructs. These items are WOM, loyalty program participation, customer interactions, and co-creation. The antecedents of CEB are first-order reflective constructs. All of the first-order constructs of this research were assessed using seven-point Likert-type scales. Table 1 lists all the measures.

4. Results

4.1. Analysis procedure

We employed partial least squares (PLS) to estimate our model with SmartPLS 2.0 (Ringle et al., 2005). PLS is chosen for this study for three reasons. First, in contrast to covariance-based structural equation models, PLS can handle the non-multivariate normal data we collected. Second, we focused on common antecedents of CEB, and we deliberately omitted others that affect only of one of these behaviors. PLS is less sensitive than other structural equation models to variables omission (Chin, 2010). Third, as we explained before, our model includes CEB as a type II second-order construct. PLS is the most appropriate for the estimation of this type of construct.

When a type II second-order construct is not endogenous, the model can be estimated using a repeated indicator approach, in which the second-order construct is created as a latent variable that include all the manifest variables of the underlying first-order constructs (Wetzels et al., 2009). In our research, CEB would be measured through the manifest variables of WOM, loyalty program participation, customer interactions, and co-creation. On the other hand, when the type II second-order construct is endogenous, the model needs to be estimated using a two-stage approach (Ringle et al., 2012). This is the case of our research. In this two-stage approach, the model is first estimated using the repeated indicators approach in order to obtain the latent variable scores of the first-order variables. In this stage the variance of the second-order construct is explained by its lower order components (R^2 tends to 1) and, consequently, the path relationships towards the second-order construct tend to be zero and nonsignificant. In the second stage, these latent variable scores are employed as manifest

variables for the second-order construct and the model is re-estimated. This allows the predecessors of the second-order construct to explain part of its variance.

For this research, therefore, we have applied the two-stage approach. We have performed its first stage by including the manifest variables of the first-order constructs in two ways –reflective and formative – as previous research does not provide precise guidelines in this regard (Becker et al., 2012). Subsequently we have re-estimated the model using the latent scores we have obtained in the previous stage. The results are consistent in terms of the inner and the outer models. For the sake of brevity, we present only the results of the reflective estimation. Particularly, we present our results as follows: First, we describe the results of our measurement model (first stage of the two-stage approach for first-order constructs and second stage for the second-order formative construct). Subsequently, we discuss the estimation results of our structural model with regard to our hypotheses by using the results from the second phase of the two-stage approach.

4.2. Measurement model

We examined the reliability, convergent validity, and discriminant validity of the indicators of our first-order constructs, i.e. antecedents, WOM, participation in loyalty programs, customer interactions and co-creation (Table 1). The Cronbach's alpha values of these latent variables range between 0.86 and 0.97, which is above the cutoff value of 0.7 proposed by Nunally (1978). Similarly, composite reliability varies between 0.93 and 0.97. The loadings of the items used in our study are all above 0.7, indicating indicator reliability. Regarding the convergent validity, the variance extracted (AVE) from the variables ranges from 0.70 to 0.91, which is above the value of 0.5 suggested by Fornell and Larcker (1981). Finally, we examined the discriminant validity of the variables in our model in two ways.

Table 2. Discriminant Validity Analysis

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
WOM (1)	**0.90**									
Participation in loyalty programs (2)	0.49	**0.91**								
Customers' interactions (3)	0.57	0.71	**0.91**							
Co-creation (4)	0.63	0.56	0.72	**0.86**						
Relationship quality (5)	0.59	0.27	0.36	0.43	**0.84**					
Loyalty programs (6)	0.57	0.66	0.56	0.56	0.46	**0.95**				
Self-enhancement (7)	0.68	0.51	0.61	0.65	0.50	0.55	**0.89**			
Learning (8)	0.63	0.48	0.57	0.62	0.59	0.56	0.70	**0.94**		
Social integration (9)	0.54	0.58	0.64	0.60	0.48	0.54	0.64	0.68	**0.95**	
Company identification (10)	0.64	0.43	0.53	0.55	0.67	0.55	0.58	0.68	0.62	**1.00**

Note: Bold numbers on the diagonal show the square root of the AVE; other numbers represent construct correlations.

First, we employed the Fornell and Larcker (1981) criterion by which a latent variable has to share more variance with its indicators that with other variables; statistically, the square root of the AVE of a latent variable has to be higher than its correlations with other variables (Table 2). Secondly, the loadings of the indicators of a variable all have to be higher on its assigned latent variable than on others. In both cases, our results support the discriminant validity of our variables. After evaluating the measurement of the first-order constructs of our model we have included the latent scores of WOM, participation in loyalty programs, customer interactions and co-creation as manifest indicators of CEB and re-estimated the model. We have evaluated the measurement model of CEB by analyzing the significance of the manifest variables. They are all positive and significant at least at 95% level (we have evaluated significance by using a nonparametric bootstrapping procedure with 5000 subsamples, no sign change). Additionally we have checked the lack of multicollinearity by

employing variance inflation factors. These range from 1.76 to 1.93, thus indicating that our measurement model for CEB does not suffer from multicollinearity.

4.3. Hypotheses testing

The fit of our model is assessed using the R^2 of our endogenous variable. We have obtained a 0.73. This fit can be classified as substantial (Chin, 1988). In order to evaluate the significance of the path coefficients in the model, we used a nonparametric bootstrapping procedure with 5000 subsamples (no sign change). The path estimates are shown in Table 3. In H1, we analyzed the impact of relationship quality on CEB. Our results indicate that relationship quality does not influence CEB. Thus, we have not found support for H1. Higher levels of relationship quality do not lead to a more intense CEB. H2 postulated that the impact of rewards on CEB is positive. Our results support this relationship, corroborating that CEB can be enhanced by the rewards offered by companies through loyalty programs. H3 aimed to capture the influence of self-enhancement on CEB. We found that self-enhancement has a positive impact on CEB, thus supporting H3. We tested the impact of learning on CEB in H4. We found that this path is significant. Thus, our results support H4, learning directly and positively affects CEB. In H5, we postulated that social integration has a positive impact on CEB. Our results support such effect. Customers who enjoy interacting with peers are more prone to CEB. We proposed in H6 that company identification positively influences CEB. We found support for H6. Table 3 summarizes hypothesis-testing results.

We explored changes in R^2 in order to investigate the impact of each antecedent on CEB, by computing effects size (Table 3). In particular, we ran our model six times, excluding one of the antecedents in each run. Subsequently, we calculated effect size as $(R^2_{included} - R^2_{excluded}) / (1 - R^2_{included})$ and interpreted the results in accordance with Cohen's (1998) categorization (>.02 weak, >.15 moderate, >.35 strong). Loyalty program has a moderate effect on CEB (.16), followed by self-enhancement (0.14), social integration (0.04), company identification (0.03). Learning and relationship quality has effect size lower than 0.02.

Table 3: Estimates for the Structural Model

Antecedents	Estimates	t-value	p	Hypotheses	Effects size
Relationship quality	0.05	0.95	n.s.	H1 rejected	n.s.
Rewards	0.33	7.23	***	H2 supported	0.03
Self enhancement	0.32	6.63	***	H3 supported	0.16
Learning	0.11	2.35	**	H4 supported	0.15
Social Integration	0.21	3.96	***	H5 supported	0.01
Company identification	0.14	3.62	***	H6 supported	0.04

*** $p < 0.01$, ** $p < 0.05$, n.s. = nonsignificant

5. Discussion

This research proposes a formative construct of CEB and analyzes the impact of its antecedents. Our findings improve our understanding of CEB drivers. The model incorporates CEB as a composite measure (WOM, loyalty program participation, customer interaction, and co-creation) and six antecedents based on the previous literature (relationship quality, rewards, self-enhancement, learning, social integration and company identification). Thus, while prior research offers a rather fragmented view of CEB, our study draws a more holistic picture of CEB in terms of construct and its antecedents. Our findings clearly suggest that the simultaneous impact occurs for five out of six antecedents, and that these antecedents explain more than the 50% of the variance of CEB. The CEB's antecedents can be classified in two categories: intrinsic and extrinsic. Intrinsic antecedents are expected benefits from CEB

(rewards, learning, self-enhancement, and social integration) and can therefore be reinforced by directly managing CEB. In contrast, extrinsic antecedents are not necessarily linked to CEB (relationship quality and company identification) and can therefore be reinforced by other means rather than CEB. This intrinsic-extrinsic antecedents dyad has not been introduced in the literature, thus offers an incremental value to our knowledge on CEB. What is intrinsic or extrinsic is a question directly related to firms' customer relationship management. In this light, our intrinsic-extrinsic dyad seems much related to tactical-strategic dyad in marketing. That is, intrinsic CEB antecedents are tactical in nature, which are essentially enhanced by pragmatic marketing tools, such as sales promotion. In contrast, extrinsic CEB antecedents are strategic in nature, which are directly related to firms' long-term goals and objectives. Future research should seek more theoretical foundations for this typology. In general, everything else being equal, an increase in any antecedent but relationship quality could strengthen CEB. Depending on the type of antecedents, we can predict to what extent we can enhance the value obtained from customers. A logical extension of this research would be to explore the potential interactions between the antecedents than influence CEB. Such research would result in a more holistic view of CEB.

Managerially, our findings offer several implications to practitioners. First, CEB must be managed as a whole and not independently. Marketers and customer relationship managers should not only directly enhance CEB through its intrinsic antecedents, but also keep constant eyes on its extrinsic antecedents. As we discussed before, both relationship quality and company identification require a long-term view of CEB, as they need to be built consistently and continuously over long period of time. Marketers and customer relationship managers should consider these issues in light of the firms' long-term strategic planning.

Several limitations should be recognized to make our findings more objective. First and foremost, our selection of the CEB antecedents was somewhat arbitrary, due to a lack of an overarching theory. Some may argue that our study could have included other antecedents to provide a more complete picture of CEB. Second, this study used online travel agencies as a research context. Therefore, our findings may be unique and specific to this particular industry. Any generalization of our findings should therefore be treated with caution. Third, our study did not include negative valence of CEB, such as negative WOM. Finally, our model estimation was based on cross-sectional data. Some of the antecedents of CEB can also be a consequence of the CEB (Brodie et al. 2011). Employing longitudinal data would solve this limitation. Together with the incorporation of other antecedents and CEB, this could constitute a fruitful area for further research.

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RESOURCE MOBILIZATION LEVELS AND THE CONFIGURATION OF THE ALLIANCE PORTFOLIO

Completed Research Paper

Ignacio Castro
Universidad de Sevilla
icastro@us.es
Cristóbal Casanueva
Universidad de Sevilla
crocha@us.es

Ángeles Gallego
Universidad de Sevilla
maga@us.es

Abstract

Alliance Portfolio Configuration (APC) conditions access to network resources, however, not all access to partner resources is finally mobilized by the firm. Our paper contributes to the understanding of alliance portfolio performance by examining how an acceptable configuration of the alliance portfolio will be conditioned by the level of resource mobilization that the firm really achieves. A variance-based structural equation modelling (Partial Least Squares) has been applied to a sample from the Top International Airlines database. Results from the data analysis show that the Level of Network Resource Mobilization (LNRM) (a) fully mediate the effect of alliance portfolio configuration on the operating performance; and (b) partially mediate this effect on financial performance of airlines.

Keywords: *Alliance portfolio configuration; network resources mobilization level; airlines performance; mediation analysis.*

1. Introduction

The study of Alliance Portfolios is a relevant area of research that is yet to be widely studied. The study of strategic alliances began by centring on the alliance as a unit of analysis. However, in so far as attention is moving towards the individual level of the firm that forms alliances, the need also arises for a joint analysis of all the alliances in which the firm participates. In other words, its Alliance Portfolio, the study of which still presents important areas that should be explored (Wassmer, 2010).

Previous studies on Alliance Portfolios have centred on Alliance Portfolio Configuration (APC), in other words, who the partners of the focal firm are and how they relate with it and between each other (Hoffmann, 2007; Wassmer, 2010); on their management, seeking opportunities for alliances, designing relational governance and globally coordinating the alliance portfolio (Lavie, 2007; Sarkar, Aulakh, & Madhok, 2009); and on how the alliance portfolio affects performance (Lavie & Miller, 2008; Wassmer & Dussauge, 2012).

In particular, the configuration of the alliance portfolio is linked to the study of strategic networks. The confluence of the Resource Based View and the study of inter- organisational networks has made it clear that the choice of partners in the firm and the structure of their inter-organisational relations are relevant strategic decisions. APC has a multidimensional

nature (Wassmer, 2010). Portfolio size, the density of the links between partners of the firm, the existence of structural holes in the network, the intensity of the links with partners and their characteristics may all be considered among its dimensions and (Hoffmann, 2007). APC is linked to the choice of partner and is, therefore, a widely covered theme from different points of view in the literature on strategic alliances.

APC conditions access to network resources. Hence, it also affects performance. Hoffmann (2007: 834) affirmed that the configurations of the alliance portfolios "determine the quality, quantity, and diversity of information and resources to which the focal company has access". Network resources are those that firms can access through their ties (Gulati, Nohria, & Zaheer, 2000) and, more specifically, the network resources of the focal firm (Lavie, 2007). There is evidence that access to partner resources has positive effects on performance (Casanueva, Gallego, Castro, & Sancho, 2014; Lavie, 2007).

Not all access to partner resources is finally mobilized by the firm. The level of network resource mobilisation (LNRM) to which the focal firm has access through the APC will also affect performance. Therefore, an acceptable configuration of the alliance portfolio will be conditioned by the level of resource mobilization that the firm really achieves (Casanueva et al, 2014).

Previous literature on the Alliance Portfolio has not covered the separation between access to and mobilization of network resources (Batjargal, 2003; Casanueva et al., 2014). A question therefore arises over the interrelation between the following aspects: (1) access to partner resources derived from the composition of the alliance portfolio; (2) the level of mobilization of those resources that the focal firms achieves, (3) and its performance.

The objective of this work is gain insight into how the configuration of the alliance portfolio (APC) affects the performance of a firm in financial and operational terms and to analyse the possible mediatory relations arising from the LNRM.

In response to that objective, access and mobilization of an important partner resource in the airline business at an international level has been studied: the destinations of partners that the focal firm can exploit through code-sharing agreements. The results show that APC affects both operating and financial results. The main contribution of this work is that it clearly presents the effects of the full mediation on the level of resource mobilization in the case of operating results and partial mediation in the case of financial results.

2. Theory and hypotheses

Alliance Portfolio Configuration (APC) refers to its content and to its arrangement. It is a complete and complex concept that attempts to cover different dimensions (Wassmer, 2010). In this sense, Hoffman (2007) considered that the configuration of the alliance portfolio of the focal firm determines the quality, quantity and diversity of the resources to which it has access, efficiency in accessing those resources, and the position of the focal firm in the inter-organizational networks. In addition, he proposed that four parameters determine the configuration of the alliance portfolio: the number of alliances, dispersion, redundancy, and the intensity or strength of the links.

The first parameter, the number of alliances or portfolio size, will condition the volume of information and the resources which the focal firm can access (Koka & Prescott, 2002). The second parameter refers to the diversity of partners. Previous investigations have pointed to the importance of establishing alliances with non-similar partners, particularly in global markets (Goerzen & Beamish, 2005). The third parameter refers to the redundancy presented by the ego net, which rarely has a uniform structure. For example, sparse networks with few redundancies and many structural holes will imply asymmetry in access to information and

other resources within the ego net (Burt, 1992; Castro, Roldán, & Acedo, 2014; Sapsed, Grantham, & DeFillippi, 2007). Finally, the last parameter refers to the intensity of the links. In accordance with the concept of Granovetter on strong rather than weak links, these parameters of the alliance portfolio will condition characteristics and attributes such as confidence and the quality of relations, which will to a large extent stem from the history of the company and its reputation (Granovetter, 1992).

These four parameters will jointly determine the APC. So, the focal firm, through the establishment of cooperative agreements, will continue to develop a relational pattern that, if done with strategic intention, should benefit the ego by composing a high performance portfolio (Ozcan & Eisenhardt, 2009). Some researchers point out that the configuration of the alliance portfolio, understood as a multidimensional construct, impacts in a positive way on the performance of firms (Castro et al., 2014). In addition, there is evidence that each of the parameters of the portfolio affects performance. Alliance portfolio size constitutes an important variable to explain performance differentials (Mouri, Sarkar, & Frye, 2012; Wassmer & Dussauge, 2012). In relation to the second parameter, having access to various partners can be an important source of novel and diverse knowledge as well as other resources for the ego firm, which can increase its performance (Phelps, 2010; Vasudeva & Anand, 2011). The third parameter, the reduction of redundancy in the alliance portfolio, in so far as it can afford the opportunity of bridging structural holes, allows the focal firm to enhance the performance of its alliance portfolio (Castro et al., 2014; Dyer, Singh, & Kale, 2008). In relation to the last parameter, the strength or intensity of the nexus of contacts in the alliance portfolio will have a positive impact on the quality of the relations, which in turn contributes to the performance of the APC (Sarkar, Aulakh, & Madhok, 2009).

Finally, two ways of measuring the performance of the focal firm were employed, to analyse how the management of the alliance portfolio influences it. The first has centred on operational aspects (Casanueva, Gallego, & Sancho, 2013; Park, Srivastava, & Gnyawali, 2014) and the second on more global and financial aspects (Koka & Prescott, 2008; Lavie, 2007; Wassmer & Dussauge, 2012). Therefore,

H1a: The composition of the alliance portfolio of a firm is positively related to its operational performance.

H1b: The composition of the alliance portfolio of a firm is positively related to its financial performance.

The size of the alliance portfolio, its internal structure, the diversity of partners, and the intensity of the relations (the parameters of the APC) all basically condition access to network resources (Hoffmann, 2007). However, not all the resources to which a firm has access through its relations are finally used or mobilized (Casanueva et al., 2014; Grant & Baden-Fuller, 2004). Therefore, its level of access to resources is different to their level of mobilization. Mobilization of the resources that the partners own is subject to a double condition: voluntarism and capability. Voluntarism is a two-edged process, as a focal firm should exist that is interested in using the resources that its partners possess and a partner that is willing to concede the use of its own resources. Some authors have pointed to a series of reasons to understand this mutual willingness, for both economic and social motives (Huggins & Johnston, 2010), and the power of negotiation (Kumar, 2010). Moreover, firms should develop a certain capability to mobilize the greatest level of network resources to which they potentially have access through their ties; in other words, through the composition of their alliance portfolio (Casanueva et al., 2014).

Access is therefore a necessary, but not a sufficient condition for the mobilization of network resources (Casanueva et al., 2014), there being an inter-connection between the

Alliance Portfolio Configuration (APC) and the Level of Network Resource Mobilization (LNRM). In this sense, it is APC that establishes the channels or conduits through which the network resources will have to flow. APC will principally determine the quality, quantity and diversity of the network resources that the focal firm may access (Hoffmann, 2007). However, it will also condition the level of mobilization to a certain degree, as it determines "the efficiency of the access to these network resources" (Hoffmann, 2007: 834). Consequently, the APC will impact on the LNRM.

Equally, Casanueva et al. (2014) pointed out that the capability or skill that the firm has to mobilize network resources is linked to its performance. Previous studies have provided evidence that the use of external resources (Acquaah, 2007) and their mobilization (Batjargal, 2003) improve the performance of firms.

In conclusion, it is likely that the focal actor will intentionally develop an APC that allows a high LNRM. In addition, the higher the access to network resources and the higher the level that is really mobilized, then the higher the performance of the focal firm. From the earlier arguments, it follows that the more strategically the structure of the alliance portfolio is composed, the more network resources the focal firm will be able to mobilize (the more it is able to mobilize the network resources that are available through its alliance portfolio, the better its performance will be). In consequence,

H2a: The relation between APC and PER (Load Factor or operating performance) is positively mediated by the level of network resource mobilization (LNRM).

H2b: The relation between APC and PER (Financial performance) is positively mediated by the level of network resource mobilization (LNRM).

3. Methods

Sample. We studied the airline industry at a portfolio level. The airline industry is a mature sector, with intense rivalry and a wide range of competitive practices within it. These are large-sized firms that, because of the industry's own logic, are present throughout the world. It is likewise an industry with a dynamic movement towards inter-firm relations, which range from commercial agreements to integration processes (acquisitions and mergers). This characteristic turns it into an especially appropriate sector for network analysis (Gimeno, 2004; Shah & Swaminathan, 2008).

In this industry, a destination is an airline resource that includes a market, airport slots, the capability to offer land-based services (handling, maintenance...), and the knowledge associated with it, among other aspects. It is a resource that each firm quite clearly controls, but that may also be used by its partners. It therefore permits the analysis of access to and mobilization of network resources.

In this study, an alliance between two airlines was considered to exist in cases where they had entered into a codeshare agreement (Min & Mitsuhashi, 2012). A codeshare allows an airline to sell seats to its clients on the flights of another company with which it has the agreement. This means that an airline company can fly to destinations that it does not itself offer thanks to its alliances with its partners. In a shared codeshare alliance, the partners can incorporate the destination in its routes, but the resource remains under the control of the firm that holds it. Therefore, destinations are an appropriate physical resource with which to analyse access to network resources and their mobilization. In this industry, destinations are a key resource, whether understood as an element in a network structure or as a market (Wassmer & Dussauge, 2012).

When an airline enters into a codeshare agreement with another firm, we consider that

there is a sufficiently close relationship so that, at least potentially, all other destinations of the partner are accessible and likely to be the object of new codeshare agreements in the future. Thus, the alliance portfolio of codeshares of a focal airline will allow potential access to the destinations of all its partners. However, in practice, the start of a relation based on a codeshare agreement between two airlines has a limited network of routes and destinations on both sides and does not have to be equal. However, the future of those codeshare agreements resides in the slow enlargement of destinations and the routes that both airlines operate. Therefore, potential access to all the destinations of the partner is available from the time at which the first cooperative agreement enters into force. The focal firms will for strategic motives decide on the destinations they have more interest in mobilizing or no interest in mobilizing at all. As time goes by, if the focal firm manages to fly to those destinations that were only potentially accessible at first to the relation with the partner, then it would have increased its mobilization of those resources. That level of mobilization (LNRM), therefore, will increase and decrease over time. For example, Air Canada and Air China signed a codeshare agreement in April 2008 to travel to Beijing and Shanghai. Subsequently, the numbers of destinations increased for Air Canada through Air China.

So, by October 2013 the codeshare agreement with Air China had expanded to the following destinations: Chengdu, Chongqing, Guangzhou, Shenyang, Wuhan, and Xi'An. In addition, the codeshare agreement could incorporate other Air China destinations in the future.

The sample was selected from a ranking of the 200 largest airlines by revenue in 2009, published, in 2010, by the journal Airline Business (Wassmer & Dussauge, 2012). Various business groups appear in that ranking, a detailed analysis of which gave a total of 214 airlines, all of which with a sales volume of over 50 million dollars. Finally, the sample was filtered to work only with passenger airlines that maintained strategic alliances. The final sample consisted of 135 firms, having discounted the cargo companies and the airlines without codeshare agreements. Their total revenue represented 75 percent of the total for the sector. The data on codeshare alliances, provided through the company Flightglobal that extracted from the databases of the ATI (Air Transportation Intelligence) and Airline Business-Alliance Survey, updated in August 2011.

Dependent variable. In this work, the dependent variable is firm performance. Two financial indicators and one operative indicator were used, in order to measure firm performance. Firstly, we measured financial firm performance in the airline industry in terms of sales per employee, which is a shared measure of productivity (Koka & Prescott, 2002), and revenue passengers (Wassmer & Dussauge, 2012). The operative indicator, Passenger Load Factor (PLF) was expressed as passenger-kilometres flown as a percentage of available seat kilometres, which is a relative measure of carrying capacity (Lazzarini, 2007; Rajasekar & Fouts, 2009). Data over 2009-2012 were used for the three performance measurements and a mean average was calculated.

Independent variables: APC parameters. Size of alliance portfolio (SIZE) was measured as the number of partners of the focal firm. Redundancy was measured with the indicator developed by Burt (1992) known as effective size (EffSize). This indicator attempts to measure the number of firms, weighted by the strength of the relation, to which the focal firm is directly linked, minus a redundant factor. So, in the case where none of the actors that constitute the egonet were connected between each other, the effective size would coincide with the total size of the egocentric network (Borgatti, 1997). Diversity was calculated by considering the different segments of the industry in which each airline operates (major, regional, low-cost, charter...). A Blau index was used to calculate it, so as to consider the differences between the partners of the alliance portfolios of the firm under consideration. The intensity of the links seeks to capture the general experience that it has in the management of

alliances. The value of the indicator is the average duration of each alliance in which the focal firm engages. This indicator therefore attempts to reflect the experience of the focal firm in managing alliances over time and the way this experience allows it to intensify its relations, by substituting formal governance mechanisms for other more informal ones such as trust (Koka & Prescott, 2002).

Mediating Variable: Level of network resource mobilization. The level of mobilization of network resources (LNRM) was measured as the ratio between the number of destinations to which each focal firm really operates flights through codeshare agreements with its partners and the total number of possible destinations to which it has access through its alliance portfolio. In other words, the network resource that we consider relevant is the percentage of destinations that the airline really mobilizes from among the destinations to which it has access.

Control variable: the size and the age. We controlled for company size as the logarithm of the number of employees and for alliance experience and alliance function, measured on a seven-point Likert scale (Sarkar et al. 2009). Accordingly, large firms with extensive experience in alliances and with a dedicated alliance function may have greater capabilities to assign resources and to exploit knowledge for the development of alliance portfolio management routines (Vandaie & Zaheer, 2014). Firm age was measured by the date of the firm's establishment. Both control variables have been widely used in the literature as factors that can impact on differences in the performance achieved by the firms.

4. Data analysis and results

Tests on the research model, with the assistance of Smart PLS 3.0. software (Ringle, Wende, & Will, 2005) applied Partial Least Squares (PLS), a variance-based structural equation modelling technique (Henseler, Ringle, & Sinkovics, 2009).

PLS is primarily intended for causal-predictive analysis, in which the problems explored are complex and prior theoretical knowledge is scarce. Consequently, PLS is an appropriate technique to use in a theory-development situation that is the case of this study. PLS was also chosen because this contribution focuses on the prediction of dependent variables. The use of PLS with regard to covariance-based structural equation modelling (maximum-likelihood) is also recommended due the sample size (n = 135).

In our work, we have modeled the conceptual variables as composite factor. Thus, we have chosen a composite model in which it has drawn a reflective design where the different indicators are different aspects but they exhibit a certain correlation. The evaluation of the common latent measurement models examines its reliability and validity (Henseler et al., 2009). First, all standardized loadings (λ) exceeded the 0.707 level, except for one item (diversity) from the alliance portfolio composition dimension, but as this construct complied with the two conditions that are analysed further on, and constitute one of the parameters that determine APC (Hoffmann, 2007), we decided to maintain it. Individual item reliability was therefore acceptable. Second, the latent variables met the requirement of construct reliability, as their composite reliabilities (ρc) were greater than 0.7. Such constructs achieve convergent validity, because their average variance extracted (AVE) measures exceed the level of 0.5. Finally, Table 1 shows that all latent variables achieved discriminant validity, calculated by a comparison of the square root of the AVE with the correlations between the constructs. Moreover, we use $HTMT_{.85}$ in order to assess discriminant validity and all latent variables achieved discriminant validity (Henseler et al., 2015).

Table 1: Discriminant validity coefficients

LOAD FACTOR	(APC)	(LNRM)	(PER)	(F_S)	(F_A)
Alliance Portfolio Configuration	**0.827**				
Level of Network Resource Mobilization (LNRM)	0.443 **(0.495$_{HTMT}$)**	**1**			
Load Factor (PER)	0.152 **(0.171$_{HTMT}$)**	0.326 **(0.326$_{HTMT}$)**	**1**		
Firm Size	0.047 **(0.049$_{HTMT}$)**	-0.002 **(-0.002$_{HTMT}$)**	-0.036 **(-0.036$_{HTMT}$)**	**1**	
Firm Age	0.411 **(0.444$_{HTMT}$)**	0.280 **(0.280$_{HTMT}$)**	0.064 **(0.064$_{HTMT}$)**	-0.014 **(-0.014$_{HTMT}$)**	**1**
FINANCIAL					
Alliance Portfolio Configuration	**0.827**				
Level of Network Resource Mobilization (LNRM)	0.443 **(0.444$_{HTMT}$)**	**1**			
Financial (PER)	0.590 **(0.669$_{HTMT}$)**	0.477 **(0.494$_{HTMT}$)**	**0.962**		
Firm Size	0.047 **(0.049$_{HTMT}$)**	-0.002 **(-0.002$_{HTMT}$)**	0.043 **(0.044$_{HTMT}$)**	**1**	
Firm Age	0.412 **(0.444$_{HTMT}$)**	0.280 **(0.280$_{HTMT}$)**	0.301 **(0.308$_{HTMT}$)**	-0.014 **(-0.014$_{HTMT}$)**	**1**

Diagonal elements (bold) are the square root of the variance shared between the constructs and their measures (average variance extracted). Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements. The results marked in bold in brackets indicate discriminant validity according to the HTMT[85] criterion.

As Henseler et al. (2009) noted, the use of bootstrapping (5000 resamples) generates standard errors and t-statistics to evaluate the statistical significance of the path coefficients. Simultaneously, calculation of the bootstrapping confidence intervals of standardized regression coefficients forms part of the analysis. As shown in Figures 1B and 2B, five of the six direct effects are significant; also evident in the percentile bootstrap 95% confidence interval. From the analysis of these results, no support was forthcoming for H1a. The direct effect of the alliance portfolio configuration (APC) on the Load Factor (*c'*) is not significant and its confidence interval includes zero. A $Q^2 > 0$ implies that the model has predictive relevance. The results confirm that the structural model is of satisfactory predictive relevance for airline performance ($Q^2 = 0.071$; $Q^2 = 0.351$). Finally, we report the SRMR composite factor model in order to determine to what extent the model fits the data. In our two models this indicator is above 0.08 so the good fit of the models is confirmed ($SRMR_{cfm} = 0.023$; $SRMR_{cfm} = 0.04$) (Henseler et al., 2014).

We applied the analytical approach described by Hayes et al. (2011), in order to test the mediation hypotheses (H2a-H2b). Figures 1A and 2A describe the total effects of the APC (*c*) on airline performance (PER). Figures 1B and 2B express the total effect of APC on the PER as the sum of the direct (*c'*) and indirect (*a*b)* effects. Thus, $c = c' + a*b$, where c' is the direct effect of the APC on airline performance (H2a: Load Factor or operating performance; H2b: financial indicators), controlling for one mediator (level of network resource mobilization - LNRM). This method has the advantage of isolating the indirect effect of mediating variables, that is, the mobilization level (H2: *a*b*).

The application of bootstrapping tested the mediation hypotheses (Hayes, Preacher, & Myers, 2011). This 5000 resamples in the study generated 95% confidence intervals (percentile) for the mediators.

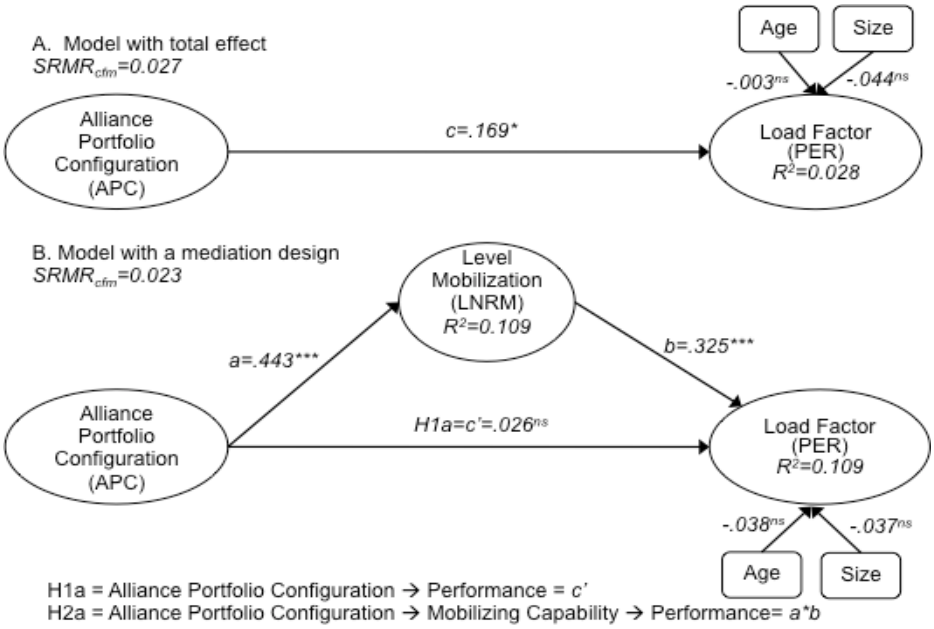

Figure 1: Research model 1: A mediation model Load Factor

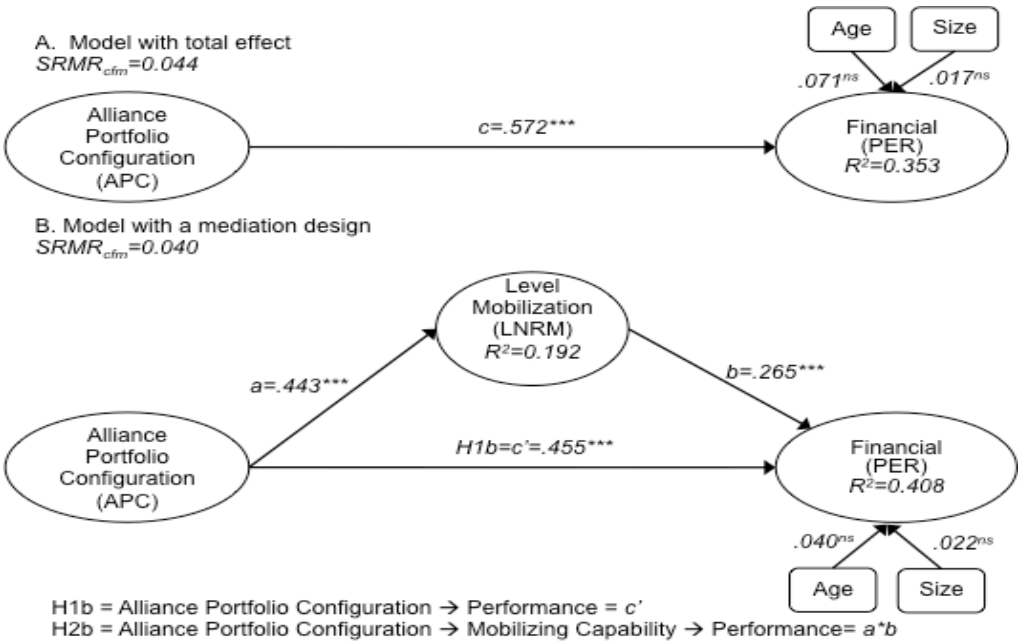

Figure 2: Research model 2: A mediation model Financial Performance

5. Findings

Table 2 shows the results of the tests on the mediating effects of the variables. The APC had a significant total effect on PER (*c* = 0.169, t-value = 1.7 (Figure 1A); *c* = 0.572, *t-value* = 7.8 (Figure 2A)). When the mediating variable (LNRM) was introduced, in the case of the Load Factor, the Alliance Portfolio composition (APC) ceased to have a significant direct effect on the Load Factor (H1a: *c'* = 0.026, *t-value* = 0.276). In the case of Financial Performance, the APC had a significant direct effect on PER (H1b: *c'* = 0.455, *t-value* = 4.609). This result means that the mobilization level of network resources by the focal actor fully mediates the influence of APC on Operating Performance. Indeed, as mentioned earlier, H1a was not supported and H1b was supported. However, no CIs contained zero, so the

indirect effects were significant. Consequently, support was found for H2a–H2b, meaning that the indirect effects of APC on PER were significant in our research models (Figures 1B and 2B). Finally, the results show that the APC had a total indirect effect on Load Factor or operating performance (point estimate = 0.143), which was higher than its direct effect (point estimate = 0.026). In relation to the control variables included in our model, size and age presented negligible and non-significant paths.

Table 2: Summary of mediating effect tests

Total effect on Load Factor			Direct effects on Load Factor			Indirect effects on Load Factor	
	Path	*t*		Path	*t*		Point estimate
APC (*c*)	0.169*	1.667	**H1a** = *c'*	0.026^{ns}	0.276	**H2a**= *a*b* Percentile 95% bootstrap condifence intervals	0.143 [0.073; 0.271] Sig
AGE	-0.03^{ns}	0.030	AGE	-0.038^{ns}	0.376		
SIZE	-0.044***	0.509	SIZE	-0.037^{ns}	0.435		
Total effect on Financial Perf.			Direct effects on Financial Perf.			Indirect effects on Financial Perf.	
	Path	*t*		Path	*t*		Point estimate
APC (*c*)	0.572***	7.803	**H1b** = *c'*	0.455***	4.609	**H2b**= *a*b* Percentile 95% bootstrap condifence intervals	0.117 [0.044; 0.276] Sig
AGE	0.071^{ns}	1.021	AGE	0.040^{ns}	0.591		
SIZE	0.017^{ns}	0.396	SIZE	0.022^{ns}	0.560		

Note: Note: APC: Alliance Portfolio Configuration
Sig. denotes a significant direct effect at 0.05; bootstrapping based on n = 5.000 subsamples
*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ^{ns}: not significant (based on $t(4999)$, one-tailed test)
$t(0.05, 4999) = 1.65$, $t(0.01, 4999) = 2.33$, $t(0.001, 4999) = 3.09$
Sig. denotes a significant direct effect at 0.05; Nsig. denotes a nonsignificant direct effect at 0.05

6. Discussion and Conclusions

The objective of this work was to increase understanding of the importance of Alliance Portfolio Configuration (APC), which permits the focal firm to access valuable network resources, such as the capability to mobilize these resources in both the operating and the financial performance of the airlines. We used an analysis of statistical mediation to achieve this objective. The results show that network resource mobilization capability mediates the effect of APC and both the operating and the financial performance of the airlines.

The principal contributions of this work are twofold. The first implies the consideration of the alliance portfolio as a multidimensional construct to analyse how all their dimensions jointly affect operating and financial performance of firms. The second is the incorporation of the difference between access and mobilization to understand the relation between APC and the aforementioned performance levels in a satisfactory way. The level of network resource mobilization (LNRM) is shown as a mediating variable in that relation.

These findings look deeper into the prior literature on the way in which APC affects performance (Castro et al., 2014), basically through the presentation of the concept of network resource mobilization, which has been considered at a theoretical level, but from which little empirical evidence exists on how it conditions the results of the firms that form alliances between each other (Casanueva et al., 2014). It also implies deepening our understanding of portfolio management, as our findings propose the consideration of network resource mobilization as a relevant factor in the development over time of the group of alliances of a focal firm. The level of mobilization should be managed to increase it during

the life of the alliances, in such a way as to exploit all the potential access arising from a satisfactory APC.

From a practical point of view, these findings suggest the need for network resource mobilization to form part of Alliance Portfolio Management Capability (Sarkar et al., 2009), generating network resource mobilization capability (Casanueva et al., 2014). Prior experience in alliances and the management of partner network relations within the portfolio (Schilke & Goerzen, 2010) form the basis of that capability. On the other hand, clear identification is necessary of which partner resources are strategic and/or complementary for the firm, which partners possess them to a greater extent and which of them are willing to permit the focal firm to use them to its own benefit. The need is also proposed for an acceptable characterization of the resources of the focal firm. Doing so would mean that their mobilization may contribute to performance to a greater extent, as the characteristics of such disparate resources such as those linked to knowledge as opposed to other more tangible or market-related ones will condition the decision-making by the firms that are involved.

Finally, this work presents certain limitations. On the one hand, the analysis of the interactions between access (because of the APC), resource mobilization and performance could be subjected to a dynamic and process-related analysis that has only been covered here at a particular point in time. On the other, the consideration of a single network attribute (airline destinations), despite its relevance to the sector, limits the analysis of the global effect of the APC in performance. Finally, as happens in most of the studies based on social network analysis, it is standard practice to centre on one case or sector (in this work, the airline sector at a global level); so we should be cautious about any generalization of the results.

Future lines of research will attempt to gain a deeper theoretical understanding of what network resource mobilization capability means and how it should managed. The relations studied in this work will include a dynamic and process-related component, by extending this type of analysis to other sectors and to a larger number of relevant resources (which will also include intangible knowledge-based resources).

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The Influence of Organizational Structure on International Purchasing Success

Research-in-Progress

Tabea Tressin

Hamburg University of Technology, Institute for Human Resource Management and Organizations, Schwarzenbergstraße 95 (D), 21073 Hamburg, Germany. Tel: +49 40 42878-3567. Email: tabea.tressin@tuhh.de.

Nicole Franziska Richter

Nordakademie, Professorship of Marketing and General Management, Koellner Chaussee 11, 25337 Elmshorn, Germany, Tel: +49 4121 4090-241. Email: nicole.richter@nordakademie.de.

David F. Midgley

INSEAD, Professor of Marketing, Boulevard de Constance, 77305 Fontainebleau Cedex, France, Tel: +33 160724977. Email: david.midgley@insead.edu.

Abstract

International purchasing is one of the most important strategic topics for managers and attracts more and more interest among researchers. Yet, research often lacks strong theoretical and systematic insights on the intricacies of purchasing success and does not make enough use of advanced empirical methods.

We apply a structural equation modeling technique to better research into the intricacies of higher or lower purchasing performance owing to different organizational design choices. We build our model on the resource-based view and on transaction cost economics and make use of survey data of purchasers engaging in international sourcing activities.

We find four important drivers of purchasing performance, namely specialization, configuration, standardization and centralization. The importance of these drivers seems to be contingent on the sourcing environments, namely on the characteristics attributed to high cost and low cost countries.

Keywords: *International Purchasing, Global Sourcing, Emerging Markets, Organizational Structure, Structural Equation Modeling*

1. Introduction

International purchasing is one of the most important strategic topics for managers, and attracts more and more interest among researchers (de Beuckelaer & Wagner, 2007; Hultman, Johnsen, Johnsen, & Hertz, 2012). Yet research often still lacks strong theoretical and systematic insights on the intricacies of purchasing success and does not make enough use of advanced empirical methods (see for instance Murray, Kotabe, & Zhou, 2005; Quintens, Pauwels, & Matthyssens, 2006b; Tressin & Richter, 2014).

Hence, while most research in the field remains stuck in a descriptive discourse, we will apply a structural equation modeling technique to better research into the intricacies of higher or lower purchasing performance owing to different organizational design choices. In doing so, we build our causal model on the resource-based view and transaction cost economics and make use of a research platform identified in a recent literature review (Tressin & Richter, 2014).

2. The Causal Model and Research Hypotheses

In the following we outline our causal model of purchasing success. The model has five organizational structure constructs, namely centralization (e.g. Gonzalez-Padron, Hult, & Calantone, 2008), standardization (e.g. Giannakis, Doran, & Chen, 2012), specialization (e.g. Wang, Singh, Samson, & Power, 2011), configuration (e.g. Hartmann, Trautmann, & Jahns, 2008), and involvement (e.g. Giannakis et al., 2012), hypothesized to positively influence purchasing and therewith firm performance.

Building on the transaction and information cost economics we outline a positive impact of centralization and standardization on purchasing performance and therewith on firm performance. Centralization refers to the concentration or aggregation of decision-making authority in a single organizational unit, for instance at the headquarters level. The overall efficiency of a centrally organized administration of global purchasing activities is supposed to be higher than in a decentralized structure: Since administrative functions involving for instance information processing and monitoring practices are duplicated in decentralized structures (e.g. Galbraith, 1973; Ghoshal & Nohria, 1993). Standardization refers to the degree to which purchasing activities are defined by rules, standard procedures and tools (such as suppliers rating systems and auditing, information sharing systems, performance reporting, risk planning, and quality management tools). These standards are designed to reduce uncertainty and variation in the outcomes, and are therewith supposed to positively impact purchasing and firm performance (Garrido-Samaniego & Gutiérrez-Cillán, 2004; Johnston & Bonoma, 1981; Karjalainen & Salmi, 2013; Sanchez-Rodriguez, Hemsworth, Martinez-Lorente, & Clavel, 2006).

Building on the resource-based view, we hypothesize a positive impact of specialization, configuration and involvement on purchasing and firm performance. Specialization refers to the repetitiveness of tasks (Glock & Hochrein, 2011) and to the extent to which specialized skills are existent in the department. These skills comprise: team building, strategic planning, communication, technical, and financial skills (e.g. Giunipero, Handfield, & Eltantawy, 2006). These purchasing skills are resources of the firm that lead to operational (purchasing), and hence, firm performance (Kerkfeld & Hartmann, 2012). Configuration is defined as the purchasing department's status in the company, and thus, its strategic importance and exertion of influence. Giving strategic influence to the purchasing department or especially to the Chief Purchasing Office leads to higher resource access in the firm (in terms of time, human and financial resources). This enhances the purchasing department's capabilities and therewith leads to higher purchasing and firm performance (e.g. Kusaba, Moser, & Rodrigues, 2011; Weber, Hiete, Lauer, & Rentz, 2010). Involvement is the

extent of integration of functional and hierarchical levels (Glock & Hochrein, 2011) in the purchasing process; often the overall size of a purchasing team is referred to as a measure of involvement (Johnston & Bonoma, 1981). A ***higher*** involvement increases the capabilities used for ***decision-making*** and is supposed to positively impact purchasing and firm performance. In their empirical study, Narasimhan and Das (2001) find a positive effect of cross-functional integration on firm performance and Bals, Hartmann, and Ritter (2009) reveal a positive impact of collaboration on purchasing performance in procuring marketing services.

3. The Sample and Research Methodology

In order to test the above research hypotheses, we make use of a sample of n=195 purchasers interviewed in April-May 2014 by means of a computer assisted telephone interview. The sampling frame was taken from Hoppenstedt's directory of firms and we focused on firms belonging to the manufacturing industry (i.e. European Union's NACE codes 2****, 30***, and 325**) and purchasing their goods from international suppliers. The experienced telephone interviewers were all thoroughly briefed beforehand the study. Non-response patterns were checked ex-post and did not point to problems of survey design. The majority of firms surveyed has between 250 and 1999 employees. The sample comprises 37 different sourcing locations (nations in which the major supplier is located), and therewith offers a good platform for the project.

The items used to operationalize the constructs are all taken from the literature (sometimes with slight adaptations) – we referred to the following operationalizations in designing our measurement models: Centralization is taken from Quintens, Pauwels, and Matthyssens (2006a), standardization is a selection of tools presented by Karjalainen and Salmi (2013). Specialization is a collection of the most important skills for purchasing professionals (collected by Giunipero & Pearcy, 2000; Petersen, Frayer, & Scannell, 2000; Trent & Monczka, 2003). Configuration is taken from Paulraj (2011) and the scale used for involvement is based on Bals et al. (2009). Our dependent constructs are purchasing performance, operationalized as changes in purchasing time, cost and quality due to international sourcing activities (see González-Benito, 2007, 2010), and firm performance in terms of improvements of financial (profit target achievement) and non-financial (customer satisfaction, competitive advantage) performance in the past years (see Chen, Tsou, & Huang, 2009).

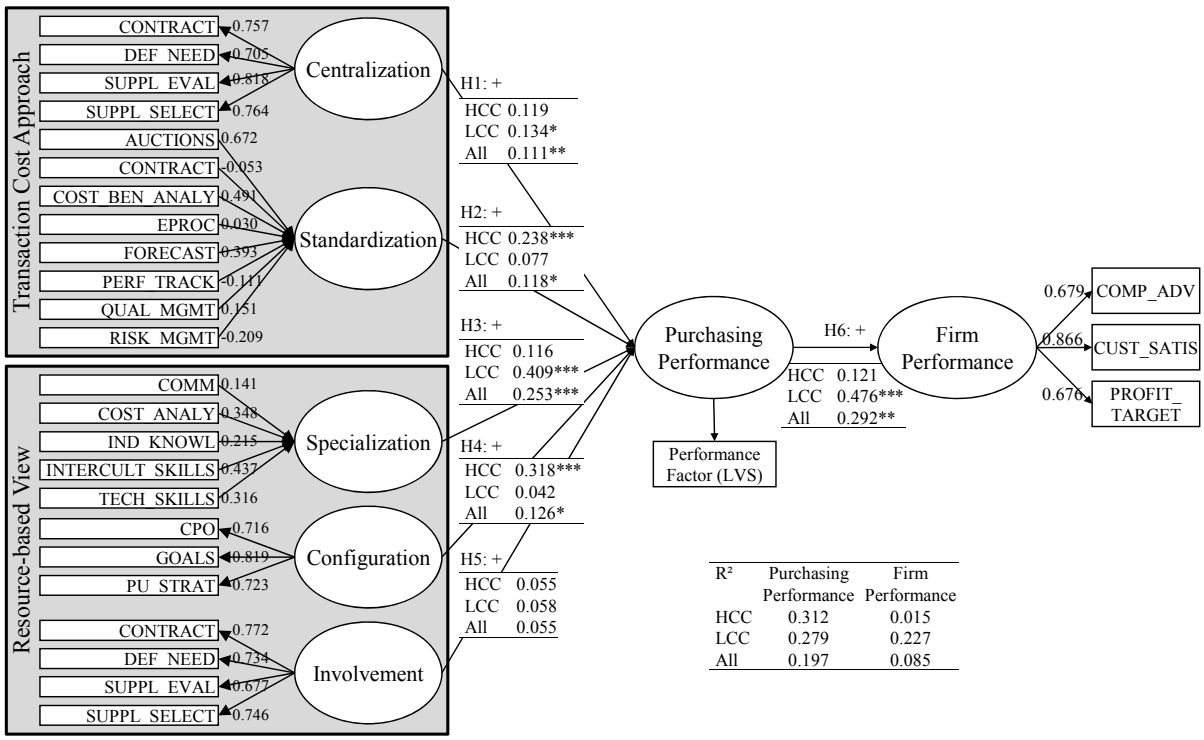
To empirically test our hypotheses we make use of PLS-SEM and SmartPLS 3.0 (Ringle, Wende, & Becker, 2014). Following the procedures outlined in Hair, Hult, Ringle, and Sarstedt (2014), we evaluated the measurement models first. All measurement models are uncritical with loadings, mostly above 0.7. Regarding our formative constructs, some weights are insignificant; yet, following the procedure recommended by Hair et al. (2014), we renounce eliminating any formative indicators (specialization, standardization) for the sake of the constructs' completeness. Having checked the measurement models, we will concentrate on the results derived for the structural or inner model in the following.

4. Discussion of Results

The following figure presents the causal model hypothesized and the results for the total sample ('All') as well as for two subsamples, namely results for those firms sourcing from high cost countries ('HCC') versus firms sourcing from low cost countries ('LCC'). The latter is incorporated, as contingency approaches in purchasing suggest that relationships are contingent on environmental factors (an assumption which will need further theoretical elaboration in

progressing with this project).

Figure 1: Causal model and results



First, looking at the total sample, we find that purchasing performance has a significant and positive effect on firm performance. Second, we find that four out of our organizational structure constructs have a positive and significant impact on purchasing performance (all except for involvement). Therewith, we are able to explain a moderate share of variance in purchasing performance (namely 20 %). Hence, both, transaction cost economics and the resource-based view contribute to explaining the intricacies of higher or lower purchasing performance. The explanatory power of the model moreover increases considerably, as soon as we are looking at our subgroups – i.e. the relationships found seem to be contingent on environmental factors, namely on the characteristics of high and low-cost countries.

In total, the most important driver of purchasing performance is specialization. Hence, specialization is key for achieving a good purchasing performance in terms of reducing costs, increasing quality and reducing time. Among the skills used to operationalize specialization, we find that especially intercultural, cost analytical, and technical skills seem to be the most relevant drivers of performance. This is followed at a distance by configuration, standardization and centralization - all showing rather comparable path coefficients. Centralized structures in which purchasing process stages such as contract management, supplier selection and evaluation are centralized in one unit are promising in terms of increasing the performance of purchasing departments. Likewise standardization of procedures and tools such as cost-benefit analyses, performance tracking, quality, and risk management induces a higher performance. Finally, configuring the purchasing department in such a way that it has a purchasing strategy and goals aligned with what the top management envisages, drives the performance of purchasing activities up.

These relationships vary or are contingent on the purchasing environments. In high cost countries, two aspects are of specific relevance, namely configuration of purchasing departments and standardization of procedures and tools. I.e. when sourcing from high cost countries, purchasing departments should be given visibility in top management and alignment

with corporate strategies. Moreover, management needs to make sure that standards are established and followed throughout all purchasing activities to be efficient. In low cost countries, two other aspects are of relevance: Specialization, i.e. the skills available in the purchasing department. Hence, firms need to make sure that their staffing specifically focuses on intercultural, cost analytical, and technical skills of their purchasers. Second, centralization is key for increasing purchasing performance. I.e. firms which centralized their purchasing departments within the home country performed better than decentralized firms when sourcing from low cost countries.

Both subgroup models have a good explanatory power (of 28% respectively 31%). Thus, it is worth to further investigate into the contingency effects which seem to be immanent in purchasing performance models. Hence, both theory building and empirical testing of contingency effects are envisaged next steps in progressing with this research.

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Antecedents of e-marketing orientation in SMEs: An exploratory study

Research-in-Progress

Abdel Monim Shaltoni
Alfaisal University
ashaltoni@alfaisal.edu

Abstract
An organizations e-marketing orientation (EMO) reflects beliefs and behaviors towards adopting e-marketing and consequently shapes involvement in cyberspace. This effort sheds more light on SMEs adoption of e-marketing through examining EMO and its antecedents in a structural model that specified EMO as a second order formative that consists of three reflective indicators. Based on a survey of SMEs in different sectors and countries, EMO philosophical and behavioral components were validated. It was also found that the degree of EMO is primarily affected by technological contexts factors such as perceived relative advantage and compatibility.

Keywords
E-marketing orientation; technological context, external pressure, SMEs, formative construct

1. Background

It remains an everyday experience that users of the Internet will click on a website for one SME and find advanced online services whereas they might visit another company website only to find a simple description of their products and provision of their contacts. These and other related differences can be measured objectively via SMEs respective degrees of e-marketing orientation (hereinafter referred to as EMO). SMEs are widely recognized as being central to economic growth and, from a public policy perspective, it is important to any society that they take full advantage of any benefits offered by e-marketing. The main aim of this paper is to understand e-marketing adoption in SMEs through analyzing and validating EMO as a high order formative construct.

Inspired by the two classical views of market orientation, Kohli and Jaworskis' behavioral (1990) perspective versus Narver and Slater's (1990) philosophical perspective, EMO was conceptualized as a synthesis of the behaviors towards the adoption of e-marketing and the concurrent organizational business philosophy (Shaltoni and West 2010). The rationale here is that behaviors alone are not enough to understand organizational orientations because philosophies play a major role in shaping such orientations (Avlonitis and Gounaris 1999). The philosophical component of EMO reflects organizational beliefs and attitudes towards e-marketing, which finds form in the emphasis placed on e-marketing by those with the authority to determine the extent to which it is adopted. Turning to the behavioral component of EMO means embracing the initiation and implementation activities involved in e-marketing adoption. The initiation stage takes e-marketing ideas and converts them into planned projects, whereas the implementation stage includes the activities involved in putting e-marketing to practical use (e.g. employing staff, buying and installing technologies).

Identifying the nature and components of EMO is important to understand the extent of e-marketing adoption; what would enhance this understanding is the identification of the factors that may shape SMEs' EMO and consequently their involvement in e-marketing. The extant literature which discussed e-marketing enabling technologies adoption by SMEs is fragmented and fails to provide an understanding of what determines adoption (Simmons et al., 2011). Previous studies have generally focused on investigating the impact of selected variables on specific technologies. These variables were directly or indirectly inspired by innovation theories, particularly Tornatzky and Fleischer's (1990) context of technological innovation where they suggest that there are three interconnected elements of organizations' context that influence the adoption and implementation of technological innovations. These are the organizational, environmental and technological contexts. Another important element is the attributes suggested by the seminal Diffusion of Innovation theory (Rogers 1995), which identifies the determinants of the rate of innovation adoption; these include relative advantage, compatibility, complexity, trialability and observability. Example of studies that employed the context of technological innovation and Rogers' theory include Tan et al. (2009) who found that relative advantage, compatibility, complexity, observability, and security are significant factors influencing internet-based ICT adoption. Mehrtens et al. (2001) suggested that SMEs' decision to adopt the Internet is influenced by three groups of factors: perceived benefits, organizational readiness and external pressure, but found little evidence to suggest the adoption was influenced by external pressure. These studies have made a significant contribution to the field. However, little effort was found to examine the

impact of the above mentioned variables from an organizational orientation perspective, although this should provide better understanding of the dynamics associated with e-marketing adoption since it explains which factors affect SMEs behaviors and philosophies towards e-marketing. Also, the EMO approach can be generalized to a wide range of e-marketing enabling technologies and applications since its focus is mainly on the organization rather than the technology itself.

2. A structural model of EMO and its antecedents

As stated earlier, EMO was conceptualized and validated as a multidimensional construct. Based on the conceptualization of EMO discussed earlier (see Shaltoni and west 2010 for details), EMO can be theoretically considered as high order formative because any changes in its components (philosophy and behavior) are expected to cause changes in its structure and dynamics. For example, if the SME owner is not convinced that social media is important for building their brand equity, they will not support activities that will enhance their social media presence, even if they have capable staff and established procedures/system for carrying out marketing activities. Accordingly, the following hypothesis is proposed:

> H1: EMO is a second order formative construct that consists of three first order reflective indicators, which are management beliefs about e-marketing, initiation and implementation activities.

The antecedents of EMO were investigated to further validate the EMO construct. Investigating the effect of these factors, which have been identified from the literature, will lead to a comprehensive view on how to advise SMEs to further improve their e-marketing practices. Based on Tornatzky and Fleischer's (1990) context of technological innovation and Rogers' diffusion of innovation theory (1995), the following factors will be investigated:

- Perceived relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes (Rogers 1995). The implication is that SMEs are more likely to be oriented towards e-marketing if they perceive that its enabling technologies provide greater benefits than existing methods. Thus:

  > H2: There is a positive link between the perceived relative advantage of e-marketing and EMO in SMEs.

- Perceived complexity refers to an innovation being perceived as relatively difficult to understand and use (Rogers 1995). Complex technologies create greater uncertainty about their successful implementation; therefore, increasing the risks inherent in the decision to adopt them. Thus:

  > H3: There is a negative link between the perceived complexity of e-marketing and EMO in SMEs.

- Compatibility refers to the degree to which an innovation is perceived as being consistent with existing values, past experience and the needs of potential adopters (Rogers 1995). The adoption of e-marketing resources can bring about significant changes to work practices, and consequently causes resistance, particularly if e-marketing requires radical changes in SMEs. Thus:

  H4: There is a positive link between the perceived compatibility of e-marketing and EMO in SMEs.

- Competition is generally perceived to positively influence the adoption of innovations. Moreover, when the level of competition is high, organizations may adopt e-marketing not on account of its relative advantage, but on account of the competitors who have already adopted it. Thus:

  H5: There is a positive link between the level of competition and EMO in SMEs.

- Finally, the requirements of customers represent a major force on SMEs. Indeed it is widely acknowledged that the Internet and other related technologies are creating powerful customer who have a wealth of accurate, updated and unbiased information (Pitt et al., 2002). Therefore, it is expected that SMEs will have higher levels of EMO if their customers exercise substantial pressure on them to be highly involved in e-marketing. Thus:

  H6: There is a positive link between customer pressure to adopt e-marketing and EMO in SMEs.

3. Methodology

Given the lack of evidence on the topic, data were collected from SMEs in contrasting sectors and cross-nationally to assess the influence of overall economic development. The European commission definition of an SME being less than 250 employees was adopted. 650 SMEs were randomly selected from European directories that provided details about the number of employees. All study scales have been utilized and validated in prior research. Marketing managers were selected as the key informants for firms with more than ten employees. With micro companies (less than ten employees), general managers or owners were considered suitable informants given they are normally responsible for marketing decisions in general, and e-marketing decisions in particular. The constructs were measured using multi-item indicators to capture the underlying theoretical domains. Questionnaire were e-mailed to respondents and 136 responses were received, representing a response rate of 20 per cent. A Chi-square test was conducted to compare early and late respondents on demographic characteristics and EMO. The results revealed no significant differences ($p > .05$) between the early and late respondents on the tested variables, which imply that non-response bias is not a problem in this study. PLS path modelling was used to analyze the relationships and test hypotheses.

4. Findings and conclusions

The results (figure 1) confirmed that EMO is a second order formative construct that consists of three first order reflective indicator, namely: management beliefs about e-marketing (philosophical component), initiation and implementation activities (behavioral components). Table 1 shows that the correlations among the three constructs of EMO ranged from 0.382 to 0.635 and all correlations were significant at 0.01 level. In addition, each of the three constructs was also highly correlated (0.773 and above) with the overall measure of EMO and all correlations were significant at 0.01 level. In terms of multicollinearity among the three constructs of EMO, the table shows that the highest value of VIF was 1.708 for Philosophical component which is far below the common cut-off point threshold of 5. This suggests that multicollinearity is not an issue. However, regarding the last criterion i.e. formative outer weight, the table also shows that the path coefficients between the three constructs and EMO were all significant at 0.01 level. The results (figure 2) also showed that a statistically significant and positive relationship existed between EMO and perceived relative advantage, perceived compatibility, customer pressure and level of competition. Unexpectedly, no significant relationship was found between EMO and perceived complexity. One explanation for the result might be that organizational adoption of Internet technologies can be relatively simple because the technological standards of the Internet are fairly easy to learn and use (Afuah and Tucci 2001).

To summarize, EMO has never been statistically validated as a high-order formative construct using structural equation modeling. This research shows that the identified three constructs should be modeled formatively towards the hierarchical construct. As the degree of the overall EMO competency results from the judgment of the three lower-order constructs, causality is seen to flow from the sub-constructs to the higher-order construct. Moreover, each low-order construct addresses distinct yet related content, so the dimensions are not interchangeable. The deletion of a dimension would in fact critically alter the domain of the overall EMO.

The managerial ‘message’ from the research is that SMEs do not see e-marketing as a complex IT issue. E-marketing oriented SMEs appreciate e-marketing role in improving their relations with customers and sustaining/developing their competitive positions. Having an innovative manager who values the relative advantages offered by e-marketing appears to be decisive for the development of EMO. Applying the EMO framework will enable managers to score their orientation towards e-marketing and identify the factors affecting their orientation and the often quick fixes for improvement. By making use of the EMO evaluation, they can take the necessary action to improve their orientation towards e-marketing, and consequently, their involvement in it.

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Tables/figures

Table 1

External Validity					Multicollinearity		Formative Outer Weight		
	Phil	Init	Impl	EMO	Tolerance	VIF	Direction	Path coefficient	t-value
Phil	1				.585	1.708	Phil→EMO	0.416	27.528
Init	.382**	1			.803	1.245	Init→EMO	0.405	24.654
Impl	.635**	.428**	1	**	.551	1.814	Impl→EMO	0.402	27.712
EMO	.798**	.773**	.845**	1					

Figure1

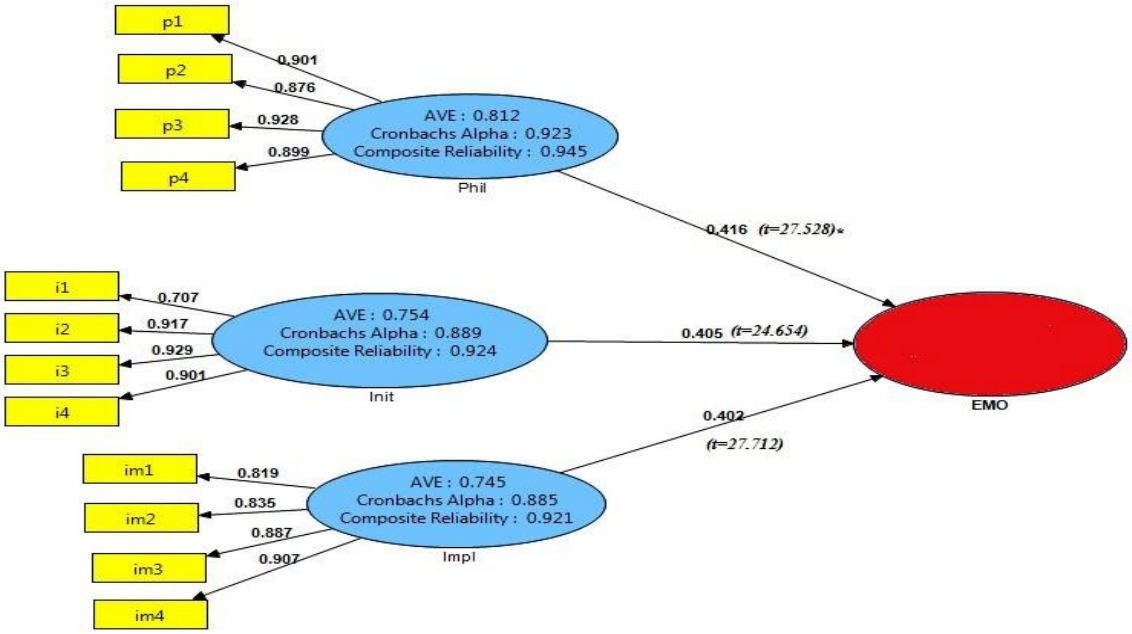
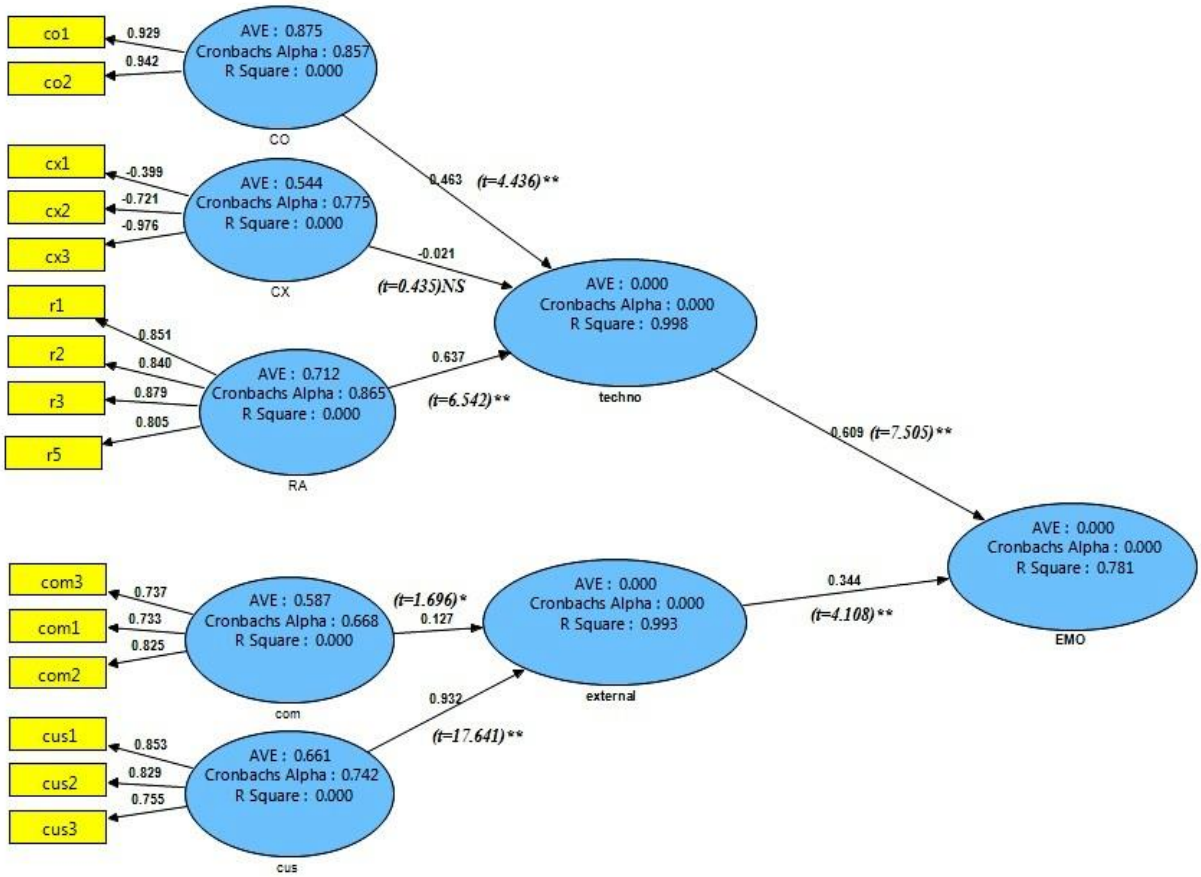


Figure 2



The influence of market heterogeneity on customer loyalty: A multigroup analysis.

Completed Research Paper

Araceli Picón-Berjoyo
University of Seville
araceli@us.es
Ignacio Castro
University of Seville
icastro@us.es

Carolina Ruiz-Moreno
University of Seville
carolruiz@us.es

Abstract

Loyalty is configured as one of the main determinants of firm performance. Many works have proposed models that analyze the relationship between loyalty and its main determinants: the customer perceived value (PV), their level of satisfaction and their perceived switching costs (PSC). Thus, the aim of this study is to validate a model that gathers the relationships between these variables and analyze the influence of customer characteristics –propensity towards switching and customer involvement- on these relationships in the insurance industry. The results show that (a) for the whole sample, perceived value, satisfactions and switching costs are set as antecedents of loyalty; (b) however, for customers with high tendency to switch, the path to a loyalty behavior is only mediated by the influence of their perceived value in their satisfaction; and finally (c) for these individuals, the strength of the relationship between satisfaction and loyalty is lower than customers with low tendency to switch.

Keywords: *Customer perceived value, Customer satisfaction, Perceived switching costs, Loyalty, Market heterogeneity, Partial least squares.*

1. Introduction

The relation between customer value and loyalty remains one of the most fruitful research lines in the area of marketing (Flint, Blocker and Boutin, 2011). The high level of interest in this relation for academics and business managers stems from its implications for the firm's profitability. Few works, however, have analysed the efficiency of value creation strategy for an organisation (Sánchez-Fernández et al., 2013).

Most works on loyalty show its financial consequences for the firm. Likewise, there have been numerous works which have centred on analysing the factors or antecedents which determine loyalty, as well as the mechanisms that enable the identifying of customer profiles which are susceptible of being loyal. These facilitate the development of the appropriate strategies to act in the market (Roos and Gustafsson, 2007). Thus, the literature has highlighted three clear antecedents of customer loyalty: the customer perceived value (PV), their degree of satisfaction, and the existence of switching costs (Yang and Peterson, 2004; Flint, Blocker and Boutin, 2011). Any study on the triggers of loyalty must take into account that the PV of a service received will determine the customer's propensity to maintain a lasting relation with the supplier and, therefore, their loyalty. This may be directly or through their satisfaction or the existence of perceived switching costs (PSC). This means a direct or indirect effect on their loyalty (Lam et al, 2004). The literature underscores that both ways are

able to act on customer loyalty and there are works which have tried to settle which of these options is most effective. It has been agreed that it is necessary for both variables to be present in business strategies. Centring uniquely on creating PSC can cause difficulties for the customer when purchasing the product or service or be neutralised by competitors' actions (Burnham et al., 2003). On the other hand, mere satisfaction itself is not enough (Oliver, 1999). Nevertheless, in spite of this fruitful research line, it is true that the empirical results achieved have not been as conclusive as expected. This is why some research remarks that to give an answer to this puzzle an additional variable must be taken into account: market heterogeneity. Some authors propose the importance of studying the differences between consumers due to their heterogeneous behaviour patterns (Floh et al., 2014). Hence, differences at the demographic, socioeconomic and psychographic level between customers influence their expectations and behaviours (Mittal and Kamakura, 2001; Castro et al., 2007).

We propose a double research aim in this context. On the one hand, we set out a theoretical model which helps to explain the main determinants of loyalty and their relations in the services area. On the other hand, having presented the model, we mean to explain the influence of the customers' psychographic characteristics, specifically their level of involvement with the service and their degree of propensity towards switching. That is to say, we will aim to demonstrate the influence that heterogeneity has on generating customer loyalty and its determinant variables.

To achieve these objectives, we first carry out a theoretical review of the concept of market heterogeneity and the determinants of customer loyalty. This will give rise to the formulating of the research hypotheses and the design of the conceptual model which is the aim of the study. After, the empirical study carried out in the Spanish insurance sector and the methodology developed is shown, with particular emphasis on latent segmentation and multigroup analysis. Finally, we present the discussion of the main results and conclusions.

2. Conceptual Framework

2.1. Customer loyalty: determinant factors.

The degree of loyalty developed by customers indicates their probability of remaining in a relation with a company in the future. To determine the direction of this behaviour, it is essential to know which its triggers are, as, according to their origin, customers can be identified with greater of lesser possibilities of continuing the relationship in the long term (Roos and Gustafsson, 2007). Likewise, it is necessary to differentiate the approaches via which loyalty is analysed. The literature has given more relevance to behavioral and attitudinal approaches. Thus, behavioral loyalty refers to the degree to which a customer shows a repeated purchasing behavior towards a service provider (Gremler et al., 2001). Affective loyalty implies a desire to maintain a relationship on the basis of a generally positive feeling towards established ties and purchasing experience (Oliver, 1999).

The services literature indicates that firms will only achieve true loyalty in their customers through the delivery of a higher value. Many works have aimed to propose the direct or indirect relation between these variables. These studies consider that firms seeking customer loyalty must not centre exclusively on the creating, activating and maintaining of switching barriers, but rather loyalty must be built on the delivery of a higher value for the customer (Lam et al., 2004; Yang and Peterson, 2004). In this way, PV refers to the customer's judgment of the proposal's perceived value. This judgment is based on the perceptions that the customer has in relation with the benefits which are obtained from the product, service or relation with the supplier firm (in terms of quality, image, etc.), as well as the sacrifices which must be made to acquire them (in terms of money, time and effort). Moreover, the literature

points out that this valuation is carried out compared with the rest of the competing offers (Woodall, 2003).

Nonetheless, the PV cannot be considered as an ultimate aim for organisations, but rather those results or consequences which can stem from it. The role of loyalty is to be highlighted, given its influence on firms' results. Thus, some authors indicate that loyalty generates higher financial results as it enables not only an increase in income - increase in sales, in references, etc.- but also reduces costs – less marketing effort, a lower number of returns, etc. (McNaughton et al., 2001).

All of this leads us to propose PV as our model's starting point. Furthermore, although there are works which set out a direct relation between value and loyalty (i.e., Floh et al. 2015), in our work we have opted for considering the role of satisfaction and PSC as mediator variables in the relation between customer value and loyalty. This means considering two ways: one with positive connotations related to satisfaction and generating benefits and relational links, and another that is negative and connected with those factors which hinder the switching process to a new supplier.

Satisfaction is considered as "the degree of overall pleasure or contentment felt by the customer, resulting from the ability of the service to fulfil the customer's desires, expectations and needs in relation to the service" (Hellier et al, 2003). The relation between PV and satisfaction has been widely dealt with, finding a positively and direct relation between both variables (Yang and Peterson, 2004).

On the other hand, customer satisfaction can be examined from a transactional perspective. That is, the evaluation which stems from a specific service encounter or the experiences generated throughout the different service encounters or episodes which make up the relationship, called "global satisfaction with the service". Indeed, most research suggests that this global or accumulated satisfaction is what turns out to be most relevant in determining customer loyalty (Olsen and Johnson, 2003). The literature indicates the positive influence of satisfaction on the level of affective loyalty (Beerli et al., 2004) and on the level of future behavioral intentions loyalty (Beerli et al, 2004). Yet, loyalty is not the same for all its dimensions: the relation between satisfaction and affective loyalty has a greater strength.

Switching costs are defined as "*those costs which are associated with moving from one supplier to another*" (Porter, 1980). In general, they mean monetary, psychological and time losses for the customer (Bitner, 1995) which are connected with both abandoning the current relationship and starting up a new relationship with an alternative supplier. Through the creation of PSC, firms can discourage customers from attempting to abandon the relationship, and increase the difficulties that the switching procedure entails. The recent literature recognises that PSC is a multidimensional construct (Barroso and Picón, 2012). Therefore, the nature of these costs (relational, monetary, psychological, or associated with the time the switching process takes up) can be very different depending on the sector or industry.

Most contributions link the concept of PSC to customer loyalty and to supplier switching behaviour (Hellier et al., 2003; Picón et al., 2014). All of them point out that PSC encourage loyalty, hindering the change to another supplier even when the satisfaction level is low.

Based on these arguments, we propose the theoretical model shown in Figure 1.

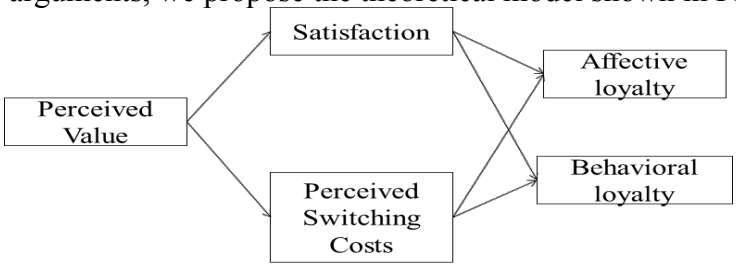


Figure 1: Theoretical model

2.2. Market heterogeneity

The literature shows that customers who have different personal characteristics also show differences in their future behaviour, despite having similar levels of satisfaction with their suppliers (Mittal and Kamakura, 2001). Moreover, the effect of satisfaction, PV and PSC on the intention of future behaviour is contextual, varying in function of the individuals' psychographic characteristics (Ganesh et. al., 2000; Keaveney and Parthasarathy, 2001).

The heterogeneity of customers is reflected in the concept of segmentation. This is generally based on demographic, socioeconomic and psychographic characteristics. Research has identified certain segmentation variables which can be linked to the PV, customer satisfaction and future behavior loyalty (Ruiz et al., 2007). However, there is limited empirical evidence which endorses the notion that customer heterogeneity affects the nature of relationships between suppliers and customers (Castro et al., 2007). Of all the possible characteristics to identify customer profiles, we have opted for analysing the level of the customer's involvement with the service and the propensity towards switching as segmentation criteria.

The first variable refers to the personal relevance (both cognitive and affective) which people attribute to a decision about the basis of their fundamental values, aims and personality (Bienstock and Stafford, 2006). A greater degree of involvement and commitment to a relationship is associated with a greater resistance to changing beliefs (Keaveney and Parthasarathy, 2001). Furthermore, the level of satisfaction attained with the service and the customer's PSC may increase the degree of involvement and therefore the resistance to abandoning the relationship (Young and Denize, 1995).

Also, a greater degree of customer involvement enables strong links to exist between the parties (Jones et al., 2002). This favours the VP, attaining a specific degree of satisfaction with the relationship, hence motivating the customer's desire to avoid change (Varki and Wong, 2003). On the other hand, thoroughly committed customers are more inclined to attribute a considerable risk and uncertainty to a possible change (Bienstock and Stafford, 2006; Keaveney and Parthasarathy, 2001) and will therefore tend to be more loyal.

Customers with a thorough propensity towards switching are "anxious for change" (Ganesh et al., 2000) and could therefore begin a switching process without any apparent motive. These customers really enjoy seeking alternative information and suppliers, as they look for stimulation via investigating new experiences and the pleasure of trying out new suppliers and brands (Vázquez and Foxall, 2006).

An individual's propensity towards switching is to be found in a continuum. Thus, at one extreme of the continuum are those who have a lesser degree of propensity towards switching, qualified as "risk adverse", with a low tendency to carry out risky actions. However, this does not mean that the customers will always stay with the same supplier or the same product/service, as this will depend on the category of the product/service, of other personal or situational characteristics and on other variables such as the PV and satisfaction with the service. At the opposite end of the continuum are those individuals who have a high propensity towards switching, who have experience in the supplier switching process and who are also "daring" and, therefore, tend to take risky decisions regardless of their consequences.

As a result of these arguments we present the following hypotheses:

H1: The intensity of the relationship between the PV and customer satisfaction is moderated by the customer's propensity towards switching and the customer involvement.

H2: The intensity of the relationship between the PV and PSC is moderated by the customer's propensity towards switching and the customer involvement.

H3: The intensity of the relationship between customer satisfaction and affective loyalty is moderated by the customer's propensity towards switching and the customer involvement.

H4: The intensity of the relationship between customer satisfaction and behavioral loyalty is moderated by the customer's propensity towards switching and the customer involvement.

H5: The intensity of the relationship between PSC and affective loyalty is moderated by the customer's propensity towards switching and the customer involvement.

H6: The intensity of the relationship between PSC and behavioral loyalty is moderated by the customer's propensity towards switching and the customer involvement.

3. Research Methodology

3.1. Sample and data collection

This study analyses firms in the Spanish insurance sector. The sector is made up of insurance companies, mutual insurance companies and banks which offer different types of insurance, including those which offer these services electronically and online firms. The information comes from 786 customers of 74 companies (83.94% of the total volume of premiums in the Spanish insurance sector). All of these companies offer different types of insurance policies and do not operate from a specific location within Spain. The data come from personal interviews and an online survey (via a website). The interviews take place in the branch offices of the companies. An online survey allows customers to answer the questionnaire directly, increasing the survey's penetration, to reach customers who do not frequent company offices. Deploying a snowball sampling technique, potential respondents (colleagues and acquaintances) receive email invitations containing the embedded URL to the website hosting the survey. Nevertheless, we took into account the possibility of differences in the answers, and the results did not show significant differences.

The diversity of services selected with different characteristics between them, and the fact that the majority (56.5%) of respondents have at least a five-year commercial relationship with their insurance company, facilitated the obtaining of heterogeneous perceptions regarding the variables analysed.

3.2. Measurement instruments

The operationalisation of the PSC variable entails an adaptation of Burnham et al.'s (2003) instrument. The PSC variable is as an aggregate multidimensional construct (reflective first-order, formative second-order) with six reflective first-order dimensions, as has been described in previous works (Barroso and Picón, 2012). Regarding the scales related to the rest of the constructs analysed in the study, we use the scale developed by Maloles (1997) to measure the level of customers' satisfaction with their usual insurance company. With respect to the PV, we opted for a unidimensional measurement scale (Martín et al., 2004), as the aim of this work is to obtain a global valuation by the customer and analyse its relation to other constructs. Concerning customer loyalty, we selected the scales developed by Gremler et al. (2001). Lastly, with respect to the variables used to measure market heterogeneity, in the case of the customer involvement level we used a scale adapted from the works of Varki and Wong (2003). To measure the degree of propensity towards switching, the scale proposed by Antón and Rodríguez (2004) was employed.

3.3. Data analysis

Given that an insurance company's purchase process and customer behaviour are determined by the customers' psychological characteristics, it would not be realistic to put forward a sole model which would fit all decision making. In this sense, latent segmentation

proposes seeking subgroups of elements with a certain number of variables. This generates segments within the general population.

In our case, to attain the first aim of this research, we carried out the market segmentation based on the customers' involvement level with the service and their degree of propensity towards switching. This was carried out via a latent class cluster analysis (Wedel and Kamakura, 2000; Castro et. al. 2007). Latent class segmentation enables the identifying of groups of consumers with similar behaviours. This analysis includes a latent variable (K-category) and each category represents a different cluster. It is used to assign customers who have the probability of this element belonging to a segment or latent class. Latent Gold 4.0 was the software used.

This technique provides the optimum number of clusters into which the market must be divided. The criterion employed to identify this number is the least value of the BIC indicator (Bayesian Information Criteria).

To achieve the second aim of our work and to test the possible differences of the model proposed in each of the groups resulting from the latent class analysis, we carried out a multigroup comparison approach with the use of PLS (Smart PLS 3.1.9 software was used-Ringle and Wende, 2014). We estimated the path coefficients for the total sample and for each group or subsample (Sarstedt et al., 2011). Finally, we analysed the differences between the coefficients' paths. To determine the significance of differences between the estimated parameters for each of the groups we have followed the parametric approach, considering both equal variances and different variances (Chin, 2010).

3. Analysis of Results

3.1. Results of market heterogeneity.

For the latent class clusters segmentation it is necessary to identify the number of segments through a statistical criterion, in this case the BIC indicator. The results suggested that, based on the two variables which determine the customers' behaviour, 3 latent segments of customers can be identified, as this solution represented the BIC of least value. Tables 1 and 2 show the description of the clusters based on the variables chosen for the segmenting, demonstrating the profiles and the sizes of these clusters. The Wald test enables us to evaluate if there is a statistically significant association between the exogenous variables and the segments identified. As can be seen in Table 1, all the variables used as a segmentation criterion are significantly different in the three clusters (according to the p-values of the Wald test). That is to say, they have discriminating power between the segments. The R^2 values indicate the variance which each variable explains in the model.

Table 1: Parameters of the clusters

	Cluster 1	Cluster 2	Cluster 3	Wald	p-value	R^2
Customer involvement	1.3118	-1.0837	-0.2281	1210.5562	1.40E-263	0.6956
Propensity towards switching	-0.3847	0.2406	0.1441	38.3163	4.80E-09	0.0604

Table 2: Size of the clusters and profiles

	Cluster 1	Cluster 2	Cluster 3
Size	0.3231	0.3396	0.3371
Mean Customer involvement	3.3955	1	1.8556
Mean Propensity towards switching	4.6555	5.2808	5.1843

Therefore, the results show how the market can be divided into three segments based on the behaviour of the customers (defined by their level of involvement with the service and their degree of propensity towards switching). We can see how the three clusters have a

similar size (Table 2): 32.31 % of the respondents (254) are in cluster 1, 33.96 % (267) are in cluster 2 and 33.71 % (265) are in cluster 3, which encompasses those customers with a mean position in the two variables analysed. In the first cluster are included the people in the sample with the greatest level of involvement and the least value of propensity towards switching, which is why they have a lower tendency to switch their service supplier: "customers with a low tendency to switch". The second cluster contains those customers with a very low level of involvement and who, on the contrary, have the highest propensity towards switching. This is, then, those customers with the greatest tendency to switch their insurance company: "customers with a high tendency to switch".

After identifying the clusters, a multigroup analysis was carried out to check if there were significant differences between them with respect to the model proposed. For this analysis we used the two clusters which are the extreme positions. That is, clusters 1 made up of those customers with a low tendency to switching and cluster 2 with those who have a high tendency to switching. For this second analysis the total sample was 521 customers.

4.2. Measurement and structural model.

In our work, we have modeled the conceptual variables as composite factor. Thus, we have chosen a composite model in which it has drawn a reflective design where the different indicators are different aspects but they exhibit a certain correlation. First we carried out an analysis of the measurement model for the total sample in which the individual reliability of each item, the reliability of the constructs, the variance extracted (AVE) and the discriminant validity was analysed. The results, in the case of the reflective constructs, showed a higher composite reliability and AVE than the values recommended and exhibit discriminant validity (Roldán and Sánchez Franco, 2012). The evaluation of formative measurement models (PSC) at the indicator level tests for potential multicollinearity between items and analyses weights (Henseler et al., 2009). The maximum variance inflation factor (VIF) value for the aggregate multidimensional construct is 2.12, well below the threshold of 3.3.

Likewise, the results of the measurement model for each of the subsamples were also found to be valid according to the commonly accepted guidelines (Hair et al., 2013). Due to this we can state that the measurement model proposed does not vary when customer heterogeneity is taken into account. That is, factor loadings for the same indicators are equivalent between customers with a low or high tendency to switch, hence guaranteeing the metric invariance. In Table 3 we can observe that the great majority of the factorial loadings for the same item are invariant in both subsamples - only 2/27 indicators turn out to be significantly different in both samples. We can, then, assume the metric invariance of the model proposed.

Table 4 shows the results of the structural model assessment. Consistent with Hair et al. (2013), bootstrapping (5000 resamples; one-tailed Student t distribution with (n-1) degrees of freedom) was used to generate standard errors, t-statistics, and percentile 95% confidence intervals. This analysis was carried out both for the total sample and for the two subsamples. Five of the main paths are significant, except for the PSC relation and future behavioral intentions loyalty in the total sample and in the subsample which has customers with a high tendency to switch suppliers. The endogenous constructs achieve R^2 values between 0.482 and 0.56 for affective loyalty and between 0.277 and 0.49 for behavioral loyalty. These values are considered to be moderate (Chin, 2010). The predictive relevance of the theoretical/structural model is assessed with the cross-validated redundancy index (Q^2) for endogenous constructs. Since all Q^2 values are greater than 0, we found evidence that our model has predictive relevance (Chin, 2010). Finally, we report the SRMR composite factor model in order to determine to what extent the model fits the data. In our three models this

indicator is above 0.08 so the good fit of the models is confirmed (SRMR total sample = 0.042; SRMR low tendency = 0.052; SRMR high tendency = 0.058) (Henseler et al., 2014).

Table 3: Metric invariance assessment multigroup analysis

Construct/ Indicators	Diff (High-Low)	Parametric Test t-value	Welch Satterthwait	Construct/ Indicators	Dif (High-Low)	Parametric Test t-value	Welch Satterthwait
SAT				**PV**			
S1	0.031	0.836	0.825	VP1.	0.081	1.916*	1.933
S2.	0.008	0.210	0.210	VP2.	0.021	0.800	0.803
S3.	0.024	0.655	0.652	VP3.	0.052	0.813	0.804
S4.	0.420	1.625	1.665	VP4.	0.025	0.527	0.530
S5.	0.000	0.007	0.007	VP5.	0.021	0.643	0.636
S6.	0.009	0.365	0.367	VP6.	0.056	0.804	0.796
S7.	0.007	0.213	0.213	VP7.	0.023	0.685	0.689
PSC				VP8.	0.041	1.011	0.995
EC.	0.160	1.136	1.138	VP9.	0.115	2.265*	2.305*
SC.	0.034	0.312	0.309	**AFFEC_LOYAL**			
BC.	0.005	0.087	0.086	AL1.	0.028	0.712	0.720
MC	0.013	0.116	0.116	AL2.	0.063	1.493	1.468
PR	0.078	0.963	0.957	AL3I.	0.012	0.419	0.416
ER	0.016	0.270	0.26	**BEHAV_LOYAL**			
				FBI1.	0.562	1.505	1.543
				FBI2.	0.026	0.485	0.495

Table 4: Direct and indirect effects. Bias-correct 95% confidence intervals and indirect effect multigroup comparison results

	Total Sample			Low Tendency (n=254)			High Tendency (n=267)		
	Path	*t*	Explained Variance	Path	*t*	Explained Variance	Path	*t*	Explained Variance
SATISFACTION		(R^2=0.58;Q^2=0.39)			(R^2=0.52;Q^2=0.36)			(R^2=0.570;Q^2=0.37)	
PV (a_1)	0.76***	31.94	58.9%	0.72***	15.64	54.6%	0.75***	22.65	57.02%
SWITCHING COST		(R^2=0.14;Q^2=0.03)			(R^2=0.10;Q^2=0.03)			(R^2=0.105;Q^2=0.03)	
PV (a_2)	0.38***	9.37	14.9%	0.33***	5.41	13.71%	0.41***	8.15	13.41%
AFFEC_LOYAL		(R^2=0.56;Q^2=0.41)			(R^2=0.61;Q^2=0.43)			(R^2=0.482;Q^2=0.34)	
SATIS (b_1)	0.65***	19.89	48%	0.74***	18.11	49.96%	0.54***	11.26	36.54%
PSC (c_1)	0.19***	5.30	8.91%	0.11*	2.16	6.12%	0.30***	5.81	13.27%
BEHA_LOYAL		(R^2=0.34;Q^2=0.18)			(R^2=0.49;Q^2=0.40)			(R^2=0.277;Q^2=0.10)	
SATIS (b_2)	0.57***	10.98	33.59%	0.60***	12.25	31.43%	0.53***	7.02	27.77%
PSC (c_2)	0.04^{ns}	0.83	1.21%	0.22***	3.92	4.33%	-0.03^{ns}	0.42	-1.08%
Indirect Effects		Point estimate	Confidence interval	Point estimate		Confidence interval	Point estimate		Confidence interval
PV->SAT->AFFEC ($a_1 * b_1$)		0.50	[0.43;0.57]Sig	0.53		[0.41;0.63]Sig	0.40		[0.32;0.49]Sig
PV->SAT->BEH ($a_1 * b_2$)		0.43	[0.37;0.54]Sig	0.43		[0.33;0.53]Sig	0.40		[0.30;0.55]Sig
PV->PSC->AFFEC ($a_2 * c_1$)		0.07	[0.04;0.11]Sig	0.03		[0.006;0.09]Sig	0.12		[0.07;0.19]Sig
PV->PSC->BEH ($a_2 * c_2$)		0.01	[-0.02;0.06]N-Sig	0.07		[0.03;0.13]Sig	-0.01		[-0.08;0.05]N-Sig.

*** p< 0.001, ** p< 0.01, * p < 0.05, ^{ns}: not significant (based on t(4999), one-tailed test), t(0.05, 4999) = 1.645158499, t(0.01. 4999) = 2.327094067, t(0.001, 4999) = 3.091863446. Sig. denotes a significant direct effect at 0.05

In addition, Table 4 shows the amount of variance that each antecedent variable explains on each dependent variable, achieving the greatest value in the case of the PV variable when explaining the explained variance of satisfaction (58.9%) and in the case of satisfaction variable when explaining the explained variance of the affective loyalty (48%). In fact, we analyse the percentage of explained variance of loyalty both total simple and sub-samples, the satisfaction level is the main determinant, which is largely influenced by its PV. Also, Table 4 reflects that three of the four indirect effects being significant for the whole simple and the subsamples, generating significant differences according to the customer tendency to switch, in the effect which PV causes on behavioral loyalty through PSC. Therefore, in those customers with low tendency of switching providers PV is an important factor that strengthening their affective and behavioral loyalty, through their influence on satisfaction and PSC. However, if the tendency of switching providers is high, PV does not influence on behavioral intentions loyalty via PSC, but if it did by satisfaction.

Once the metric invariance has been guaranteed in the measurement model and we have

tested the structural model, we carry out the multi-group analyses to allow the testing of the moderating role of customer heterogeneity, considering the high or low customer tendency to switch, on the relationships included in our research model. Due to the exploratory character of our study, we have applied the parametric approach. The moderating effect is examined using a t-test with pooled standard errors. This approach requires the data to be distributed normally and/or the variances of the two samples being not too different from one another –tparametric (EV)–. In the case of our assuming different variances for the two samples, a Welch-Satterthwait test –tparametric(NEV)–can be applied (Sarstedt et al., 2011). We have applied both tests in our comparison obtaining similar results (Table 5). As we can observe, we find statistical support for H_3, H_5 and H_6.

Table 5: Multigroup comparison test results

Relationships	Diff(High-Low)	$t_{parametric}$ (EV)	$t_{parametric}$ (NEV)	Significance
H_1: PV->SAT	0.032	0.567	0.563	No
H_2: PV->PSC	0.083	1.067	1.063	No
H_3: SAT->AFFEC	0.202	3.127***	3.145***	Yes
H_4: SAT->BEH	0.070	0.765	0.773	No
H_5: PSC->AFFEC	0.195	2.604**	2.609**	Yes
H_6: PSC->BEH	0.260	2.529**	2.555**	Yes

Note: ** significant at 0.05 (two-tail t distribution, one-sided test); * significant at 0.01 (two-tail t distribution, one-sided test); ns= not significance

In summary, the results support the reliability and validity of the measurement model, both in the total sample and in the sub-samples. Moreover, we test the metric invariance of our proposed model, because the measurement model does not vary when the original sample is dividing into two subsamples (Table 3). These results support the universal validity of the constructs: PV, Satisfaction and PSC, main pillars that customer loyalty is based.

The findings of the structural model also support the validity of the relationships between satisfaction and PSC constructs with affective loyalty for all individuals, which have been widely tested in the literature. Nevertheless, the results in Table 5 show significant differences between these two groups for the relationship between PSC and affective loyalty, being this latter stronger in the case of customers with high tendency to switch providers. Moreover, firms must take into account the customer heterogeneity when designing loyalty strategies, so for customers with high tendency to switch, creating switching barriers will not prevent a future change of provider. So, a significant relationship between PSC and future behavioral intentions loyalty in this group was not found (table 4). Analysis of the indirect effects also shows that PV influences on affective and behavioral loyalty differently in the two groups. Thus, on the one hand, customers with a low tendency to switch, the influence is achieved through satisfaction and PSC; and on the other hand, in customers with a high tendency to switch the behavioral intentions loyalty is achieved only by satisfaction. Furthermore, the results in Table 5 show significant differences between these two groups for the relationship between satisfaction and affective loyalty, being this latter stronger in the case of customers with low tendency to switch providers.

5. **Conclusions**

In the present study we have been able to test the existence of heterogeneity in the Spanish insurance market regarding the customers' psychographic characteristics and how these generate different behaviours related to their degree of loyalty. The two variables chosen –the level of involvement of the customers with the service and their degree of propensity towards switching their insurance company - has enabled us to carry out a segmentation of the sample into two principal groups of different customers: a group with "individuals with a low tendency to switch", and a second group with "individuals with a high tendency to switch".

Regardless of the characteristics of the customers, the insurance companies must seek

their loyalty, based on the provision and development of a value which the customers perceive as superior. This perception of a superior value than the competition will generate a greater tendency towards the customers' loyalty through two ways: bringing about a feeling of satisfaction in the customer and building switching barriers. Both factors are going to make the customers maintain their relationship with the firm over time. Indeed, these results obtained in the insurance sector are consistent with those of other research works and sectors (Yang and Peterson, 2004; Sánchez-Fernández et al., 2013).

However, if we consider the characteristics of the customers, some important differences are found related to the determinants of loyalty. The most significant differences are in the relation between PSC and behavioral loyalty for those customers with a high tendency to switch (cluster 2). This group of customers bases its loyalty behavior on the degree of satisfaction and the PV of the firm's offer. These customers will require retention strategies which influence these factors in a positive domain, based on elements such as the service quality, the price and the improvement of the firm's image. For these customers, building switching barriers will not turn out to be so relevant, due perhaps to their high predisposition towards switching. This means that, even perceiving high switching costs, their degree of loyalty to the firm is maintained or even decreased based on their perception of the service.

Furthermore, we have also tested the existence of a difference between both segments regarding the strength of the relationship between satisfaction and PSC with affective loyalty. In the case of satisfaction-affective loyalty link, this relation is stronger for customers with a low tendency to switch. These are individuals for whom economic or social risks are not crucial to maintain a relationship with a provider in time. This may be due either to their personality traits or to the importance that they give to the service, which makes them be little involved with it. The main way to build loyalty in these individuals is to improve the service in order to increase consumer perception. In the case of PSC-affective loyalty link, customers with a high tendency to switch may experience positive feelings of the service provider, although they have the intention to switch in the future because other reasons such as monetary cost of service.

Moreover, we can say that for those individuals with low tendency to switch (cluster 1), loyalty strategies must be based not only on satisfaction but also on generating negative switching barriers (hindering the seeking of other suppliers and the beginning of a new relationship, etc.) or positive switching barriers (generating social or economic benefits, links, and so on). Nonetheless, raising PSC, especially those which are called negative, may be a dangerous strategy for firms, as they can retain customers against their will, reducing their level of satisfaction and making them feel attracted by the offers of competitors, in whom they perceive that they may obtain a better quality/price relationship or a better or more varied service, cover, etc.

Finally, the fact that they were able to test the influence of customer characteristics in other relationships, mainly those that support the role of PV on generating loyalty, reinforces the validity of this model for the insurance industry. In fact, it is a model that has been validated in other works and industries and therefore with a strong support from the literature. Thus, we have tested that the differences that involves consideration of the customer characteristics does not invalidate the model, but if it allows us to understand better how to retain customers in this industry in a sustainable manner over time.

The main limitation is not including other variables relative to the characteristics of the customer as the degree of attractiveness of alternatives available in the market (Capraro et.al, 2003), the previous experiences with supplier switching (Burnham et al., 2003) and the length of the relationship (Jones et al., 2002). Including these variables would enable us to go more thoroughly into the differences in the relations between the antecedents of loyalty for different groups of customers.

6. References

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Segmentation of PLS-Path Models by Iterative Reweighted Regressions

Completed Research Paper

Rainer Schlittgen
University of Hamburg
r.schlittgen@t-online.de

Christian M. Ringle
Hamburg University of Technology (TUHH)
ringle@tuhh.de

Marko Sarstedt
Otto-von-Guericke University Magdeburg
marko.sarstedt@ovgu.de

Jan-Michael Becker
University of Cologne
j.becker@wiso.uni-koeln.de

Abstract

Uncovering unobserved heterogeneity is a requirement to obtain valid results when using the structural equation modeling (SEM) method with empirical data. Conventional segmentation methods usually fail in SEM since they account for the observations but not the latent variables and their relationships in the structural model. This research introduces a new segmentation approach to variance-based SEM. The iterative reweighted regressions segmentation method for PLS (PLS-IRRS) effectively identifies segments in data sets. In comparison with existing alternatives, PLS-IRRS is multiple times faster while delivering the same quality of results. We believe that PLS-IRRS has the potential to become one of the primary choices to address the critical issue of unobserved heterogeneity in PLS-SEM.

Keywords: *Clustering, genetic algorithm, partial least squares, path modeling, PLS-IRRS, PLS-SEM, reweighted regressions, segmentation, structural equations modeling*

1. Introduction

Uncovering unobserved heterogeneity is a critical issue in covariance-based and variance-based structural equation modeling (SEM) to ensure validity of results (Becker, Rai, Ringle, & Völckner, 2013; Jedidi, Jagpal, & DeSarbo, 1997). In variance-based SEM, with latent variables using partial least squares path modeling (PLS; Hair, Hult, Ringle, & Sarstedt, 2014; Lohmöller, 1989; Wold, 1982), the structural model is given by

$$\eta = B\eta + \zeta\,; \tag{1}$$

η represents the column vector of latent variables, B the matrix of path coefficients between latent variables, and ζ symbolize the column vector of structural regression models' errors. The model is recursive (i.e., no circular relationships in the structural model). Hence, B is a lower trigonal matrix with zeroes on the diagonal. The measurement models of the latent variables are defined as,

$$x = \Lambda\eta + \varepsilon\,, \tag{2}$$

whereby x represents the vector of manifest variables in the measurement models, Λ is the matrix of regression coefficients in the latent variables' measurement models, η, again, is the column vector of latent variables, and ε symbolizes the column vector of errors in the measurement models of the latent variables.

Researcher can account for observed heterogeneity by accordingly grouping the data a-priori and by running PLS multigroup analyses (PLS-MGA) (Hair et al., 2014; Sarstedt, Henseler, & Ringle, 2011). If theory does not support adequate knowledge on observed heterogeneity, researchers should check their results for unobserved heterogeneity to ensure the validity of their findings. They can generalize their findings from the sample drawn to the underlying population of their research when heterogeneity is not an issue. Otherwise, the results of the aggregate data set may be invalid and unreliable entailing misleading findings and false conclusions (Becker et al., 2013; Jedidi et al., 1997). Hence, researchers must account for the unobserved heterogeneity by forming adequate groups of observations.

The development of appropriate methods to uncover unobserved heterogeneity in variance-based SEM using PLS is critical to ensure validity and reliability of results (Becker et al., 2013; Hair, Sarstedt, Ringle, & Mena, 2012). For this reason, researchers developed PLS segmentation approaches (for an overview, see Sarstedt, 2008). This research contributes to existing research by developing the iterative reweighted regressions segmentation method for PLS (PLS-IRRS), which is superior to other previously introduced PLS segmentation methods. Without a performance loss regarding the quality of the segmentation solution, PLS-IRRS is a particularly fast method, which is generally applicable to all kinds of PLS path models. Thereby, we establish PLS-IRRS as a new standard means of assessing results in research projects and practical applications of the PLS path modeling method.

2. Method

Finding the best segmentation solution for a goal criterion is a combinatorial data assignment problem. The complexity of the problem increases exponentially with higher numbers of observations and/or higher numbers of segments (Cowgill, Harvey, & Watson, 1999). Conventional segmentation methods usually fail in SEM since they account for the observations but not the latent variables and their relationships in the structural model. Ringle, Sarstedt, and Schlittgen (2014) propose a genetic optimization algorithm to address

effectively the segmentation problem in PLS. The advantage of genetic algorithms lies in the fact that they have a high probability not to stay in a local minimum but investigate many constellations, which are at least near to as many local optima as possible. The assignment problem's target function thereby improves in a non-smooth manner. The heuristic solution of the genetic algorithm follows a deterministic improvement, if possible. Even though the PLS-GAS method provides very good solutions, it is computationally demanding and needs a relatively long time to arrive at the final solution. Thus, the basic idea of an improved method is to obtain segmentation solutions of the same or possibly better quality by using a considerably smaller number of computations, which translates into a significantly lower time needed.

The new PLS-IRRS approach builds on an idea introduced by Schlittgen (2011) for clusterwise robust regression. In robust regression, M-estimators down-weight observations with extreme values of the dependent variable. Thereby, they mitigate the influence of outliers in the data set. One method to compute M-estimators is iteratively reweighted least squares. The weights are determined by the residuals and the larger the residuals, the smaller the weights. Since PLS is basically a system of least squares regressions to estimate the parameters, it is possible to use the idea of robust regression for determining a group of data and to address the segmentation problem. To adapt this idea for PLS segmentation, outliers are not treated as such but as their own segment. Hence, when robust regression identifies a group of similar outliers, they may become a data group of their own and represent a segment-specific PLS solution. On the other hand, within a group of data, a M-estimator down-weights inhomogeneous observations when returning the segment-specific PLS solution.

We start with a random choice of weights w_{ik}, where $\sum_{k=1}^{g} w_{ik} = 1$ for all $i = 1,..n$, whereby i indicates an observation and k=1,…,g the different groups. For the g group vectors $(w_{1k},...,w_{nk})'$ we determine the path model via the PLS algorithm (Lohmöller, 1989; Wold, 1982) and weighted regressions. The structural model residuals of all regressions determine the assignment of observations to the different groups. Observation i is assigned to the data group where the sum of its squared residuals is smallest. Then the inverses of these sums are scaled to sum to 1 for all i observations to obtain new weights. The procedure is then repeated with the new weights and the iteration stops when the estimates stabilize. The use of iteratively reweighted regressions is the reason for calling this novel PLS segmentation method PLS-IRRS; Figure 1 presents the PLS-IRRS algorithm.

A key element of PLS-IRRS is the computation of R_w^2, which requires some additional explications. Every regression equation in structural model builds on all observations at once. One of these equations with g clusters can be written as

$$y = \mathrm{X}\beta + \sum^{1/2} \varepsilon \quad . \qquad (3)$$

Following a suitable ordering of the observations

$$X = \begin{pmatrix} X_1 & 0 & \dots & 0 \\ 0 & X_2 & & 0 \\ \vdots & & \ddots & \vdots \\ 0 & \dots & \dots & X_g \end{pmatrix}, \beta = \begin{pmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_g \end{pmatrix}, \varepsilon = \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_g \end{pmatrix} \sim (0, \mathrm{I}), \qquad (4)$$

$\Sigma^{1/2}$ is a diagonal matrix with the standard deviations of the errors of the k th cluster on the rows corresponding to block k. The weighting of the regressions uses the diagonal matrix

$W = \text{diag}(\Sigma)^{-1}$. A weighted regression's determination coefficient R_w^2 is given by:

$$R_W^2 = \frac{SS_{W0} - SS_W}{SS_{W0}} = \frac{y'WX\hat{\beta}_W - \frac{(w'y)^2}{w'1}}{y'Wy - \frac{(w'y)^2}{w'1}} \tag{5}$$

The adjusted multiple determination coefficient for weighted least squares (WLS) is:

$$R_{W,adj}^2 = 1 - (1 - R_W^2)\frac{n-1}{n-p} \tag{6}$$

Step 0: Set g for the number of groups; set Δ for the difference of estimated coefficients between two iterations; set Stop (i.e., the number of generated PLS-IRRS solutions)

Step 1: Randomly generate weights w_{ik} with $\sum_{k=1}^{g} w_{ik} = 1$ for all $i = 1,...n$.

Do loop

Step 2: PLS path model estimations

Step 2.1: For $k = 1,..., g$, estimate the PLS path model with the w_{ik} weighted observations

Step 2.2: For $k = 1,..., g$, determine the residuals r_{ik} of the estimated models using the unweighted observations

Step 3: For each $i = 1,...n$, compute the squared reciprocal values $1/r_{ik}^2$

Step 4: Let the normed reciprocal values $1/r_{ik}^2$ become the new weights

Step 5: Compare the estimated coefficients with those of the previous iteration.
If the difference is larger than Δ
Go to Step 2
Else
Use the minimum non-weighted absolute residual value to assign each observation to a group of data.

Step 6: Compute the average value of the weighted coefficients of determination R_w^2 to assess and compare the quality of segmentation results.

Stop

Step 7: Select the final segmentation solution based on the maximum R_w^2 value.

Figure 1: The PLS-IRRS Algorithm

Clusterwise regression and PLS segmentation problems are hard to solve due to the target function's possibly large number of the local optimum solutions. To overcome the problem of stopping in a local optimum solution, PLS-IRRS requires conducting several runs with random starting partitions per pre-defined number of segments to ensure obtaining a final solution that is at least close to the optimum segmentation solution (Becker et al., 2013; Sarstedt, Becker, Ringle, & Schwaiger, 2011). Similar concerns and recommendations apply for latent class segmentation (Wedel & Kamakura, 2000). Sarstedt, Becker, et al. (2011) show in their simulations on finite mixture partial least squares segmentation in PLS (FIMIX-PLS; Hahn, Johnson, Herrmann, & Huber, 2002) that 10 (20) runs return the optimum solution with a probability of 80 (90) percent. Since the PLS-IRRS algorithm is very fast, as discussed later, we recommend carrying out at least 10 runs to ensure ending at least close to optimum segmentation solution.

In PLS segmentation, the maximization of the weighted average of segment-specific coefficients of determination R_w^2 represents an appropriate target function (Becker et al., 2013; Ringle et al., 2014; Ringle, Sarstedt, Schlittgen, & Taylor, 2013). Hence, based on the objective function outcome (e.g., the weighted least squares' maximum average R_w^2 value) of

all (e.g., 10) PLS-IRRS solutions, one selects the best PLS segmentation for a certain per-specified number of segments.

As in PLS-GAS and other segmentation methods, researchers must pre-specify a number of segments when running PLS-IRRS. The optimum number of segments is usually unknown. One may run FIMIX-PLS (Hahn et al., 2002; Sarstedt & Ringle, 2010) to determine the number of segments and, then, run PLS-IRRS to obtain the final segmentation solution. Alternatively, the systematic selection of the most appropriate number of segments may involve PLS-IRRS runs with different numbers of pre-specified segments (for details on the model selection see Becker, Ringle, Sarstedt, and Völckner (2014) and Sarstedt, Becker, et al. (2011). For these results, the objective function outcome (e.g., the weighted least squares' maximum average R_w^2 value) is one possible strategy to decide on the best-suited number of segments when using PLS-IRRS.

3. Investigation of PLS-IRRS' Behavior

3.1 Design of the Study and Data Generation

The results of a simulation study permit investigating the behavior and performance of PLS-IRRS. For this purpose, we select a simulation design that represents different data constellations that frequently occur in empirical applications. In accordance with prior simulation studies on PLS and PLS segmentation (Becker et al., 2013; Reinartz, Haenlein, & Henseler, 2009; Ringle et al., 2013; Sarstedt, Becker, et al., 2011), we select the subsequent factors and factor levels which closely follow the design presented by Ringle et al. (2014):

Data

- Number of observations [two groups both with 50 observations, two groups both with 100 observations, one group with 50 and another group with 150 observations; three groups with 50 observations each].
- Data distribution of manifest variables [normal, lognormal, and the difference of two independent lognormal distributions].

Segment characteristics

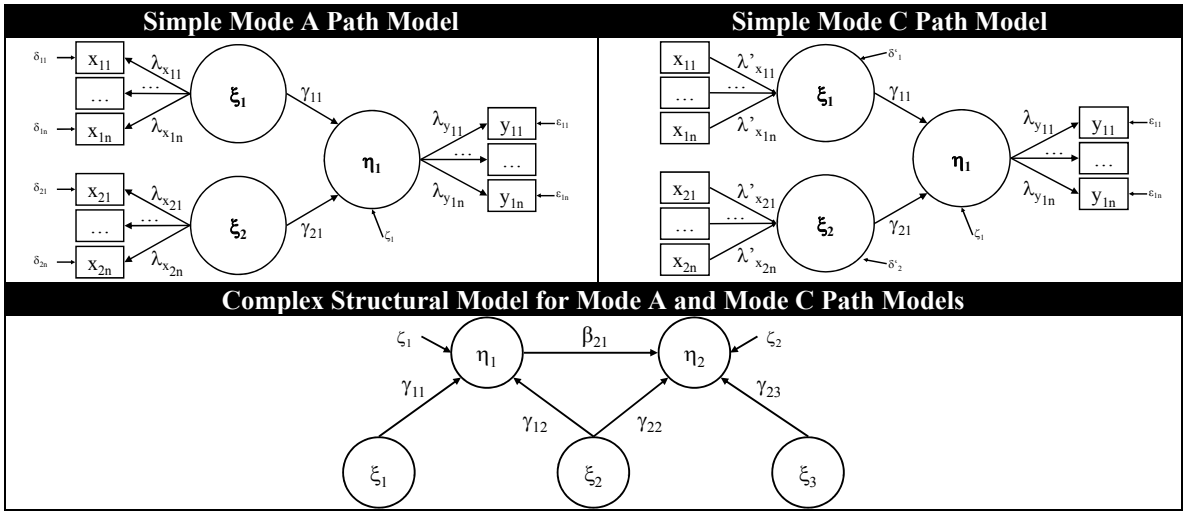
- The number of segments [2, 3].
- The relative segment sizes of the segments [balanced, unbalanced]; see number of observations.

Measurement model

- Outer loadings for Mode A measurement models [high with all outer loadings at 0.95, lower with all outer loadings at 0.75; varied with linearly increasing outer loadings from 0.75 to 0.95]; see Ringle et al. (2014, p. 259) for more details.
- PLS path model constellations [Mode A; Mode C]; see Wold (1982) and Lohmöller (1989) for details on Mode A, Mode B, and Mode C.

Structural Model

- The error variance of the endogenous latent variable [small at 5%; medium at 10%, large at 20%; for two clusters only, mixed at a smaller level with 5% and 10%, for two clusters only, mixed at a larger level with and also 10% and 20%] and, thus, the separability of data in terms of the group-specific difference between identical relationships in the structural model determined by the distance measure *D*; see Ringle et al. (2014) for details on the distance measure.
- Complexity of the PLS path model as shown in Figure 2 [simple path model, complex path model].



Note: See Ringle et al. (2014) for an explanation of symbols.

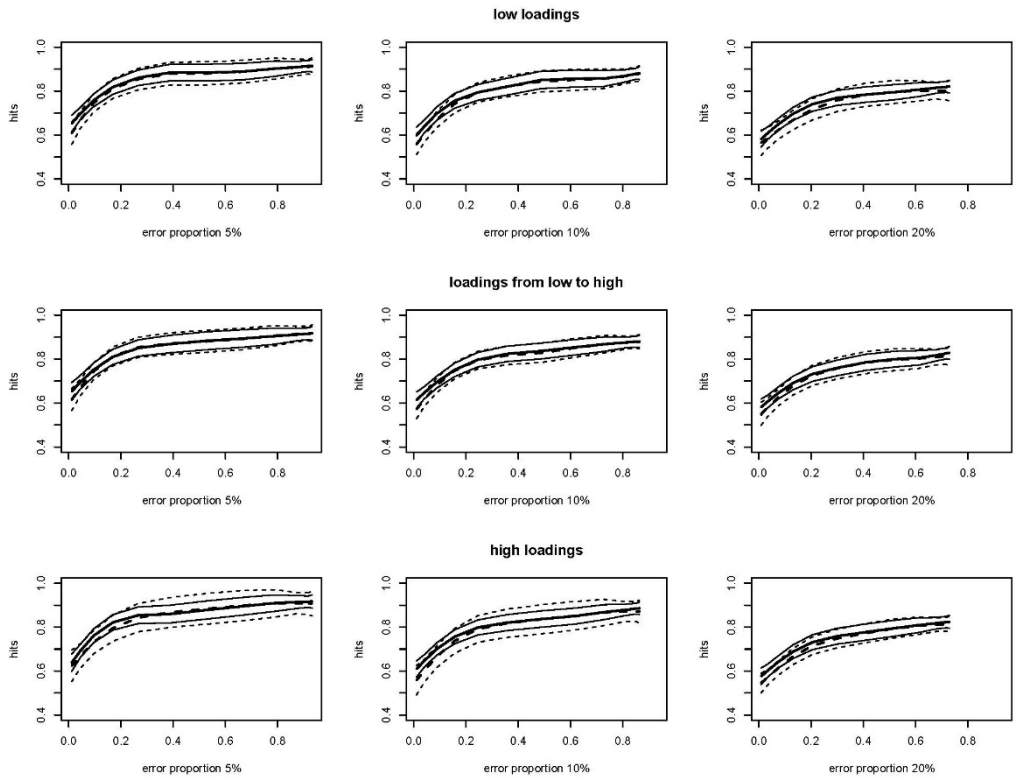
Figure 2: PLS Path Models (Ringle et al., 2014)

To get stable average results, we generate ten data sets for every factor level combination. Hence, we generate $3 \cdot 3 \cdot 3 \cdot 2 \cdot 5 \cdot 2 \cdot 10 = 5{,}400$ data sets for two groups and $1 \cdot 3 \cdot 3 \cdot 2 \cdot 3 \cdot 2 \cdot 10 = 1{,}800$ data sets for three groups which results in a total number of 7,200 data sets used for this simulation study. In accordance, we generate data for each group of data that meet the requirements of the pre-defined factor level combinations. The data generation follows a procedure introduced by Ringle et al. (2014), which delivers sets of data that precisely match the a priori determined specifications (also see Schlittgen, 2011). Moreover, this procedure permits generating data for Mode A and Mode C path models as required by the design of this simulation study.

We run PLS-IRRS for every generated data set of this simulation study. To analyze the performance of PLS-IRRS, we compare its results with those of a benchmark method. There are four main alternative methods for PLS segmentation proposed in the literature: PLS-GAS (Ringle et al., 2014; Ringle et al., 2013), FIMIX-PLS (Hahn et al., 2002; Sarstedt, Becker, et al., 2011), REBUS-PLS (Esposito Vinzi, Trinchera, Squillacciotti, & Tenenhaus, 2008), and PLS-POS (Becker et al., 2013). Ringle, Sarstedt and Schlittgen (Ringle et al., 2014; Ringle et al., 2013) show that PLS-GAS outperforms FIMIX-PLS and REBUS-PLS. Hence, we select PLS-GAS as benchmark method for PLS-IRRS; a comparison with PLS-POS is an interesting avenue of future research. The data generation and the PLS-GAS runs were carried out in GAUSS 9.0 (Aptech, 2012). In addition, we developed and used a GAUSS 9.0 program to run PLS-IRRS for this study.

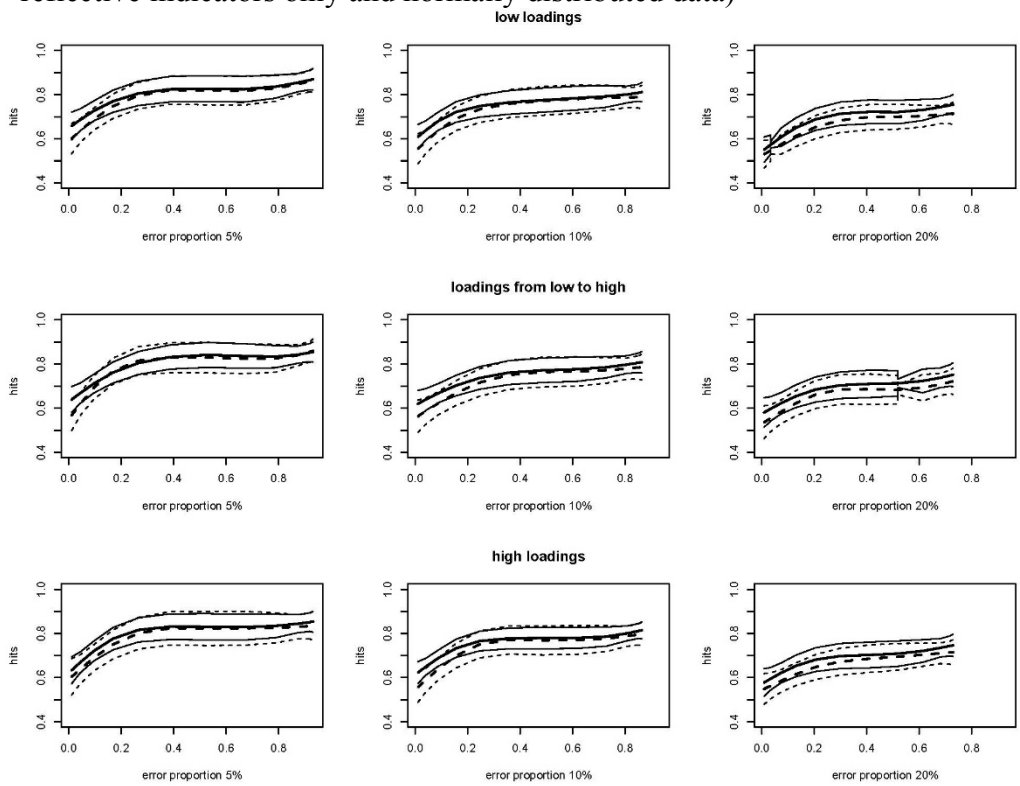
3.2 Results

The analysis results show that PLS-IRRS performs consistently well in all combinations of numbers of observations, numbers of manifest variables in the measurement models, relative segment sizes, levels of outer loadings, and regardless of whether the data are normal or non-normal. In most constellations, PLS-IRRS achieves hit rates well above 80 percent; that is, the method correctly partitions the data according to the data pre-specification. Compared to PLS-GAS, PLS-IRRS achieves the same or higher hit rates across all factor level constellations. This also holds for path models with reflective and formative measurement models in which PLS-GAS achieved comparably low success rates of 60 percent or less. Figures 3 and 4 show the hit rates for two sets of experimental conditions with (1) different loading patterns and (2) varying error variances of the endogenous latent variable.



Notes: x-axis: difference D; y-axis: hits = hit rate; PLS-IRRS results: thick line (95% confidence intervals: thin lines); PLS-GAS results: thick dashed line (95% confidence intervals: thin dashed lines)

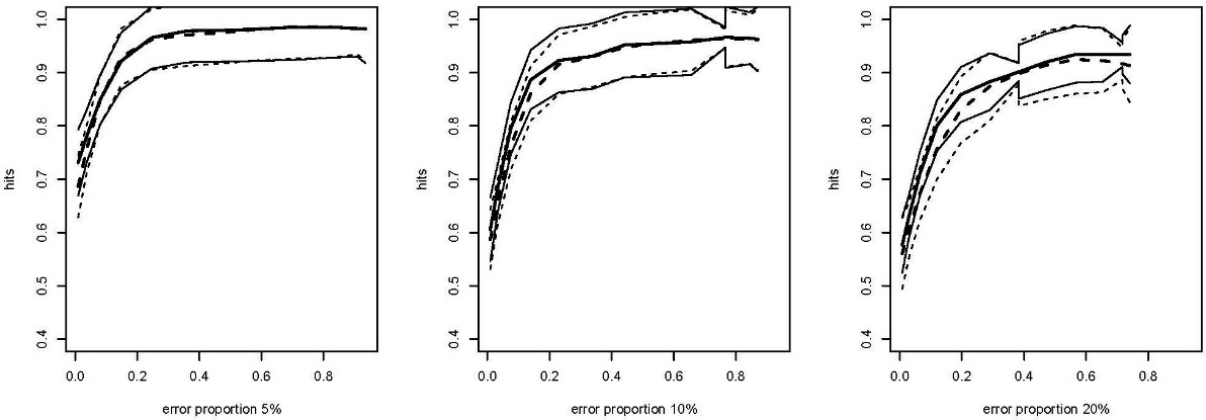
Figure 3: Hit rates for two groups with 100 observations each (simple path model with reflective indicators only and normally distributed data)



Notes: x-axis: difference D; y-axis: hits = hit rate; PLS-IRRS results: thick line (95% confidence intervals: thin lines); PLS-GAS results: thick dashed line (95% confidence intervals: thin dashed lines)

Figure 4: Hit rates for two groups with 50 observations each (simple path model with reflective indicators only and non-normally distributed data)

Figure 5 illustrates the hit rates for a factor constellation with a complex path model with three exogenous and two endogenous constructs (Ringle, Sarstedt and Schlittgen 2014; Ringle, Sarstedt, Schlittgen and Taylor 2013).



Notes: x-axis: difference D; y-axis: hits = hit rate; PLS-IRRS results: thick line (95% confidence intervals: thin lines); PLS-GAS results: thick dashed line (95% confidence intervals: thin dashed lines)

Figure 5: Hit rates for two groups with 50 observations each (complex path model with reflective indicators only and normally distributed data)

In addition, analyzing the adjusted Rand index (ARI; Hubert and Arabi 1985), we find that the ARI values are (1) significantly different from zero in all analyzed situations, (2) slightly increase with higher distances between the group-specific path coefficients, (3) remain at almost similar levels for different levels of pre-specified loadings in the measurement models, and (4) decrease – as expected – with higher levels of error variance. Across all factor level constellations, PLS-IRRS yields higher ARI levels compared to PLS-GAS.

Most importantly, the runtime of PLS-IRRS is much shorter than PLS-GAS. Depending on the experimental condition in the simulation study, the PLS-IRRS method is about 50 to 5,000 times faster than PLS-GAS (Figure 6).

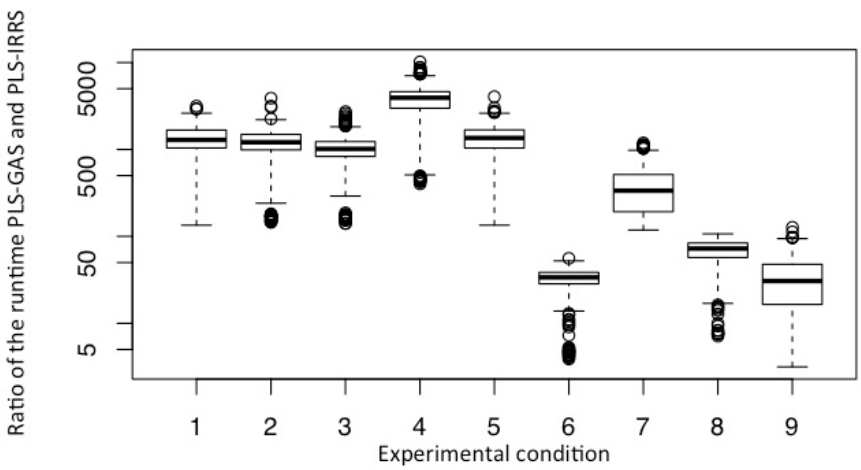


Figure 6: PLS-GAS runtime in relation to PLS-IRRS for nine randomly chosen experimental conditions

To summarize, the results demonstrate the capabilities and effectiveness of PLS-IRRS in various situations encountered in practical applications. PLS-IRRS performs slightly superior compared to PLS-GAS – the primary approach in the field – but at a considerably shorter runtime.

4. Empirical Example

Our empirical illustration employs the ACSI model (Anderson & Fornell, 2000; Fornell, Johnson, Anderson, Cha, & Bryant, 1996), which is one of the most prominent PLS-SEM applications. Prior research used the ACSI model and original data to demonstrate the usefulness of other PLS segmentation methods such as FIMIX-PLS, REBUS-PLS and PLS-GAS (Rigdon, Ringle, Sarstedt, & Gudergan, 2011; Ringle, Sarstedt, & Mooi, 2010; Ringle et al., 2014). For this reason, the model and data are particularly suitable for an application of the new PLS-IRRS method. Since prior research results revealed particular advantageous segmentation results of PLS-GAS compared with alternative PLS segmentation methods (Ringle et al., 2014; Ringle et al., 2013), we select PLS-GAS as the benchmark method for comparing PLS-IRRS' results and computation time needed.

The ACSI model analyses the influence of 'perceived quality', 'perceived value' and 'customer expectations' on 'overall customer satisfaction' and the relationship between 'overall customer satisfaction' and 'customer loyalty' (see Ringle et al., 2014). To provide comparability we employ the same ACSI data as employed by Rigdon et al. (2011); Ringle et al. (2010); Ringle et al. (2014). These authors provide more detailed information on the model and data used.

Parameter estimation on the full data set and on the group models was carried out using SmartPLS 3 (Ringle et al. 2015). Consistent with prior studies, we find that the aggregate PLS-SEM analysis provides reliable and valid measures for the four constructs in our model (see Hair et al., 2014 for details of the PLS-SEM results assessment). In the full data set all paths are significant and positive, but vary in their magnitude from 0.021 (customer expectation on customer satisfaction) to 0.687 (customer satisfaction on customer loyalty).

To estimate the group membership we used GAUSS 12.0 (Aptech, 2012). For the PLS-GAS we used the GAUSS code provided by (Ringle et al., 2014) and for PLS-IRRS we used our own implementation in GAUSS as discussed previously. Both procedures also provide the total time needed for the calculations.

Consistent with prior research we identify two segments as the best PLS-IRRS solution. Using more groups does not improve the weighted average R^2 value of the endogenous constructs and, in addition, using more than three groups provided groups with insufficient group members (i.e., less than 10 observation which would not provide reliable PLS estimates).

As shown in Figure 7, for two groups of data, the group-specific coefficients of PLS-IRRS of most of the paths are significantly different. There are two exceptions: (1) the difference for the paths from customer expectation to customer satisfaction, which is not surprising since each group-specific path (Group 1: 0.004; Group 2: 0.021) is not significantly different from zero ($p > 0.05$); (2) the difference for the paths from perceived quality to perceived value ($\Delta = 0.005$). In terms of significant path relationships, we get a similar picture for the full data model and the group-specific model estimations (i.e., all path coefficients are significant except the customer expectation to customer satisfaction relationship). Yet, the path coefficient's magnitude changes when considering the group-specific heterogeneity in the model. Noteworthy, the path from customer expectation to perceived value, which is small but significantly positive (0.072, $p < 0.01$) in the full data model, changes direction when comparing the two groups (Group 1: -0.133, $p < 0.01$; Group 2: 0.392, $p < 0.01$). The sizes for the two groups are only slightly different from an equal distribution (49.75% and 50.25%). The weighted average R^2 of the group-specific solution improves compared with the full model for two of the four endogenous construct (i.e., perceived quality and perceived value), while it is comparable to the full model for customer satisfaction and customer loyalty. Thus, one can conclude that the PLS-IRRS solution improves the overall model as most group-

specific coefficients are significantly different and models' explained variance increases compared to the full data model.

		PLS–IRRS			PLS–GAS		
	Full data set	g = 1	g = 2	$\lvert\Delta\rvert^{a}$	g = 1	g = 2	$\lvert\Delta\rvert^{a}$
Customer satisfaction → customer loyalty	0.687**	0.434**	0.840**	0.406**	0.638**	0.738**	0.099**
Customer expectation → customer satisfaction	0.021**	0.004ns	0.021ns	0.017ns	*-0.006*^{ns}	0.049**	0.055**
Customer expectation → perceived quality	0.557**	0.365**	0.811**	0.446**	0.530**	0.642**	0.112**
Customer expectation → perceived value	0.072**	-0.133**	0.392**	0.524**	-0.075**	0.286**	0.361**
Perceived quality → customer satisfaction	0.558**	0.613**	0.535**	0.078**	0.638**	0.477**	0.160**
Perceived quality → perceived value	0.620**	0.490**	0.494**	0.005ns	0.669**	0.545**	0.124**
Perceived value → customer satisfaction	0.394**	0.346**	0.412**	0.066**	0.317**	0.450**	0.133**
	Full data set	g = 1	g = 2	Weighted average	g = 1	g = 2	Weighted average
R^2 customer satisfaction	0.777	0.778	0.776	0.777	0.756	0.804	0.780
R^2 customer loyalty	0.471	0.508	0.436	0.472	0.408	0.544	0.477
R^2 perceived quality	0.310	0.271	0.353	0.312	0.281	0.412	0.348
R^2 perceived value	0.439	0.444	0.440	0.442	0.400	0.579	0.491
Segment size	100%	49.75%	50.25%		49.02%	50.98%	

** = Sig. at 0.01; * = Sig. at 0.05; ns = nonsignificant

[a] PLS-SEM multi-group comparison, the PLS-MGA and Welch-Satterthwait approach have been applied and yield the same results in terms of significance of the differences (Sarstedt, Henseler, et al., 2011).

Figure 7: PLS-GAS and PLS-IRRS Applications to the ACSI Model

We find comparable results for the PLS-GAS procedure. The main difference to the results from the PLS-IRRS procedure is that all differences between groups are significant for PLS-GAS, while two of the differences are not significant for PLS-IRRS. Besides, we obtain similar relative segments sizes and weighted R^2 values, especially for the key target constructs customer satisfaction and customer loyalty. Moreover, a stronger relationship in the first segment of PLS-IRRS also is the stronger path in the PLS-GAS and vice versa. For instance, regarding the customer satisfaction to customer loyalty relationship, both PLS-IRRS and PLS-GAS reveal that the coefficient in Group 1 is weaker than the coefficient in Group 2. The only exception is the path from perceived quality to perceived value where PLS-IRRS does not find a significant difference. Nevertheless, the results are very much comparable and go in the same direction. In general, when reviewing the results of this example, PLS-GAS reveals smaller to average difference for all relationships while PLS-IRRS returns either very strong or very weak (nonsignificant) differences.

To summarize, both methods deliver comparable segmentation results (also compared to previous studies) that would provide similar conclusions about the two data groups. Yet, they diverge strongly in the amount of time used1: PLS-IRRS needed 41 seconds (less than a minute), which included 10 calculation of the algorithm with different starting partitions and choosing the best solution in terms of average weighted R^2. In contrast, ten PLS-GAS calculations with different starting partitions needed 43,696 seconds (roughly 728 minutes) for the first-stage to generate a starting partition and 21859 seconds (roughly 364 minutes) for the second-stage, i.e., the hill-climbing algorithm for local improvement. Hence, even a single PLS-GAS run needed on average more than one and a half hours for both stages (i.e., 109 minutes; ranging from 97 to 120).

In this ACSI model application, the PLS-IRRS is more than 100 times faster than a single run of the PLS-GAS procedure. Such a large difference is important for researchers that want to calculate and compare different models and numbers of segments. Providing similar results in much less time makes the PLS-IRRS desirable for efficient application and acceptance of the method for applied research.

[1] We calculated both algorithms on a common personal computer (laptop) usually employed by university staff, with an Intel Core i7 with 2.7 GHz, 8GB RAM and Windows 7 64bit.

5. Summary

This study substantiates that PLS-IRRS returns reliable and valid solutions. Different random starts for the weighting lead to the same solution, which match the expected group-specific outcomes of a-priori generated data sets with pre-defined numbers of segments. Prior research showed that PLS-GAS offers superior results compared with PLS segmentation methods such as FIMIX-PLS and REBUS-PLS (Ringle et al., 2014; Ringle et al., 2013). In comparison with PLS-GAS, PLS-IRRS returns results of similar quality and, likewise, is generally applicable to all kinds of PLS path models. Most important, we find that the PLS-IRRS computations are extremely fast. This is a particularly advantageous characteristic for applications.

The combinations of the general applicability to PLS, the high quality of results and the computational speed justifies the conclusion that PLS-IRRS is superior compared with PLS-GAS but also FIMIX-PLS and REBUS-PLS. When addressing the requirement to assess PLS path modeling results for the critical issue of unobserved heterogeneity to obtain valid results (Becker et al., 2013; Hair et al., 2012), we expect that PLS-IRRS will become the primary methods of choice. Future research, however, should evaluate its performance against the new PLS-POS method (Becker et al., 2013). Moreover, PLS-IRRS fits very well with the new consistent PLS method (PLSc; Dijkstra, 2014; Dijkstra & Henseler, 2015). Hence, we expect that future research will adapt this segmentation approach to PLSc and thereby further proliferate PLS-IRRS' usefulness.

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A Competitive Success Model in the Hotel Industry

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Completed Research Paper

M.Rosario González-Rodríguez
University of Seville
rosaglez@us.es

José Luis Jiménez-Caballero
University of Seville
jjimenez@us.es

Rosario Martín-Samper
University of Seville
rmartin@us.es

Abstract

The aim of the paper focus on identifying those factors involved in the competitive success of hotel companies and the interrelations between them, taking into account the socio-economic influence that these companies might have on Andalusian region and the few studies carried out in tourism sector so far. The study tries to specify an econometric model that may include factors that appear as mechanisms for the generation of competitive advantage. The research model allows us to identify the relative impact of the "industry factor" and the company's own specific factors, "hotel intangible resources", on competitive success.

Keywords: competitiveness, firm assets, industry forces, strategy management, profitability, market position.

1. Introduction

The relevance of the Tourist Industry in Spanish economy is a good reason to carry out a research related to this Sector. Economic indicators support this statement. The weight of the Tourist Sector in GDP is similar to that of the Building Industry or the Industrial Sector, reaching 11% of GDP in 2011 (three times the Primary Sector) and offering employment to over 2,3 million people in our country . The figures from Andalusia are even more significant reaching 12,5% of GDP, 13% the total employment and 8% of the investment in this Region (INE, 2011).

Hotel companies, one of the pillars in the tourist industry, recently experienced a profit making period. Nevertheless, they were also affected by the current crisis, reaching smaller growth rates than those of previous years and experiencing an important profit reduction. (CHEAT and Pricewaterhouse Coopers 2008).

In the last decades, the sector's growth demanded deep changes which emerged in the eighties, whose main purposes were to improve competitiveness, sustainability and quality in tourist companies. Cost management and the generation of value have appeared as basic pillars of the changing process. The tourist sector should easily adjust to market changes by offering innovative products that may meet the client's needs together with better quality and price levels as expected by their market niche.

In today's society, characterized by a global and dynamic economy in an age of important technological change and strong competition, the tourist sector's challenge is to develop new

capabilities, new modern, appropriate management systems adjusted to the new scenarios in order to achieve competitive advantages and therefore better results..

2. Literature Review and Research Hypotheses.

In order to identify and analyze the success factors and their interrelations which improve the competitiveness in hotels, we focus on the Resource and Capability Theory which was developed and used by many researches from the sixties to the present (Penrose, 1959; Barney, 1991; Grant, 1991; Amit and Schoemaker, 1993; Fernández, 1993; Nightwear, 1996; Dales and Guerra, 1996; Monfort, 2000; Ballast et to the, 2003; I Prick with Thorns and Census 2005).

That theory considers the company an idiosyncratic group of resources and capabilities with imperfect mobility. Each company's heterogeneous nature may be sustained over a long term since as Barney (1991) states those resources are characterized to be heterogeneous, rare, valuable, durable, inimitable, inappropriate and irreplaceable.

Many authors tried to identify those success and competitive factors peculiar to companies. Wernerfelt (1984) and Grant (1991, p.19) established a first classification for these factors into two groups, external and internal. External factors are those which cannot be controlled by a company and arise from the very environment performance of the company such as the social, economic, political and legal variables. External factors include a group of characteristics that make up the industrial environment under which competition is developed among companies, and is known as "industry factor". Although tourist companies are especially sensitive to external variables, capabilities and resources are used by the companies to defend themselves from an unfavorable environment and to take advantage of the potentialities that this situation involves.

Internal factors are those variables peculiar to each company and thus controllable by them. They make companies different from one another. Resources can be classified into tangible and intangible factors. On one hand, tangible factors include both physical resources (facilities, properties, machinery, etc.) and financial resources which allow a company to undertake the necessary investments for its purposes. On the other hand, intangible resources include capabilities developed by company members and human, technological, reputational and organizational resources.

Although those researches were first, based on the resource and capability theory, and focused on the internal factors, in the last two decades studies tended to identify internal factors as being responsible for competitive success. In hotel companies, due to their own characteristics which distinguish them from each other, the development of abilities and capabilities as well as the rest of intangible resources is really outstanding.

Since intangible resources especially in the tourist sector are also important for any company, a conceptual and methodological framework to analyze how and in what way such resources may influence the competitive success is necessary. Nevertheless, we focused not only on intangible factors, but also on other factors which may affect competitiveness such as strategy selection and these very specific factors of the hotel industry (industry effect). In fact, recent literature recognized that theories based on "competitive strategy" and on "resources and capabilities" complemented each other and were capable to explain a company competitive success (Amit and Schoemaker 1993; Mahoney 1995). According to Wernerfelt (1984), Porter's conceptual framework and the resource and capability theory are two sides of the same coin.

The current research relies on an econometric model that may reconcile theories based on "competitive strategy" and "resources and capabilities" (Figure 1). The specification of the

model may be justified according to the following issues: a) the two theories are complementary and explanatory of the competitive success, in the sense that one may obtain a more balanced viewed of competitive advantages; b) both perspectives try to explain the same phenomenon (sustainable competitive advantage); and c) the unit of analysis is the same in both theories, "company".

The variables included in the model are, "competitive success" as an explained variable, and "intangible resources", "strategy position" and "industry effect industry" as explanatory variables. The variable hotel size (number of rooms) is included as a control variable in order to remove the effect of this variable on dependent variable.

The main objective of the specified model is to show the relative impact of the "industry factor" and specific factors of the company "intangible hotel resources" on competitive success. The study tries to identify the pattern of those factors which may explain hotel sector's success as causal mechanisms for the generation of competitive advantage.

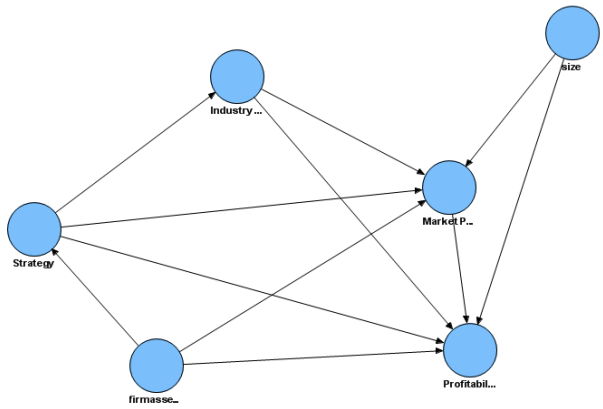

Figure 1: Research Model for Competitive success

This multidirectional model incorporates the following effects: i) "Strategy Effect" that is a necessary condition to achieve competitive success; ii) "Industry Effect" and iii) "peculiar effects" (indirect effects) of the those variables that would provide enough conditions for sustainability of the competitive advantage.

According to the approach described above the following hypotheses could be formulated:

H1: Competitive success depends directly and indirectly on the intangible resources;

H2: Competitive success depends directly and indirectly on the variable "industry effect"

H3: competitive success" depends directly and indirectly on the variable "strategy.

The nature of this research requires the development of a structured survey addressed to the hotel manager. The survey uses subjective measures which allow the study to define the latent variables considered in the model. All the constructs are measured using Liker scales. Given the peculiarities of the hotel company, most of the used scales were adapted from scales widely validated in the extensive literature on the relevant factors of competitive success. The questionnaire is structured in five parts: the first one is designed to gather data related to the company and the director's profile, the four remaining parts collected questions that measure "competitive success", "intangible resources", "strategy position" of the company and the "industry effect".

3. Methodology

3.1. Sample and data collection

The study focuses on individual firms from the hotel sector to analyse the effects of the strategy, resources and capabilities and industry forces on their strength on competitiveness in the tourist destination area where they operate. In the present study, we choose to employ a survey-based method to collect data and detect any possible relationship between variables, particularly for those which are unobservable constructs mentioned before as strategy, resources and capabilities and industry forces. Different stages were followed to ensure response quality and high response rate. First, a questionnaire was designed according to theoretical contributions on those topics. Validated scales from the literature review to measure those constructs were used in the questionnaire. Second, due to the particularity of the tourism sector, the research instrument was adapted to the sector and pretested by interviewing CEOs from hotels with three, four and fifth stars. Third, according to CEOs recommendations and discussions with questionnaire design experts the initial questionnaire was modified to launch.

The final questionnaire was based on multi-item seven-point likert scales questions for those aspects related to firm assets, management strategy, and competitive environment. The survey also included control variables to remove any effects they might have on firm performance as size (number of employees, capacity in terms of available rooms). Other variables related to firm as age, operating regime (ownership, management, rental, franchise, other), typology (chain, family business), and variables related to the CEO as gender and years of experience were include.

To determine the sample size, the recommendation by Green (1991) with a statistical power of 80% was followed. Considering the four predictor variables for the latent dependent variable, an initial minimum sample size of 124 hotels was needed to capture large predictor variables effects, 59 hotels for medium effects and 38 for small effects to obtain a statistical power of 0.80 and an alpha level of 0.05. CEOs were interviewed by telephone to obtain the highest quality response and highest response rate. The non-response rate was 6% and final sample with 94 hotels operating in the province of Seville (andalusian region) were used for the analysis.

Table 1 shows the main descriptive statistics for the research variables.

Typology		**Operating Regime**					**Chain**		**Classific stars**			
Urban	Vacational	Prop	Manag	Rental	Franch	Other	Yes	No	2	3	4	5
66.3%	33.7%	30.4%	19.6%	41.%	6.5%	2.2%	69.6%	30.4	9.8	25	55	9.8

Prop: Property; Manag: Management; Franch: Franchise.

Family group		**CEO gender**		**CEO age**				**CEO experie (years)**	
Yes	No	Man	Woman	1	2	3	4	Min	Max
50%	48.9%	68%	26.1%	0	28.3%	55.4%	16.3%	2	37

1.- Lower than 25; 2: 26-35; 3: 36-50; over 50

3.2. Measurement of latent variables

As described above a multi-item 7-point Likert scales were used to measure the industry forces, strategy and firm performance. Measures widely applied in the industrial sector were adapted to the hotel sector.

The *firm performance* was treated as a two-dimension construct, profitability and market performance. While Profitability represent as the internal-based performance dimension, market share appears to be the external-based performance dimension (Spanos and Lioukas, 2001).

The two dimensions were measured by the question, "please indicate for each following item the position of your firm relative to competition for the last three years (1=much below the average to 7=much above the average). Profitability was measured by different indicators as Profit margin, return on own, Net profit. Cronbach's alpha for profitability was 0.984. Market performance Market position was measured by Sales volume, Growth in sales volume, Market share, Growth in market share. Crobach's alpha for Market position was 0.980.

These two performance measures were chosen since they have been most widely used in the literature as two dimensions of firm performance (Venkatraman and Ramanujam, 1986; Davis et al., 200; Spanos and Lioukas, 2001).

The internal-based performance and external-based performance were included in the model as two lower order constructs (and therefore not being included in a higher order construct) since Market performance appear in most empirical studies as influencing positively and significantly firm profitability (Chang and Buzzell, 1983; Prescott et al., 1986; Galbreath and Galvin, 2006).

The measurement of the *industry forces* tries to capture the five Porter's (1980) competitive forces by which managers can create and sustain competitive advantage will give a company above-average profitability. Barriers to entry, threat of substitutes, bargaining power of buyers, bargaining power of suppliers were measured by single item questions and current rivalry.

The first four industry forces were measured by single item questions (Spanos and Lioukas, 2001; Galbreath and Galvin, 2006): "Please, provide the more accurate answer for each following item": Number of hotel competing directly with his/her hotel (1: very high to 7=very low); Is it easy the entry of competitive hotel in his/her sector? (1=very easy to enter to 1= very difficult to enter); Is your sector threat by substitutes? (1=not at all to 7=very extreme); what is the bargaining power over your customers? (1=very weak to 7= very strong); What is the bargaining power over your suppliers? (1=very weak to 7= very strong).

The competitive rivalry was a composite construct (Achrol and Stern, 1988) measured by CEOs answer to the following question: How would you evaluate the intensity of competition your firm is facing with respect to (1=very week competition to 7=very strong competition): service strategies characteristics; product characteristics; physical hotel characteristics; promotional strategies; access to distribution channels. The Cronbach's alpha for rivalry was 0.786.

Once managers have determined what threats and opportunities exist in the environment they operate, the appropriate competitive strategy should be selected. The scale derived and adapted to the hotel sector from Miller (19988), consisted of asking to the extant of usage *competitive strategies* (1=much less than competitors to 7= much more than competitors) related to *marketing differentiation*, *innovation differentiation* strategy. The strategy appears in the model as formative construct since firms can followed different strategies to seek a competitive advantage.

The *firm assets* was defined as a higher order construct including the organizational, marketing, technical and reputational capabilities as dimensions following empirical studies

as Monfort (2000), Spanos and Lioukas (2001) and Galbreath and Galvin (2006).

To measure each dimension CEOs were asked to respond the following question: "Please, indicate for each of the following resources, the firm strength to your competition (1=much weaker than competitors to 7= much stronger than competitors).

Organizational assets included managerial competencies, culture climate, strategic planning, efficient organizational structure, coordination in hotel hierarchy, skills and know-how of the hotel employees, ability to attract creative employees. Cronbach's alpha 0.947

Marketing capabilities consisted of four items as market knowledge, control and access to distribution channels, advantageous relationship with customers and suppliers, customer installed based. Cronbach's alpha 0.910.

Technical capabilities defined by technological resources (central reserve system, intranet, e-booking), hotel equipment and geographical localization. Cronbach's alpha 0.912.

Reputational assets including customer service reputation and company reputation related to social and environmental responsibility. Cronbach's alpha 0.952.

Control variables.

Strategy

Firm size (number of employees) constitutes a common control variable to be used to remove whatever effects it could have on firm performance.

4. Results

The structural relations among the constructs proposed in our research model were tested applying Partial Least Squares (PLS), a variance-based structural modeling technique. PLS constitutes family of least squares algorithm, which applies principal component and canonical correlation analyisis (Henseler et al., 2009). PLS modeling technique presents certain advantages for researchers and practitioners in social sciences (Hair et al., 2014). First, the method focuses on prediction of a set of hypothesized relationships maximizing the explained variance of the dependent variable. Second, PLS path models can be very complex involving many latent and manifest variables without leading to estimation problems (Wold, 1985). Third, PLS presents a greater flexibility regarding to sample size and normal data distribution requirement than the covariance-based SEMs. PLS-SEM provides very robust model estimations with either normal distribution data or non-normal distribution data (Ringle et al., 2009).

4.1. Measurement Model

The construct firm assets has been defined as a reflective-formative second-high order construct (HOC) from constructs such as marketing, organizational, technical and reputational capabilities. Strategy has been defined as a formative-formative HOC from marketing differentiation, Innovative differentiation and low cost strategy. For both constructs, a second-Stage Approach for hierarchical component models (HCM) (Ringle et al., 2012) has been applied. The measurement model evaluation for reflective constructs was based on the construct internal consistency (composite reliability), convergent (item reliability and AVE, the average variance extracted), discriminant validity by Fornell-Lacker criterion (Hair et al., 2014, Henseler et al., 2009) and Heterotrait-monotrait ratio of correlations (HTMT) (Henseler et al., 2015).

4.1. 1 Validity Assesment of Reflective Measurement Models

Form Table 1 all reflective constructs present internal consistency reliability with composite reliability measures greater than 0.9. All reflective construct show convergent validity with factor loading greater than 0.707, and AVE measures higher than 0. For adequate discriminant validity, the diagonal elements should be exceeding the square correlations with any other constructs (Barclay et al., 1995). This requisite is satisfied for the latent reflective variables of the research model.

Table 1: Measurement Model Reflective Constructs

Constructs	Items	Composite reliability	Item reliability	AVE
Competitive rivalry	Physical characteristics	0.8635	0.712	0.5603
	Service Characteristics		0.843	
	Promotional strategies		0.783	
	Access to distribution channels		0.728	
	Geographical Localization		0.664	
Market Performance		0.9843		0.9126
	Sales volume		0.967	
	Sales growth		0.983	
	Market share		0.978	
	Growth Market share		0.	
Profitability		0.9885		0.9554
	Profit margin		0.967	
	Return on capital		0.983	
	Net profit		0.978	
Marketing Capabilities		0.9245		0.7546
	Market Knowledge		0.827	
	Control and access to distribution channels		0.918	
	Advantageous relationships with customers		0.933	
	Customer installed base		0.799	
Technical Capabilities		0.856		0.748
	Technical resources		0.883	
	Hotel equipment		0.847	
Organizational capabilities		0.9714		0.810
	Ability to attract creative employees		0.782	
	Cultural climate		0.887	
	Organizational		0.902	
	Strategic planning		0.918	
	Efficient organizational structure		0.910	
	Coordination		0.950	
	Skills and Know-how employees		0.925	
Reputational capabilities		0.928		0.6918
	Environmental CSR		0.867	

	Promote women on boards	0.872
	Improve the socioeconomic situation in the area it operates	0.840
	To improve vulnerable groups' social integration	0.834

Table 2: Measurement Model. Discriminant and HTMT Validity

Discriminant validity Fornell-Larcker				HTMT validity	
	1	**2**	**3**	**1**	**2**
1. Rivalry Competitive	**0.750**				
2. Market Performance	0.566	**0.955**		0.627 C.I. (0.541,0.703)	
3. Profitability	0.606	0.901	**0.977**	0.674 C.I. (0.601, 0.748)	0.90 C.I. (0.886, 0.945)

Notes: Diagonal elements are AVE-Squared. Off-diagonal elements are correlations among constructs

Using HTMT as a criterion for validity, HTMT values close to 1 indicate lack of discriminant validity (Henseler et al., 2015), as seen from HTMT between the constructs profitability and market performance since both represent firm performance and could be reduced to a second HOC. However, we have decided to keep both constructs since the confidence intervals of the HTMT by applying boostraping procedure in order to test the hypothesis (H_0: HTMT≥1), do not contain value one indicating discriminant validity.

4.1. 1 Validity Assesment of Reflective Measurement Models

No critical levels of collinearity were observed in the formative construct Strategy (VIF lower than 5).

Table 3: Formative Construct

Strategy	**Weights/ outer loading**	**t**	**Sig.**
Marketing Diferentiation: Innovation in Marketing techniques	0.259 (0.752)	2.01	**
Innovative Diferiantiation: Innovation in process and products	0.556 (0.953)	32.65	***
Firm assets	**Weights/ outer loading**	**t**	**Sig.**
Organizational	0.144 (0.752)	2.01	**
Marketing	0.156 (0.953)	3.65	***
Technical	0.235 (0.872)	2.65	**

4.2. Structural Model

The Model to be estimated is composed of reflective and formative constructs, thus, traditional PLS algorithm instead of PLS consistent has been applied to estimate path relations (Dijkstra and Henseler, 2015). Results obtained from the estimated model in Figure 1 are shown in Table 4 and 5. Table 4 describes the direct effects observed of strategy, industry forces and firms assets on firm performance (profitability and Market performance) and Market performance on profitability. Table 5 presents the mediating effects of the strategy for the firm assets and competitive rivalry on firm performance.

Table 4: Direct Effects on Firm competitiveness

Firm Performance Path coefficients				
	Market Performance R^2=0.535	**Profitability R^2=0.837**	**Strategy R^2=0.266**	**Industry Forces R^2=0.523(rivalry)**
Strategy	0.323*** (t=3.036)	0.083ns (t=0.873)		0.777*** (t=16.383)
Firm assets	0.546*** (t=6.625)	-0.055 (t=0.114)	0.617*** (t=9.835)	
Industry Forces				
Competitive rivalry	-0.039 (t=0.322)	0.111* (t=1.99)		
Barries to entry	0.084ns	0.014ns		
Threat of substitutes	0.001Ns	0.118ns		
bargaining power of buyers,	0.106Ns	-0.112ns		
bargaining power of suppliers	-0.046ns	-0.124**		
Market performance	-	0.824*** (t=12.673)		
Size	0.125** (t=1.907)	0.107*** (t=11.642)		

Two-tail test*** denotes p<0.01; **p<0.05: t-statistics in absolute value.

Hypothesis on mediating effect has been tested following Preacher and Hayer approach (2004, 2008, 2011) and shown in Table 2.

Table 5: Mediating Effects on Firm Performance (Market performance and profitability).

	Indirect effect	**Confidence Interval**
Firm assets→Strategy→Market Performance	0.1992 (t=2.90)	(0.0645, 0.3345)
Firm assets→ Strategy→ Profitability **Firm assets→Strategy→Market Perf→profitability**	0.2154 (t=2.87)	(0.0739,0.3654)
Strategy→Competitive Rivalry→Market Performance	-0.030ns (t=0.34)	(-0.2172,0.1485)
Strategy→Competitive Rivalry→Profitability **Strategy→Competitive Rivalry→Market performance→Profitability**	0.061 (t=0.45)	(-0.153, 0.098)
Competitive Rivalry→Market Performance→ Profitability	-0.0321 (t=-0.33)	(-0.2243,0.1601)

Two-tailed test*** denotes p<0.01; **p<0.05: t-statistics in absolute value.

Firm assets appear to have a significant positive direct effect on Market performance, and also an indirect effect through strategy is observed. Strategies also have a positive direct effect on firm performance but do not have an indirect effect on market performance. Neither

direct nor indirect effect of strategies on profitability is observed.

According to results achieved from the direct and indirect effect of the variables, firm assets, strategy and industry forces: H1 is fully confirmed. H2 is partially confirmed only direct effect on profitability is observed. H3 is partially confirmed since strategies have a direct effect on Market performance

The standardized root mean square residuals (SRMR) defined as the difference between the observed correlation and the predicted correlation is considered a goodness of fit measure for PLS-SEM to detect model misspecification (Henseler et al., 2014). A value less than 0.10 and of 0.08(more conservative) (Hu and Bentler, 1999) is considered a good fit. For our composite factor model SRMR takes value 0.10 revealing the model specification can be improved.

5. Conclusions

The study is an attempt to reveal the mechanism through which industry and firm assets influence performance. Results seem to support arguments drawn from manufacturing sector literature that consider both industry (Rivalry) and firm-level influences (Firm Strategy and Firm asset) are significant determinants of performance. Furthermore, our findings seem to suggest that: 1) industry forces (Rivalry) do not influence market performance and profitability through market performance; 2) Firm assets influence market performance and via the market performance (indirect effect) influence profitability. 3) When measuring industry forces by single items representing Power of suppliers/buyers, barriers to entry and threat of substitutes, only barriers of entry has a direct and negative effect on performance.

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Critical Processes of Knowledge Management and Value for the internal and external Customers.

Completed Research Paper

Ignacio Cepeda-Carrión

University of Seville

icepeda@us.es

Silvia Martelo-Landroguez

University of Seville

smartelo@us.es

Antonio Luis Leal Rodríguez

University Loyola Andalucia

alleal@uloyola.es

Antonio Leal Millán

University of Seville

aleal@us.es

Abstract

Firms are continually looking for new ways to get the best results. In this study, the focus is on the relationship between absorptive capacity (ACAP) and customer value (CV), proposing a multiple mediation model to analyze this relationship.The study's contribution to the literature is to examine, empirically, the antecedents and determinants of this variable in greater depth. Thus, the research fills a gap in the literature through its analysis of the mediating role of knowledge stock (KS) and the knowledge application (KA). This study applies variance-based structural equation modeling via partial least squares to a sample of 151branch office managers from the Spanish banking industry. The results show that both the direct effect and indirect effect, through the mediation of KS and KA, are significant in the relationship between ACAP and CV.

***Keywords*:**absorptive capacity, customer value, banking industry, knowledge management

1. Introduction.

The Spanish banking industry (SBI)is a highly knowledge-intensive sector and is therefore appropriate for identifying, analyzing and evaluating different learning processes. The increasingly intense competition within this industry is forcing banks to recognize the need to seek new ways of leveraging their organizational knowledge. In addition to the competition within the industry, the relative intangibility of their products and services prompts the need to capture and retain customers by offering them something extra and building a strong relationship.

The current crisis in the financial services industry is very significant. Numerous banking takeovers and capitalizations are taking place, with the number of company mergers as a rescue measure multiplying and the volume of crashes increasing. Knowledge of the full extent of this crisis still does not exist, due to the unusually high

speed at which key events develop and enormous changes occur within a short time span, predominantly following the crash of Lehman Brothers in September 2008.

Furthermore, the complex competitive environment in which banking firms operate leads to an increase in customer demand for superior value (Sanchez, Iniesta & Holbrook, 2009). Therefore, moreand more firms see customer value (CV) as a key factor when looking for new ways to achieve and maintain a competitive advantage (Woodruff, 1997). A firm's external and internal organizational capabilities are vital forincreasing CV. Thus, a firm should focus on improvingthose capabilities which view the customer as a key component, in order to maximizeand absorb the value created (Martelo-Landroguez, Barroso, & Cepeda, 2011).

In the SBI, newproducts and processes demand newcompetencies or at least anewcombination of competencies. These newskills and capabilities arerequirements for creating new products or launching new services andare the likely results of the acquisition, assimilation, and exploitation of newknowledge. This idea is what Cohen and Levinthal (1990) refer to asabsorptive capacity (ACAP). These authors state that ACAP is a resultof individual skills, prior knowledge, firm-specific competencies (internalcapabilities), and access to knowledge sources outside the firm -external linkages (Leal-Rodríguez, Roldán, Leal, & Ortega-Gutierrez, 2013). Thus, managers need a framework to facilitate the influence of several knowledge management (KM) aspects (e.g., ACAP, knowledge stock- KS and knowledge application - KA) on the firm's CV. Nevertheless, a gap exists in the literature concerning thisissue. No study reports an empirical test of the links between ACAP, KM processes, and their consequence on CV.

This paper focuses on the link between afirm's ACAP and itsvalueoperating two ways: researching on the one hand, the direct effect between ACAP and CV; and on the other hand, the indirect effect considering the multiple mediating role of another two processes of KM: the KS and the KA.

2. Theoretical background and research hypotheses

2.1. The relationship between absorptive capacity and value

In this paper, a reference to value means the firm's outcomes in relation to their stakeholders (in this case, their internal customers or employees and their external customers).

Although most of the literature refers to value creation, understanding value from the perspective of 'the value of the stakeholders for the firm' also receives attention from researchers (Payne, & Holt, 2001). This stream of research focuses on the value of the stakeholders for the firm. As such, the focus is not on the creation of value for the stakeholders but on the value outcome that can derive from delivering superior CV by managing knowledge.

From an analysis of Payne and Holt's (2001) description of this value perspective, the likelihood exists that this description refers to firm value appropriation or capture. Appropriating value in the marketplace is a fundamental process to achieve firm outcomes. Value creation alone is insufficient to achieve success in the marketplace. A firm's ability to restrict competitive forces to enable the appropriating of

some of that value that the firm creates in the form of profit is also necessary (Mizik, & Jacobson, 2003). Thus, value appropriation involves the development of a set of capabilities oriented toward the extraction of benefits which stem from value creation. In other words, this element focuses on the appropriation of market rents generated from the possession of specific differential resources or capabilities (Mocciaro, & Battista, 2005).

Although most authors focus their attention on the barriers to imitation at the level of competitors, firms must focus on the retention of value in the organization (Bowman, & Ambrosini, 2000).

In our opinion, firms that want to stay in the marketplace, in some way or another have to consider both internal and external customers. To do so, firms try to provide the marketplace with a range of products or services that give value to these stakeholders.Therefore, superior performance results from providing superior value to stakeholders and is not an end in itself (Slater, 1997). Analyzing their customers (both internal and external), firms should be able to improve their outcomes.

The key idea is to know if firms are able to capture the value which they create for their internal and external customers. Firms that fail to pay enough attention to value appropriation are unlikelyto achieve competitive advantages and capture the benefits of their innovations (Mizik, & Jacobson, 2003). Mocciaro and Battista (2005) posit that a period must existin which the firm may pursue value appropriation in order to seize the fruits of its innovations through an increase in the efficiency of its resource allocation.

As mentioned, value appropriation focuses on restricting competitive forces and extracting benefits from the marketplace (Han, Kim, &Srivastava, 1998). According to Bowman and Ambrosini (2000), idiosyncratic ways of doing things allow firms to offer more value to their stakeholders, compared to their competitors, and could help them to achieve superior benefits.

Cohen and Levinthal (1990, p. 128) initially define ACAP as “the ability of recognizing new external knowledge, assimilating and applying it to commercial ends”. Therefore, this concept refers to a key element within the organizational learning process. These authors suggest furthermore that this capability is critical for a firm which seeks the attainment of sustainable competitive advantage, business performance or innovative results, and that ACAP depends to a great extent on the level of prior related knowledge which the firm already possesses.

Although extensive literature concerning ACAP exists, this topic only arouses significant interest in the academic community in light of Zahra and George's (2002) reconceptualization. The roots of this reconceptualization lie in the distinction between potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP).

The present work focuses on Zahra and George's (2002) view, which suggests that ACAP encompasses four distinct but complementary capabilities: acquisition, assimilation, transformation, and exploitation. According to Barney (1991), the conjunction of different capabilities leads organizations to achieve superior performance, which frequently results in competitive advantage.

In accordance with this theory, PACAP and RACAP encompass different capabilities. PACAP involves the acquisition and assimilation capabilities. This

capacity makes the firm open to the acquisition and assimilation of externally generated knowledge (Lane,&Lubatkin, 1998). PACAP captures a firm's capacity to evaluate and acquire external Knowledge (mainly from market, competitors and external customers). Nevertheless, this capacity does not always lead to knowledge exploitation (an internal customer issue or view). Conversely, RACAP deals with the capabilities of transforming and exploiting. PACAP and RACAP are essentially distinct concepts, and consequently may draw on different structures, objectives, and strategies (Cepeda-Carrión, Cegarra-Navarro, & Jimenez-Jimenez, 2012).

Jansen, Van den Bosch, and Volberda(2003) develop a new model on the basis of a model Van den Bosch, Volberda, and de Boer (1999) propose and the inclusion of some of the improvements Zahra and George (2002) provide.Three different capabilities –coordination, system and socialization capabilities– are the antecedents of ACAP in this model. On the other hand, the model of ACAP is as an antecedent of the firm's adaptation and performance.

Similarly, several studies posit a relationship between the firm's ACAP and performance. Fiol (1996) argues that the potential of organizations to generate and capture the benefits of their innovationoutcomes depends on the previous accumulation of knowledge that they have absorbed. The emergence of KM therefore enhances the reciprocity between innovation and knowledge in the sense that innovative efforts are a result of the firm's endeavor and investment in knowledge and knowledge workers. Similarly, outcomes from innovation processes in terms of new products and processes contribute to creating new knowledge,developing a set of capabilities oriented toward the extraction of benefits derived from value creation (Prajogo, & Ahmed, 2006). Ensuring the sharing of relevant knowledge among organizational members is crucial in order to effectively absorb and exploit knowledge(Spender, 1996). This result provides a better comprehension and mutual understanding (Garvin, 1993).

Several studies propose that the ability to effectively exploit external knowledge is a critical factor for the companies which have an interest in achieving innovation outcomes and superior benefits (Cohen, & Levinthal, 1990). A company's ACAP performs as the enabler that permits turning knowledge into new products, services or processes to support innovation and, therefore, the firm's ability to restrict competitive forces (Newey, &Zahra, 2009; Cepeda-Carrión et al., 2012).

According toDamanpour and Gopalakrishnan (2001), innovation is nowadays a crucial element when attempting to obtain and sustain competitive advantages. They argue that innovative firms tend to be more adaptable to changes, more flexible and are more able to exploit opportunities than their competitors. Firms that foster an innovative approach are enabled to better deal with the volatility and high dynamism which characterize their environment andare thusable to achieve and sustain long-term competitive advantages. In this vein, following the strategy of proactively embracing innovation contributes to differentiating the firm from its competitors, hence improving its business performance (Jensen, Van den Bosch, & Volberda, 2006; García-Zamora, González-Benito, & Muñoz-Gallego2013).

H1. Absorptive capacity has a positive relation with value.

2.2. KM and value: the multiple mediating roles of the knowledge stock, and knowledgeapplication

A broad discussion about the relationship between KM and the value for the internal and external customer exists in the literature (Despres, &Chauvel, 1999; Gebert, Geib, Kolbe, & Brenner, 2003; Kaplan, & Norton, 2004; Rezgui, 2007). In addition, Vorakulpipat and Rezgui (2008) suggest that a description of knowledge as a source of value creation is possible.

In terms of organizational processes, Gebert et al. (2003) suggest that KM processes have inherent value-creation capabilities. In this context, the perception of KM is as a set of processes which are necessary for the company to have the possibility to use what they know to create value for its customers (Vorakulpipat, &Rezgui, 2008), and then create new knowledge from extracting benefits derived from value creation. In the case of KM, the reference is to the internal aspect of the creation of value. Companies carry out a number of internal processes with the aim of creating and capturing value from the market. Therefore, these processes are critical to organizational success (Chou, 2005; Van den Hoof, &Huysman, 2009). Without them, companies may not take advantage of the knowledge which they possess (Ipe, 2003).

Based on Cohen and Levinthal (1990), organization ACAP is not only the acquisition of information and knowledge by the organization but also the organization's ability to exploit this acquisition. Acquisition capacities and exploitation capacities are therefore path dependent. An organization can thus exploit new knowledge only if this organization can acquire and stock this knowledge. These capacities become stronger through two complementary KM processes, namelyKS and KA.

The KS or knowledge bases tems from the concept of organizational learning, where the firm is a learning system resulting in the accumulation of knowledge. Organizational members possess, acquire and accumulate knowledge through experimentation, the observation of stimuli and the interpretation of the results. Ravasi and Verona (2001) point out that a knowledge base always exists in a firm, either as individual or collective knowledge, in firm routines, databases, knowledge bases, intranet, etc. In a sense, some authors assimilate KS to the organizational memory concept, whose definition can be the persistent representation of knowledge and information stored from the firm's history (Chou, Chang, Cheng,& Tsai,2007).

According to the knowledge-basedview (KBV), a firm's existing knowledge base sets up its scope and ability to understand and apply new knowledge to decision-making, problem-solving or innovations (Ahuja & Katila, 2001). Knowledge breadth and depth are two distinct dimensions of theKSthat reveal both the structure and content of the knowledge a firm holds. Knowledge breadth refers to the extent to which the firm's knowledge repository contains distinct and multiple domains. Knowledge depth concerns the level of sophistication and complexity of knowledge in key fields (Zhou,& Li, 2012).

To better performance, firms must fulfill two requirements: a broad and deep knowledge base (Leal-Rodriguez et al., 2013). A firm with broad knowledge has accumulated know-how across a variety of disciplines and heterogeneous market domains through its extensive knowledge exploration (Prabhu, Chandy, & Ellis,2005). In addition to knowledge sharing, a broad KS provides the sharing process through which the firm can connect and integrate its broad knowledge. On the other hand, a firm with a knowledge depth is likely to benefit from market and customer knowledge acquisition. This firm with a deep knowledge base accumulated through experience and

know-how about existing technologies and markets can develop core competencies and firm absorbing value.

Prior research suggests that in the search process that underlies recombinant innovations, maintaining a balance between depth and breadth is critical to successful innovation (Prajogo,& Ahmed, 2006; Katila,&Ahuja, 2002). The size and structure of an organization's KS can determine how well this organization manages knowledge resources and creates capacities (Yayavaram,&Ahuja, 2008).

On the other hand, without KA, other processes of knowledge management make little sense because that knowledge is generated or acquired, stored, and sharedin order to apply it and make the company more competitive.

The literature has little about KA. According to Gold, Malhotra, andSegars(2001), authors assumeKA,as they do not make KA explicit. For example, Nonaka and Takeuchi (1995) discuss the ability of a firm to create knowledge, and they seem to assume that, once created, the effective application of knowledge takes place.

The basis of the firm'scompetitive advantage does not reside in knowledge itself but in its application (Alavi, &Leidner, 2001).Following Martelo-Landroguez et al. (2011), if an organization wants to capitalize on its knowledge, that organization must understand how the creating, sharing and application of knowledge occurs.

According to Grant (1996), the critical source of competitive advantage is the integration of knowledge and not knowledge itself. The processes through which companies integrate specialized knowledge are fundamental to their ability to create and sustain competitive advantage. In general, a need exists to use organizational knowledge in a company'sprocesses, products and services.If a company cannot easily find the adequate knowledge in the right way, this company struggles to maintain its competitive advantage(Bhatt, 2001).

One of the more common ways ofKA is to adopt the best practices of a company leader, to find the relevant knowledge and apply this knowledge(O´Dell, & Grayson, 1998). KA implies the use of knowledge whichthe ACAP phase generates, and the stock and transfer phase preserves and shares. Therefore, KA involves the internalization of knowledge in the company.

From the KA process, the organization can receive feedback if that knowledge is indeed needed or if the circumstances of the environment change in such a way that the ACAP process has become obsolete and needs renovating.

Thus, we expect KS and KA processes to have positive mediation effects in the ACAP-Valuerelationship:

H2. Knowledge stock positively mediates the relation between absorptive capacity and value.

H3. Knowledge application positively mediates the relation between absorptive capacity and value.

H4. Knowledge stock and knowledge application sequentially mediate the relationship between absorptive capacity and value.

3. Method

3.1. Data collection and sample

The Spanish banking industry provides an appropriate context to empirically test the above research hypotheses. This service sector is suitable because banking activities demonstrate learning capabilities.

Two main reasons prompt the choice of the Spanish banking domain as a target for study. First, the necessity for intimacy between service providers (managers in the branch office) and customers in their commercial relationships is a critical motive for the selection of the study sample. Banking is a trust-based service, and these relationships tend to endure for long periods. Second, the banking service is an ideal platform for learning because two or more individuals often work together with different resources and complementary capacities. These are learning facilitator factors (Fenwick, 2007).

Only 15 banks meet the study'srequirements (i.e., banks serving the general public). Data collection follows a snowball sampling method with key respondent methodology, in accordance with the suggestions of an expert panel consisting of 15 eminent academics and 10 general bank managers. The unit of analysis is branch office managers from the 15 banks operating in Spain in 2013.Surveying took place over a period of two months, from September 2013 to November 2013. In total, 307 branch office managers receive telephone and mailinginvitations to participate in the study, a process that yields a total of 153 questionnaires. Two of these questionnaires are unsatisfactory and therefore do not appear in the final sample. Analysis therefore relies on the data from 151 valid questionnaires (49.18% response rate).

3.2. Measures

The foundations of the survey design are in the theoretical review in Section 2. This work uses and adapts scales from previous studies in which the items and responses appear on a seven-point Likert scale ranging from 1: I completely disagree to 7: I completely agree. In order to assess ACAP, the current work adapts the scale (eight items to measure PACAP and seven items to measure RACAP) from the study of Jansen, Van Den Bosch, and Volberda (2005). Building on the previous works of Chou et al. (2007) four items to measure organizational memory make up the scale for KS. For the KA variable this work relies on the ten items scaleof Gold et al. (2001). Finally, for the value variable, this work adaptsa scale which measures effectiveness.The scale to measurevalue consists of twelve reflective items adapted from Quinn and Rohrbaugh (1983). Research shows that perceived measures of effectiveness can be a reasonable substitute for objective measures of performance and have a significant correlation with them (e.g., Geringer,& Hebert, 1989; Venkatraman,&Ramanujam, 1987).

3.3. Data analysis

In order to test the research model and hypotheses, this work relies on the use of the partial least squares (PLS) technique, a variance-based structural equation modeling (SEM) method. PLS is an appropriate technique for use in this study due to the following reasons (Roldán,& Sánchez-Franco, 2012): (1) the sample (n = 151) is small; (2) the focus of the study is the prediction of the dependent variables; (3) the research model is considerably complex according to the type of relationships in the hypotheses; and (4) this study uses latent variables' scores in the following analysis of predictive relevance. This study uses SmartPLS 3.0 software (Ringle, Christian, Wende, Sven, & Becker, 2014) for the PLS analysis.

4. Results

Two phases comprise the analysis and interpretation in a PLS model: (1) the assessment of the reliability and validity of the measurement model, and (2) the evaluation of the structural model.

4.1. Measurement model

The results show that the measurement model meets all common requirements.First, individual items are reliable because all standardized loadings are greater than 0.7 (Table 1).Second, since all compositereliabilities and Cronbach's alphas are greater than 0.7 (Table 2), the model satisfies the prerequisite of construct reliability. In addition, the scores for average variance extracted (AVE) surpass the threshold of 0.5 (Table 2). Consequently, these latent variables achieve convergent validity.

Finally, all variables attain discriminant validity. Confirmation of this validity comes from both the comparison of the square root of AVE versus correlations (Table 2), and the cross-loadings analysis (Table 1) (Roldán,& Sánchez-Franco, 2012).

Table 1: Loadings and cross-loadings for the measurement model

	ACAP	Value	KA	KS
PACAP	**0.956**	0.676	0.759	0.589
RACAP	**0.960**	0.728	0.780	0.610
VAL1	0.621	**0.817**	0.598	0.425
VAL2	0.647	**0.868**	0.646	0.479
VAL3	0.628	**0.835**	0.576	0.403
VAL4	0.588	**0.800**	0.587	0.373
VAL5	0.646	**0.874**	0.666	0.502
VAL6	0.598	**0.861**	0.600	0.379
VAL7	0.579	**0.835**	0.612	0.419
VAL8	0.530	**0.801**	0.583	0.377
VAL9	0.556	**0.809**	0.613	0.468
VAL10	0.652	**0.840**	0.665	0.546
VAL11	0.541	**0.710**	0.576	0.461
VAL12	0.653	**0.840**	0.625	0.511
KA1	0.648	0.677	**0.810**	0.584
KA2	0.717	0.657	**0.913**	0.633
KA3	0.764	0.726	**0.934**	0.613
KA4	0.656	0.635	**0.863**	0.534
KA5	0.668	0.639	**0.879**	0.544

KA6	0.707	0.660	**0.892**	0.556
KA7	0.728	0.640	**0.890**	0.619
KA8	0.609	0.486	**0.776**	0.496
KA9	0.759	0.640	**0.876**	0.584
KA10	0.745	0.709	**0.898**	0.614
KS1	0.697	0.620	0.734	**0.865**
KS2	0.349	0.295	0.379	**0.795**
KS3	0.543	0.439	0.554	**0.890**
KS4	0.461	0.416	0.512	**0.906**

Table 2: Construct reliability, convergent and discriminant validity coefficients

	Composite reliability	Cronbach´s alpha	AVE	ACAP	Value	KA	KS
ACAP	0.957	0.911	0.918	**0.958**			
Value	0.962	0.957	0.681	0.733	**0.825**		
KA	0.970	0.965	0.764	0.803	0.743	**0.874**	
KS	0.922	0.891	0.748	0.626	0.542	0.663	**0.865**

4.2. Structural model

As Henseler, Ringle, andSinkovics(2009) comment, the use of bootstrapping (5000 resamples) produces standard errors and t-statistics to assess the statistical significance of the path coefficients. Concurrently, calculation of the bootstrapping confidence intervals of standardized regression coefficients forms part of the analysis. All the direct effects in Figure 1bare significant, with the exception of b_1 (KS on value). The percentile bootstraps at a 95% confidence interval and bias corrected confidence interval also have this outcome (Table 3). These results support H1. In addition, the resultsconfirm that the structural model has satisfactory predictive relevance for the valuevariable ($Q^2 = 0.402$). Tests on the mediation hypotheses (H2, H3 and H4) use an application of the analytical approach that Hayes, Preacher, and Myers (2011) describe.

Table 3: Construct Effects on endogenous variables

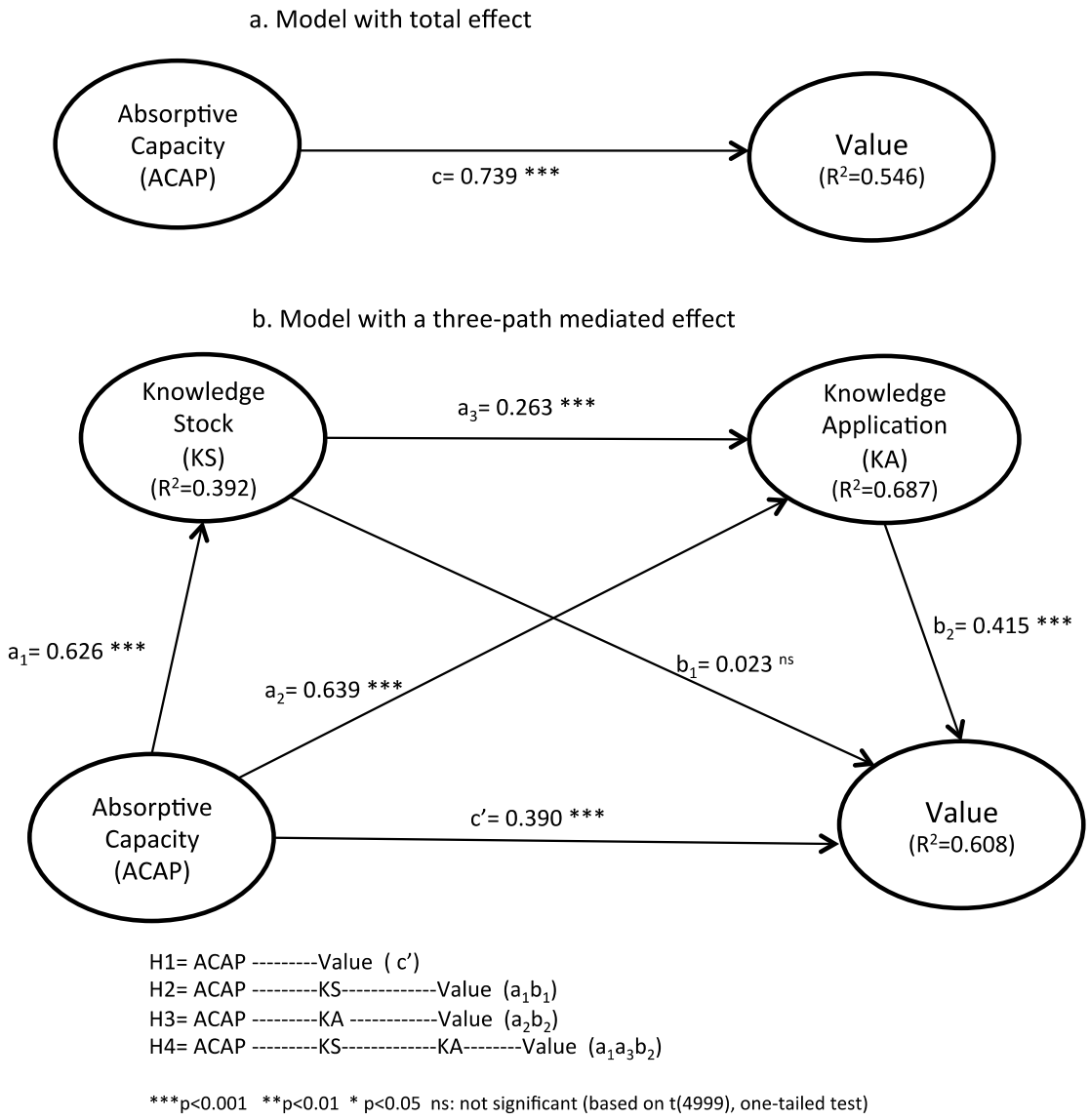
Effects on endogenous variables	Direct effect	t-value (bootstrap)	Confidence intervals (percentile 95%)	Confidenceintervals (bias corrected)	Explained variance
ACAP -> Value (c')	0.390***	3.955	(0.2186:0.5301) sig	(0.2188:0.5304) sig	30.55%
ACAP -> KA (a_2)	0.635***	10.725	(0.5336:0.7261) sig	(0.5324:0.7245) sig	51.00%
ACAP ->KS (a_1)	0.629***	12.308	(0.5454:0.7114) sig	(0.5396:0.7058) sig	39.20%
KA -> Value (b_2)	0.415***	3.925	(0.2445:0.6007) sig	(0.2371:0.5930) sig	28.85%
KS -> Value (b_1)	0.026^{ns}	0.436	(-0.067:0.1175) nsig	(-0.0703:0.1153) nsig	1.52%
KS -> KA (a_3)	0.263***	3.983	(0.1581:0.3781) sig	(0.1529:0.3710) sig	17.70%

***p<0.001 **p<0.01 * p<0.05 nsig: not significant (based on t(4999), one-tailed test). sig: significant direct effect

Value: Q^2: 0.402

Figure 1a shows the total effect (c) of ACAP on value. Figure 1bindicates the total effect of ACAP on value as the sum of the direct (c′) and indirect effects (a_1b_1 + a_2b_2+$a_1a_3b_2$). The estimation of the latter uses the product of the path coefficients for each of the paths in the mediational chain.

Figure1: Structural model



The use of bootstrapping allows for the testing of the mediation hypotheses (Preacher,& Hayes, 2008). This study's 5000 resamples generate 95% confidence intervals (percentile) and bias corrected confidence intervals for the mediators.

As Figure 1a and Table 4 show, ACAP has a significant total effect on value(c = 0.739; t = 16.462). When adding the mediators (Figure 1b), ACAPdecreases its influence, butmaintains a significant direct effect on value(H1: c′ = 0.390; t = 3.955). Therefore, this result supports H1.Our results also show a partial mediation between ACAP and value, as the indirect effects of H3 and H4 are significant. However, they fail to support H2 (Table 4).

Table 4: Summary of mediating effect tests

	Coefficient	t-value
Total effect of ACAP on VAL **(c)**	0.739***	16.462
Direct effect of ACAP on VAL**H1(c')**	0.39***	3.955

Indirect effects of ACAP on VAL	Point estimate	Percentile 95% confidence interval	Percentile 95% confidence interval bias corrected
H2=a_1b_1	0.014	(-0.0365:0.0835)ns	(-0.0379:0.0813)ns
H3=a_2b_2	0.265	(0.1304:0.4361)sig	(0.1262:0.4296)sig
H4=$a_1a_3b_2$	0.068	(0.0210:0.1615)sig	(0.0195:0.1552)sig
Total	0.347	(0.1150:0.6813)sig	(0.1078:0.6662)sig

***p<0.001 (based on t(4999), one-tailed test).
sig: significant effect
ns: not significant

5. Discussion and conclusions

Through an empirical study of 151 branch offices in the Spanish banking industry, this study examines the relationship between ACAP and value for the internal and external customer. Specifically, the analysis is of the relationship between ACAP and value with the mediating effects of KS, KA and the sequential effect of the KS and KA.

The study's first contribution is to go more deeply into the relationships between some KM processes and value for the internal and external customer, but from the perspective of the value outcome which can derive from delivering superior customer value by managing knowledge, i.e., considering the value as appropriation or value capturedby companies. The approach herein is to place ACAP at the beginning of the process, as a main antecedent of CV, while KS and KA play mediating roles between ACAP and CV. The results show that KA – to a greater extent – and KS – to a lesser extent – partially mediate the effect of the knowledge absorption capacities on value.

Banks traditionally center their efforts on improvements to ACAP levels in order to achieve customer value. The results of the model with only the total effect (Figure 1a) indicate that the greater the ACAP level, the greater the CV generated to these firms (R^2= 0.546). The ACAP, by itself, gives rise to an increase of the CV, as the study shows in the value of c'=0.390, which is positive and significant. This result supports H1, and corroborates the idea that ACAP continues to be a fundamentaltarget for financial firms.

As a second contribution, the work finds a way for managers to achieve better outcomes for banks through the capture and creation of CV from the joint development of the absorption systems, storage and application of knowledge. The structural model show that the positive impact that ACAP has in the generation of KS does not lead to a significant effect in the increase of CV (H2=a_1b_1= 0.014 ns). However, to the extent that KS causes greater KA a multiple mediation effect takes place through these two variables -KS and KA (H4 = $a_1a_3b_2$ = 0.068). Finally, the most important indirect effect detected is that which occurs via KA. Thus, when ACAP gives rise to KA, this KA generates a significant increase in CV (H3 = a_2b_2 = 0.265). In summary, the fact that a storing of the absorbed knowledge occurs and this knowledge increases the firm's knowledge base is not, by itself, a value increase (Alavi,&Leidner, 2001; Cohen,&Levintal, 1990).

This study has some limitations. First, results offer only a snapshot of current processes insteadof measures of the same process over time. Second, although drawing on relevant, useable scales from the literature guarantees that the constructs' definition is as precise as possible, the constructs can credibly act only as proxies for an underlying latent phenomenonwhich is itself only partially measurable. Third, the model in this study is general and fails to capture the possible moderating effects of environmental turbulence and uncertainty. Prior research shows that the effect of cognitive factors on individual, group, and organizational performance can vary substantially with environmental conditions.Fourth, the cross-sectional (rather than longitudinal) design of the study might misrepresent variables that refer to lengthy processes, the effects of which only become apparent over long periods. Finally, this study takes place in a specific geographical context (Spain) and economic sector (the banking industry). For this reason, researchers must be careful about generalizing these results and conclusions to other scenarios or different contexts.

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On the effect of measurement model misspecification in PLS Path Modeling: the reflective case.

Completed Research Paper

Simona C. Minotti
Università degli Studi di Milano-Bicocca
simona.minotti@unimib.it

Tomàs Aluja-Banet
Universitat Politecnica de Catalunya
tomas.aluja@upc.edu

Giuseppe Lamberti
Universitat Politecnica de Catalunya
giuseppelamb@hotmail.com

Antonio Ciampi
McGill University
antonio.ciampi@mcgill.ca

Abstract

The specification of a measurement model as reflective or formative is the object of a lively debate. Part of the existing literature focuses on measurement model misspecification. This means that a true model is assumed and the impact on the path coefficients of using a wrong model is investigated. The majority of these studies is restricted to Structural Equation Modeling (SEM). Regarding PLS-Path Modeling (PLS-PM), a few authors have carried out simulation studies to investigate the robustness of the estimates, but their focus is the comparison with SEM. The present paper discusses the misspecification problem in the PLS-PM context from a novel perspective. First, a real application on Alumni Satisfaction will be used to verify whether different assumptions for the measurements models influence the results. Second, the results of a Monte-Carlo simulation study, in the reflective case, will help to bring some clarity on a complex problem that has not been sufficiently studied yet.

Keywords: *PLS Path Modeling, Measurement Model Misspecification, Alumni Satisfaction, Monte-Carlo Simulation Study.*

1. Introduction

The specification of a measurement model as reflective or formative is the object of a lively debate (Diamantopoulos and Siguaw, 2006; Diamantopoulos et *al.*, 2008; Edwards, 2010; Hardin et *al.*, 2011; Hardin and Marcoulides, 2011; MacKenzie et *al.*, 2011; Howell et *al.*, 2013a; Howell et *al.*, 2013b; Howell et *al.*, 2013c). This debate, which covers different applied areas, reflects the fact that there is no universally accepted underlying theory to guide the choice.

Part of the existing literature focuses on measurement model misspecification. By this we mean that a true model is assumed and the impact on the path coefficients of using a wrong model is investigated. The majority of these studies is restricted to Structural Equation Modeling (SEM) approach (Bollen and Lennox, 1991; Edwards and Bagozzi, 2000; Diamantopolous and Winklhofer, 2001; Jarvis et *al.*, 2003; MacKenzie et *al.*, 2005; Petter et *al.*; 2007; Kim et *al.*, 2010; Hardin et *al.*, 2011). However, the problem persists because: first, these studies lead to different conclusions (see for example the allegations of Aguirre-Urreta and Marakas, 2012 against Jarvis et *al.*, 2003 and Petter et *al.*, 2007 about the use of standardized coefficients); second, these studies are not comparable because they treat different models and applications, and, even in the case of simulation-based papers, it is not

clear how the data were simulated; third, none of these papers was published in statistical journals.

If we move to the PLS-Path Modeling (PLS-PM) context (Tenenhaus et al., 2005), which is the focus of our work, then we find a lack of published results. Roy et *al.* (2012) for example study the misspecification problem with respect to an application in the Operations and Manufacturing Management Research, but they don't discuss any simulation study. Then, in the statistical literature, a few authors have carried out simulation studies to investigate the robustness of PLS-PM estimates, but they refer to the European Customer Satisfaction Index (ECSI) model and their focus is the comparison with SEM (Cassel et *al.*, 1999; Cassel et *al.*, 2000; Vilares et *al.*, 2010; Dolce and Lauro, 2014).

In the present paper we will approach the misspecification problem from a perspective which is novel in the PLS-PM context. First, we will start from a real application referred to Alumni Satisfaction, where obviously the real model is not known, and assume different measurement models to verify if the results are sensitive to that choice. Second, we will present the results of a Monte-Carlo simulation study, in the reflective case, and focus on the consequences of the problem of measurement model misspecification, in terms of properties of the estimates (i.e., mean squared error, bias and variance).

2. A PLS Path Model for Alumni Satisfaction

We will present in the following an analysis of a real application referred to Alumni Satisfaction. Here the real model is obviously not known, and the aim is to verify if assuming reflective or formative measurement models leads to important divergences in the estimation of the path coefficients.

2.1. The dataset

The dataset comes from a survey realized in 2008, collected on 147 alumni of the Barcelona School of Informatics (BSI) three years after their graduation. The questionnaire was based on a simplified version of the European Customer Satisfaction Index (ECSI) model (Fornell, 1992) and it consisted of 24 questions referred to 5 latent constructs (see Table 1). The students were asked to provide measures on a 11-point ordinal scale ranging from very satisfied (10) to very dissatisfied (0). The goal of the study was to explore the Alumni Satisfaction about the formation received at BSI in connection to their actual work conditions. In particular, the aim was to study the relationships between Alumni Satisfaction (*Satisfaction*), which is the main proxy for school reputation and recommendation, and the following drivers: perceived image of the school (*Image*), perceived quality on generic skills[1] (*Specific Quality*), perceived quality on technical skills[2] (*Technical Quality*), and advantage or profit that the alumni could draw from the school degree (*Value*).

[1] The specific skills refer to a broad spectrum of capabilities not specific to a profession or organizational environment, such as the ability of problem solving, communication, time management, team working, initiative…

[2] The technical skills refer to the knowledge and abilities, specific to a profession, either mathematical or engineering based, or specific to accomplish technical tasks.

Table 1: Description of the manifest variables for each latent construct

Latent Variables	Description
Image	1 - It is the best college to study Information Engineering
	2 - It is internationally recognized
	3 - It has a wide range of courses
	4 - The professors are good
	5 - Facilities and equipment are good
	6 - It is leader in research
	7 - It is well regarded by the companies
	8 - It is oriented to new needs and technologies
Specific Quality	1 - Basic skills
	2 - Specific technic skills
	3 - Applied skills
Generic Quality	1 - Achieved abilities in solving problem
	2 - Training in business management
	3 - The written and oral communication skills
	4 - Planning and time management acquired
	5 - Team-work skills
Value	1 - It has allowed me to find a well paid job
	2 - I have good perspectives in improvement and promotion
	3 - It has allowed me to find a job that motivates me
	4 - The training received is the basis on which I will develop my career
Satisfaction	1 - I am satisfied with the training received
	2 - I am satisfied with my current situation
	3 - I think I'll have a good career
	4 - What do you think is the prestige of your work

2.2. The model

The PLS path model for Alumni Satisfaction is represented in Figure 1 and described in more detail in Lamberti and Aluja-Banet (2015). It is an adaptation of the model presented in Martensen et al. (2000) and Eskildsen et al. (1999).

The measurement models related to the latent variables are all assumed to be reflective, that is, we assume that each latent construct is a cause of the corresponding indicators. The estimates of the path coefficients obtained by the *plspm* R package (Sánchez, 2012) are also reported In Figure 1 (the asterisk indicates non-significant values). For a detailed discussion and interpretation of the results see Lamberti and Aluja-Banet (2015).

2.3. The misspecified model

We report in Figure 2 the results of the estimation of a different PLS path model. Here the measurement models for Specific and Generic Quality are assumed to be formative, as well as some literature on customer satisfaction suggests (see for example Müller et *al.*, 2006). Since there is disagreement in the literature on this point, we want to verify if the choice of the type of measurement model affects the estimates of the path coefficients.

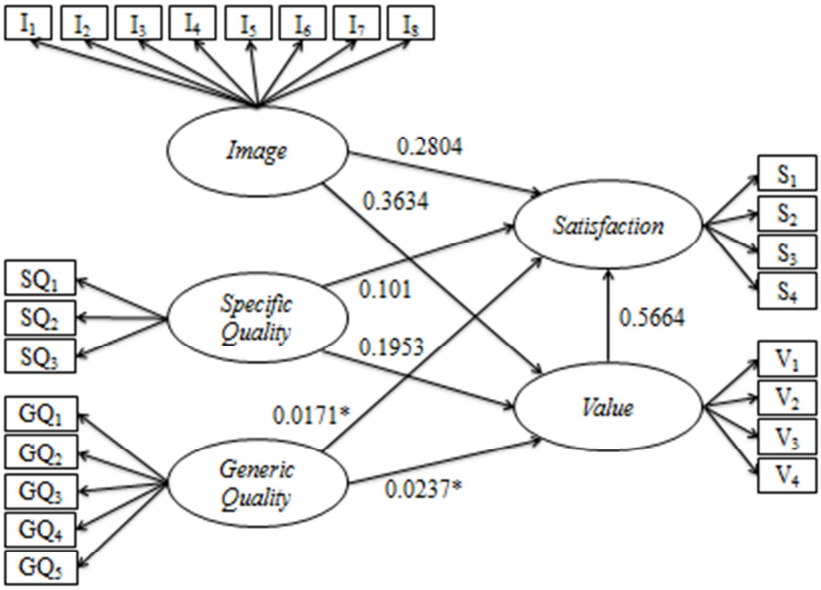

Figure 1: The PLS path model for Alumni Satisfaction

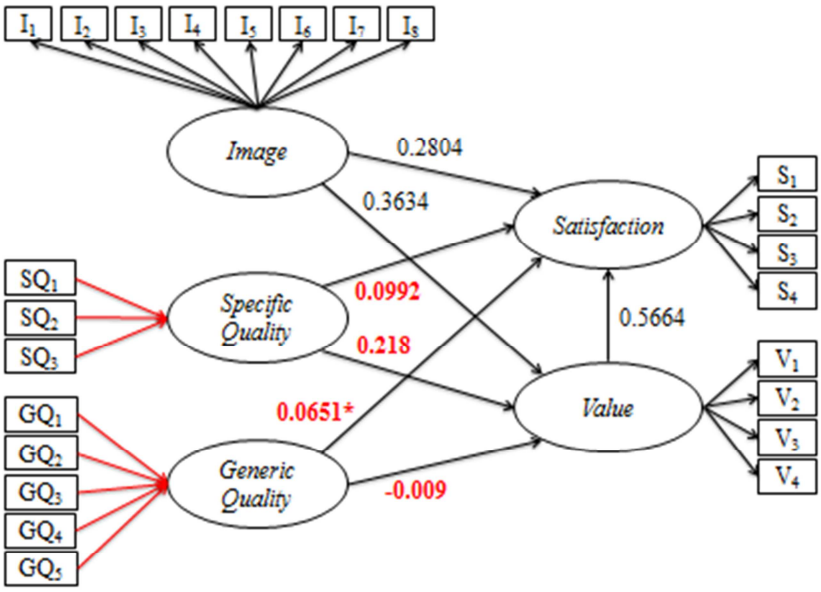

Figure 2: The misspecified PLS path model for Alumni Satisfaction

What emerges is that assuming different measurement models does not seem to have a considerable impact on the estimation of the path coefficients, which are in fact very similar in the two cases (compare the estimates reported in Figure 1 and 2). These results motivated the simulation study we are going to present in order to understand misspecification better and in which cases it produces a considerable effect.

3. The Monte-Carlo simulation study

The aim of the proposed Monte-Carlo simulation study is generalizing the findings of the previous section to a broader class of situations where we actually know what the real model is. This is a misspecification study in the sense that it allows us to observe the behavior of the path coefficient estimates (in terms of mean squared error, bias and variance) when we assume the right model and the wrong models.

The study is restricted to the reflective case and represents a first step in the attempt to bring some clarity on a complex problem that has not been sufficiently studied yet.

3.1. The model

As a starting point, we consider a PLS path model with one exogenous and one endogenous latent variable (LV), both of reflective type.

An exogenous LV can be defined as a variable "of external origin", with no causes included in the model (i.e., no arrows pointing to the variable; only arrows pointing out). An endogenous LV can be defined as a variable "of internal origin" and is represented as the effect of other variables (i.e., at least one arrow pointing to it).

The measurement model for the exogenous LV is:

$$\mathbf{X} = \boldsymbol{\lambda}_x \xi + \boldsymbol{\varepsilon}_x$$

where ξ is a random variable which denotes the exogenous LV; $\mathbf{X}=(X_1,\ldots,X_q)'$ is a p-dimensional vector of observable random variables; $\boldsymbol{\lambda}_x=(\lambda_{x1},\ldots, \lambda_{xp})'$ is a p-dimensional vector of unknown loadings; $\boldsymbol{\varepsilon}_x=(\varepsilon_{x1}, \ldots, \varepsilon_{xp})'$ is a p-dimensional vector of errors of measurement, with expected value equal to zero and uncorrelated to ξ.

The measurement model for the endogenous LV is:

$$\mathbf{Y} = \boldsymbol{\lambda}_y \eta + \boldsymbol{\varepsilon}_y$$

where η is a random variable which denotes the endogenous LV; $\mathbf{Y}=(Y_1,\ldots,Y_q)'$ is a q-dimensional vector of observable random variables; $\boldsymbol{\lambda}_y=(\lambda_{y1},\ldots, \lambda_{yq})'$ is a q-dimensional vector of unknown loadings; $\boldsymbol{\varepsilon}_y=(\varepsilon_{y1}, \ldots, \varepsilon_{yq})'$ is a q-dimensional vector of errors of measurement, with expected value equal to zero and uncorrelated to η.

The model is completed by the structural equation which describes the relationship between the LVs:

$$\eta = \beta\xi + \zeta$$

where β is the unknown path coefficient which represents the relationship between η and ξ, while ζ is a random variable with expected value equal to zero and indicating the error in equation associated with η.

By assuming to have three indicators for each latent variable, the considered path model is represented in Figure 3.

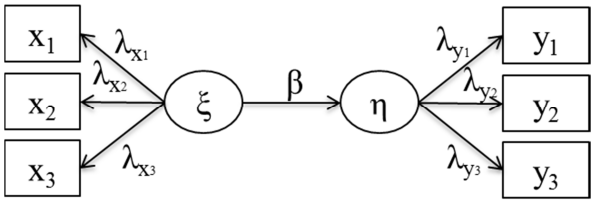

Figure 3: The path model for the simulation study

3.2. Description of the simulation study

The parameters of the simulations which should be fixed in advance are: the number k of simulations, the sample size n, the path coefficient β, the loadings $\boldsymbol{\lambda}_x=(\lambda_{x1},\lambda_{x2},\lambda_{x3})'$ and $\boldsymbol{\lambda}_y=(\lambda_{y1},\lambda_{y2},\lambda_{y3})'$ and the standard deviations s_x and s_y.

The data were simulated according to the following process.

Repeat for k times the following steps:

1. Calculate the 2x2 correlation matrix between ξ and η as:

$$\Sigma = \begin{bmatrix} 1 & \beta \\ \beta & 1 \end{bmatrix}$$

2. Simulate n realizations of ξ and η, $\boldsymbol{\xi}$ and $\boldsymbol{\eta}$, from a bivariate Gaussian random variable with expected value equal to zero and correlation matrix equal to Σ.
3. Standardize the n-dimensional vectors $\boldsymbol{\xi}$ and $\boldsymbol{\eta}$, by obtaining $\boldsymbol{\xi}_s$ and $\boldsymbol{\eta}_s$.
4. Given $\boldsymbol{\xi}_s$ and $\boldsymbol{\eta}_s$, estimate the path coefficient $\hat{\beta}$ by regressing $\boldsymbol{\eta}_s$ on $\boldsymbol{\xi}_s$.
5. Given $\boldsymbol{\xi}_s$, $\boldsymbol{\lambda}_x$ and s_x, and $\boldsymbol{\eta}_s$, $\boldsymbol{\lambda}_y$ and s_y, , respectively, calculate the n realizations of the manifest variables **x** and **y** as:

$$\mathbf{x} = \boldsymbol{\xi}_s\boldsymbol{\Lambda}_x + \boldsymbol{\varepsilon}_x,$$

and

$$\mathbf{y} = \boldsymbol{\eta}_s\boldsymbol{\Lambda}_y + \boldsymbol{\varepsilon}_y,$$

by simulating the n realizations of $\boldsymbol{\varepsilon}_x$ and $\boldsymbol{\varepsilon}_y$ from two univariate Gaussian random variables with expected value equal to zero and standard deviations equal to s_x and s_y, respectively.
6. Estimate the PLS path coefficient β_{PLS} in the reflective-reflective case and in the misspecified cases, i.e. formative-formative, formative-reflective, reflective-formative.

The experimental conditions which were considered are: (a) the sample size (n=100, 400, 1000), (b) the random fluctuation of the manifest variables ($s_x=s_y$=0.05, 0.2, 1.0), (c) the strength of the path coefficient (β=0.1, 0.5, 0.9), (d) the strength of the loadings ($\boldsymbol{\lambda}_x=\boldsymbol{\lambda}_y$=0.8, 0.2). The parameter k was fixed to a value of 500.

3.3.1. The results

For each group of simulations we compared the simulated $\hat{\beta}$ with the assumed theoretical β. We also compared the PLS coefficients, β_{PLS}, estimated in the misspecified cases with the one estimated in the reflective-reflective case (which represents the true model). The comparisons were made in terms of mean squared error, bias and variance.

What emerged from the analysis of the single simulations is that a misspecification effect

appears when the path coefficient, β, is low (i.e., equal to 0.1, see Table 2 and 4) and the random fluctuation of the manifest variables, s_x and s_y, are low (i.e., 0.05 and 0.2); it is almost negligible when β increases (i.e., equal to 0.5 and 0.9, see Table 3 and 5). As the sample size n increases, the pattern doesn't change, but the misspecification effect reduces drastically (compare Table 2 and 3 with Table 4 and 5, respectively).

Table 2: Results of the simulations n=100, β=0.1, s_x=s_y=0.05

Case a. λ_x=λ_y=0.8

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0098	0.0001	0.0389	0.0085	0.0095
Bias	-0.0071	0.0003	0.0530	0.0405	0.0412
Var	0.0097	0.0001	0.0362	0.0069	0.0078

Case b. λ_x=λ_y=0.2

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0093	0.0011	0.0391	0.0086	0.0094
Bias	-0.0092	0.0029	0.0578	0.0433	0.0442
Var	0.0092	0.0011	0.0358	0.0067	0.0075

Table 3: Results of the simulations n=100, β=0.9, s_x=s_y=0.05

Case a. λ_x=λ_y=0.8

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0004	0.0000	0.0000	0.0000	0.0000
Bias	-0.0015	-0.0013	0.0030	0.0008	0.0008
Var	0.0004	0.0000	0.0000	0.0000	0.0000

Case b. λ_x=λ_y=0.2

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0004	0.0004	0.0003	0.0003	0.0003
Bias	-0.0022	-0.0176	-0.0127	-0.0152	-0.0152
Var	0.0004	0.0001	0.0001	0.0001	0.0001

Table 4: Results of the simulations n=400, β=0.1, s_x=s_y=0.05

Case a. λ_x=λ_y=0.8

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0024	0.0000	0.0050	0.0012	0.0012
Bias	-0.0019	0.0002	0.0367	0.0223	0.0227
Var	0.0024	0.0000	0.0036	0.0007	0.0007

Case b. λ_x=λ_y=0.2

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0024	0.0001	0.0055	0.0013	0.0011
Bias	-0.0017	0.0017	0.0351	0.0239	0.0208
Var	0.0024	0.0001	0.0042	0.0008	0.0006

Table 5: Results of the simulations n=400, β=0.9, s_x=s_y=0.05

Case a. λ_x=λ_y=0.8

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0001	0.0000	0.0000	0.0000	0.0000
Bias	-0.0002	-0.0011	-0.0001	-0.0006	-0.0006
Var	0.0001	0.0000	0.0000	0.0000	0.0000

Case b. λ_x=λ_y=0.2

Simulated versus theoretical path coefficient		PLS versus simulated path coefficient			
		Ref/Ref	Form/Form	Form/Ref	Ref/Form
MSE	0.0001	0.0004	0.0003	0.0003	0.0003
Bias	-0.0003	-0.0182	-0.0169	-0.0176	-0.0175
Var	0.0001	0.0000	0.0000	0.0000	0.0000

To verify if the symmetry of the Gaussian distribution could have affected the results, we generated the data from a beta random variable with parameters (6,3); as expected, the results didn't substantially change.

Then, as a summary of the previous results, we present the following three separated analyses of the misspecification effect, by marginalisation of the obtained results according the sample size, the random fluctuations and the path coefficient, respectively.

3.3.2. Behavior of the bias and the MSE according to the sample size (n=100, 400, 1000)

The effect of misspecification tends to slow down with sample size; it is clear with n=100, but diminishes when the sample size increases, being very small with n=1000 (see Figure 4).

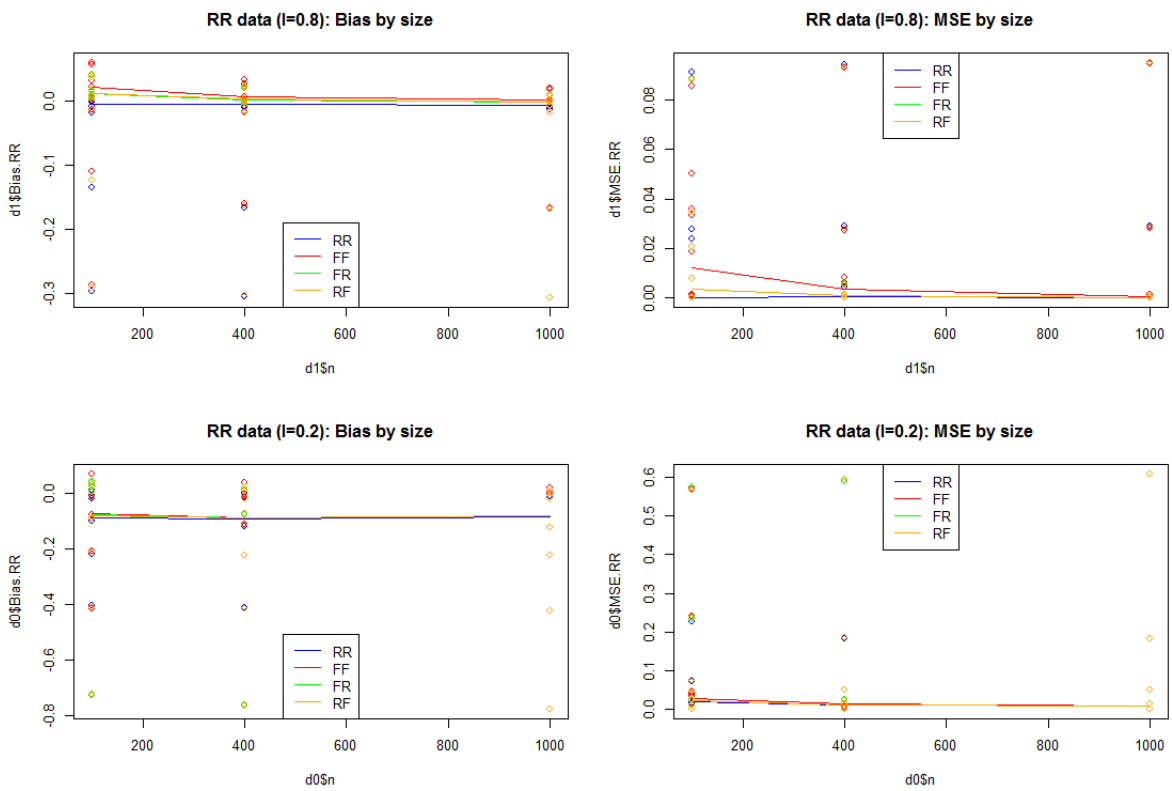

Figure 4: Behavior of the bias and MSE according to the sample size

In all cases the misspecification follows the same pattern. When the model is correctly estimated (Ref/Ref), then the bias and the MSE of the PLS-PM estimates are almost null; when the model has been estimated as being Form/Form, the bias and the MSE get the highest values, whereas the other cases (Form/Ref and Form/Ref) appear in a middle position between the two extremes. As expected, both the bias and the MSE decrease when increasing the sample size. Then, according to the quality of the measurement model (λ_x=λ_y=0.8 or 0.2), in the case of a measurement model with low loadings (λ_x=λ_y=0.2), the previous statement is true, with slightly worse results for bias. We would expect a worse results, but it seems harming that the measurement model does not interfere so much in the estimate of the inner model. With low loadings it appears a tendency to move down the estimation of β, i.e., to underestimate the path coefficient (i.e. negative bias).

3.3.3 Behavior of the bias and the MSE according to the random fluctuation of the manifest variables (s_x=s_y=0.05, 0.2, 1.0)

Figure 5 shows that increasing the variance of the random fluctuations of the manifest variables implies an increase of the variance of the estimates, and hence the MSE, for all specifications Ref/Ref, Form/Form, Form/Ref and Ref/Form, and also an increase of the bias (however negatively); the latter meaning that high values of random fluctuation come out finding lower estimates of the "true=simulated" relation between constructs.

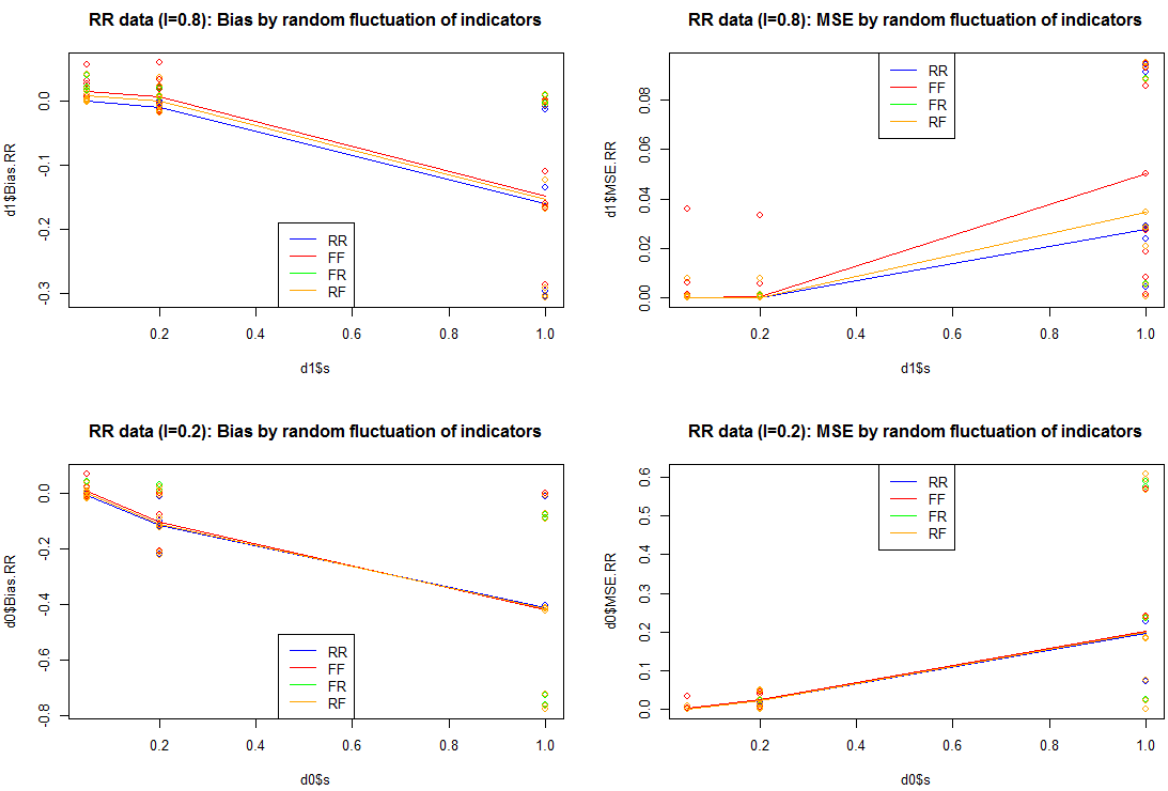

Figure 5: Behavior of the bias and MSE according to the random fluctuation of the manifest variables

Also, when the model is correct regarding the loadings (λ_x=λ_y=0.8), it appears a misspecification effect, following the same pattern as before (Ref/Ref corresponds to the lowest values of the estimates, Form/Form to the highest, and Form/Ref and Ref/Form in between). Regarding the MSE it appears also a clear misspecification effect when the random

fluctuation is high. On the contrary, for a model with low loadings (λ_x=λ_y=0.2), both bias and MSE get worse as before, but the misspecification effect vanishes.

3.3.4. Behavior of the bias and MSE according to the strength of the path coefficient (β = 0.1, 0.5, 0.9)

Increasing the value of β, it appears a slow tendency to underestimate the "true=simulate" β, with a curious inflexion in 0.5; also the MSE tends to diminish (see Figure 6). Regarding the misspecification effect, it appears for low values of β, but it vanishes for high values. As before, having a bad defined model (λ_x=λ_y=0.2), implies worsening both bias and MSE.

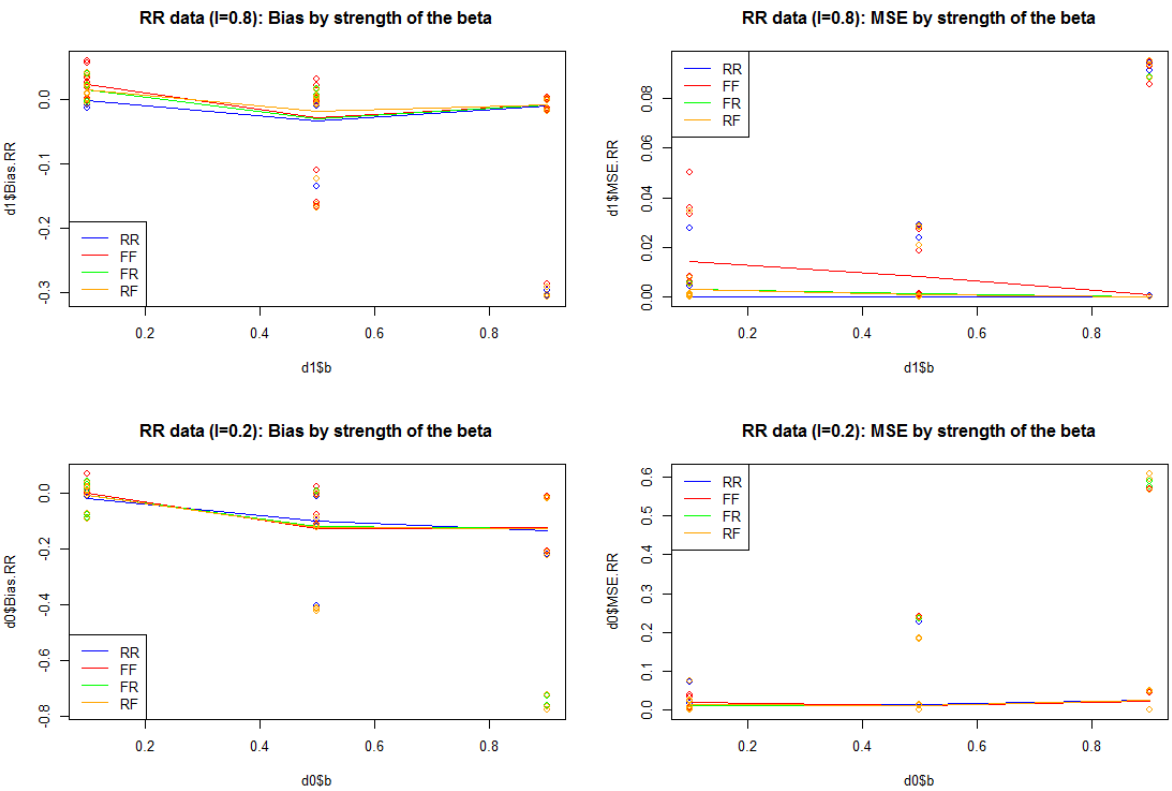

Figure 6: Behavior of the bias and MSE according to the strength of the path coefficient

4. Conclusions

In this paper we considered the problem of measurement model misspecification in the PLS-PM context from a novel perspective.

With respect to the application on Alumni Satisfaction, we concluded that assuming a formative measurement model for Specific and Generic Quality, instead of a reflective one, doesn't have a considerable impact on the estimation of the path coefficients.

To better understand the reasons of these results, we performed a Monte Carlo simulation study with reference to a path model with one exogenous and one endogenous LV, both of the reflective type. It seems that the misspecification is important only when the sample size is small, the path coefficient are also small (meaning not high relations between latent concepts), the constructs are well defined (high loadings) and we have high measurement error (this effect influencing the MSE only, but not the bias); the latter doesn't mean that by increasing the measurement error the bias keeps constant, but there isn't a differential situation on bias regarding the misspecification.

We conclude that, with reference to the considered study, the misspecification of a reflective model as formative doesn't have a significant impact on the estimated path coefficient. This results seems to confirm and validate the results found by Aguirre-Urreta and Marakas (2012) in the SEM context.

Further research will regard two directions: (1) the extension to more complex models of the reflective case (2) the extension to the formative case (Form/Form, Form/Ref, Ref/Form), even though we believe that first it needs to be studied an appropriate way to simulate this situation, given the absence of literature on the topic.

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Managers' Risk Propensity and Destructive Behavior in Buyer–Seller Relationships: An Application of PLS-analysis

Completed Research Paper

Brian Tjemkes
VU University Amsterdam, The Netherlands
e-mail: b.v.tjemkes@vu.nl

Olivier Furrer
University of Fribourg, Switzerland
e-mail: olivier.furrer@unifr.ch

Jörg Henseler
University of Twente, The Netherlands
e-mail: j.henseler@utwente.nl

Abstract

Despite their popularity, buyer–seller relationships are often dissatisfying and engender destructive behavior, such as opportunism and exit by one partner. To explain destructive behavior, previous supply chain management studies primarily focused on the influence of situational factors, such as social and economic dissatisfaction, without accounting for managers' risk propensity. Accounting for risk is critical though, because destructive behavior in buyer–seller relationships cannot be dissociated from the people who manage them. Drawing on risk and buyer–seller literature, the authors develop and empirically test a model that incorporates a moderating effect of the risk perceptions of situational factors on the relationship between a manager's risk propensity and the inclination to exit the relationship and act opportunistically. A survey of purchasing managers indicates that the positive relationship between risk propensity and destructive behavior is strengthened by social dissatisfaction and mitigated by economic dissatisfaction.

Keywords: buyer–seller relationships; risk propensity; active and passive opportunism; exit

1. Introduction

In recent years, the nature of buyer–seller relationships has shifted, from arm's-length transactions to long-term exchange relationships (Claycomb and Frankwick, 2010). The increasing popularity of these relationships reflects their ability to help partners mitigate the risk and uncertainty associated with the provision of critical supplies (Geiger *et al.*, 2012). However, managing such relationships is fraught with problems and challenges (Ferguson and Johnston, 2011). In response to these adversities, in most buyer–seller relationships one of the parties eventually engages in an action that the other partner considers destructive to the relationship (Kumar *et al.*, 1998). These destructive behaviors, such as opportunism (Heide and John, 1990; Hawkins *et al.*, 2008) and one-sided exit (Alajoutsijärvi *et al.*, 2000) enable an exchange partner to realize short-term gains, often at the expense of relationship continuity (Geyskens and Steenkamp, 2000). While advances have been made in the study of destructive behaviors, the discussion has been somewhat limited in two ways.

First, when investigating destructive behavior, supply chain management studies primarily focused on relationship-level factors, such as partners' dissatisfaction, commitment, and exit barriers (Hibbard *et al.*, 2001; Ping, 1993; Tjemkes and Furrer, 2010). An understanding of these situational drivers provides insight in how destructive behavior can be prevented. Ping (1999) suggests, for example, that to hold exit at bay exchange partners may increase cost-of-exit and satisfaction, or allow a partner to voice its concerns. Geyskens and Steenkamp (2000) distinguish between economic and social satisfaction and unearth that the two types of dissatisfaction directly and interactively discourage the use of destructive responses. Whereas these studies explain why specific relationship situations trigger or prevent destructive behavior, they neglect to account for the decision-maker. Destructive behavior in buyer–seller relationships, cannot be dissociated from the people who manage those relationships (Aldrich and Herker, 1977).

Second, most studies adopted a relationship-oriented approach and conceptualized destructive behavior as an immediate response that is damaging in regard to the future of a buyer–seller relationship (Hibbard *et al.*, 2001; Geyskens and Steenkamp, 2000). This narrow conceptualization precludes risk. A decision to unilaterally, intentionally, and deceitfully act against the interest of the relationship, is likely to result from a comparison of the risks associated with short-term gains obtained through destructive behavior with the risks associated with future gains obtained from not acting destructively. For example, unilaterally exiting a buyer–seller relationship or acting opportunistically poses a risk to the firm in that it can trigger retaliation and induce reputation losses (Poppo *et al.*, 2008). Conversely, refraining from exiting (i.e., opting for the continuation of the relationship) also imposes a risk, as in the near future the relationship may not deliver on its promise or the exchange partner may engage in destructive behavior (Parkhe, 1993). We suggest that there is value in conceptualizing destructive behavior as risk behavior. This also implies, per Sitkin and Pablo (1992), that, in addition to relationship-level factors, destructive behavior is influenced by decision makers' risk propensity and risk perceptions.

Therefore, the objective of this study is to develop and empirically test a model that incorporates a moderating effect of the risk perceptions of situational factors on the relationship between a manager's risk propensity and its inclination to engage in destructive behavior. Taking the buyer perspective, we focus on three destructive responses—exit, passive opportunism, and active opportunism (Hawkins *et al.,* 2008; Hibbard *et al.,* 2001; Ping 1993, 1999; Wathne and Heide, 2000)—and two situational factors that frame managers' perceptions of the riskiness of destructive behavior—economic and social dissatisfaction (Geyskens and Steenkamp, 2000; Tjemkes and Furrer, 2010). In building our model, we focus on these behaviors and situational factors, because they previously have been identified as key antecedents of relationship processes and outcomes. To test our model empirically, we

conducted a survey of 262 purchasing managers.

We contribute to supply chain management literature by demonstrating that managers' risk propensity is a salient factor that affects destructive behavior and that the interplay of risk propensity and perceptions of situational factors effectively explain managers' intentions to use destructive behavior in buyer–seller relationships. We also contribute to risk behavior literature by combining trait and cognition approaches (see Sitkin and Pablo, 1992), in a novel way. Specifically, we demonstrate that a manager's perception of the riskiness of a situation (cognition) and risk propensity (trait) interactively influence risk behavior. The results also have implications from a managerial point of view, because these insights can help managers to improve risk management (Grudinschi *et al.*, 2014; Hoffman *et al.*, 2013). Extending relationship-level risk management approaches (Harland *et al.*, 2003) with manager's risk propensity will enable decision-makers to better steer buyer–seller relationships toward more collaborative and successful outcomes.

2. Theoretical background and hypotheses

2.1. Destructive behavior in buyer–seller relationships

Destructive behavior is defined as an action that has a negative impact on the viability or functioning of a buyer–seller relationship (Hibbard *et al.,* 2001). Three types of destructive behaviors appear in prior buyer–seller literature: exit, passive opportunism, and active opportunism (Geyskens and Steenkamp, 2000; Ping, 1993, 1999). Each behavior represents a different decision-making situation, such that managers must determine whether they should act destructively or not, according to their assessments of the gains and losses associated with each decision (Parkhe, 1993). By developing and testing hypotheses related to all three types of destructive behavior, we seek to increase the nomological validity of our empirical results.

Exit indicates a buyer's disinclination to continue the current relationship (Ping, 1999), as might be manifested when it ceases to procure a supplier's products (Ping, 1993). As a destructive response (e.g., Pressey and Qiu, 2007), exit induces the termination of the current relationship (Park and Ungson, 2001). A buyer is likely to exit a supplier relationship when the anticipated value of the relationship is smaller than the expected costs (Zajac and Olsen, 1993), such that exiting provides short-terms benefits for the exiting partner. However, exiting a relationship also might require the development of a relationship with a new supplier, so it entails risk (Ring and Van de Ven, 1994), especially if new suppliers predict the buyer's future behavior on the basis of its past behavior, which would cast the shadow of the past on the new relationship (Parkhe, 1993). Thus, unilaterally ending a long-term relationship likely tarnishes the reputation of the exiting partner, which makes it more difficult to find a trusting partner in the future (Poppo *et al.,* 2008). Conversely, maintaining the relationship might be valuable as a means to generate long-term value (Zajac and Olsen, 1993), but it too entails risk. A buyer cannot foresee with certainty if its current supplier will behave destructively in the future (Parkhe, 1993). In addition, the future value of the relationship is uncertain, such that not exiting the relationship might result in escalating commitments to an underperforming venture (Patzelt and Shepherd, 2008).

Opportunism refers to "self-interest seeking with guile" (Williamson, 1975, p. 6); it occurs when firms have individual interests that are not necessarily congruent with those of their partners (Das and Rahman, 2010; Das and Teng, 2001). By acting opportunistically, a buyer can extract short-term value from its supplier but also opens itself to future sanctions and retaliation (John, 1984). When a buyer has expectations that the relationship will endure, opportunism becomes especially risky, because the supplier has an extended time frame in which to retaliate (Joshi and Stump, 1999). As Heide and John (1990, p. 26) note, "future interaction between exchange partners provides an opportunity to reward good behavior and punish opportunism," casting the shadow of the future on the relationship. Thus, opportunism

entails performance risk, because it undermines the value-creation logic for the relationship (Wathne and Heide, 2000). Opportunism also is risky due to its potential for initiating destructive, tit-for-tat strategies (Joshi and Stump, 1999). By potentially triggering retaliation, opportunism could lead to the deterioration of the relationship and reduce its future value creation potential. Even when suppliers depend on the current relationship and cannot openly retaliate against powerful buyers (Kumar *et al.*, 1998), their commitment to the relationship likely deteriorates in the face of opportunism (Frazier *et al.*, 1989; Van Bruggen *et al.,* 2005). Preserving relationship quality can create value in the future, but not acting opportunistically also involves relational risk, because again, buyers cannot foresee if their suppliers will engage in destructive behaviors in the future (Das and Teng, 2001). In this sense, failing to act opportunistically soon enough is risky, because the firm may lose the opportunity to appropriate additional value preemptively from its partner, before a conflict arises or the relationship is terminated.

Wathne and Heide (2000) distinguish two forms of opportunism—passive and active—though both are sources of benefits and risk. *Passive opportunism* exists when one party purposefully withholds its effort, such as by shirking or evading obligations (John, 1984). When new circumstances arise, passive opportunism might take the form of inflexibility or refusal to adapt (Wathne and Heide, 2000) or negligence (Geyskens and Steenkamp, 2000; Ping 1993). Passive opportunism is difficult to detect because of its ambiguity (Carson *et al.,* 2006), so simple monitoring may not be sufficient to identify it (Das, 2005), which implies the potential for short-term benefits to the opportunistic partner. Even if sanctioning passive opportunism is difficult and relatively unlikely (Wathne and Heide, 2000), the behavior still entails risk, because of the extensive period of time available for retaliation. In contrast, *active opportunism* implies that one party actively engages in behaviors that are explicitly or implicitly prohibited within the relationship or uses new circumstances to extract concessions from its partner (Wathne and Heide, 2000), such as breaching a distribution contract by selling in an unauthorized territory, delaying payments, or supplying misleading information. Active opportunism has the potential to provide more benefits to the perpetrating party than passive opportunism, but it is also more risky, because it is easily discernible and can be identified through monitoring, such that it likely leads to sanctions (Das, 2005).

Although exit, passive opportunism, and active opportunism constitute three separate types of destructive behaviors, they share key characteristics. All three behaviors are intentional, unilateral, and deceitful, and self-interested partners use them to increase their short-term benefits. Destructive behavior is intentional (Hibbard *et al.,* 2001), such that a manager's decision to act destructively or not results from an assessment of the positive and negative consequences of this behavior. Moreover, destructive behavior is unilateral (Tjemkes and Furrer, 2010), so the decision to act destructively or not occurs without the consent of the partner. Finally, all three forms of destructive behavior are deceitful (Das, 2005), and acting destructively should have negative repercussions for partners and their performance. Before acting destructively, managers must assess the risks of their behavior, so their decision should depend on their risk propensity.

2.2. Risk propensity and risk perception

Following Sitkin and Weingart (1995), we define risk propensity as a trait that reflects "an individual's current tendency to take or avoid risks" (p. 1575). Risk propensity emerges from prior experience and risk preferences (Sitkin and Pablo, 1992) and predisposes people to make risky decisions and engage in risky behavior (Sitkin and Weingart, 1995). Broadly defined, risk refers to uncertainty or variance in outcomes with some significance (Kahneman and Tversky, 1979). Whereas uncertainty implies a condition of unsure outcomes, risk is "a condition in which the consequences of a decision and the probabilities associated with the

consequences are known entities" (Baird and Thomas, 1985, p. 231). In this sense, uncertainty might be regarded as part of the risk construct (Das and Teng, 2004).

Risk propensity pertains to an individual's preference for more uncertain outcomes compared with more certain ones (Sitkin and Pablo, 1992). In addition, risk is embedded in time, so risk propensity involves a preference for present rather than future outcomes, which are more uncertain (Frederick *et al.,* 2002); risk-averse people tend to discount time more than risk-prone decision makers (Das and Teng, 1997). Time discounting implies a tendency to place a higher value on an outcome that occurs earlier compared with the value assigned were it to occur later (Frederick *et al.,* 2002). People who discount time thus tend to consider the immediate outcomes of a decision more closely and underscore the future consequences. Risk-averse managers, compared with risk-prone ones, prefer sure gains in the present or near future to uncertain gains in the more distant future, even if the latter gains might be greater. Similarly, risk-averse managers prefer known losses in the present or near future over unknown losses in the more distant future.

As risk is socially constructed rather than an objective reality of the world (Slovic, 1999), to assess the relationship between risk propensity and destructive behaviors, it is critical to account for situational factors though (Kühberger *et al.,* 2002), which should influence managers' cognitive perceptions of the riskiness of the behaviors (Sitkin and Pablo, 1992). The cognitive framing effect of situational factors appears in several empirical studies that reveal that the sign and strength of the relationship between risk propensity and risk behavior vary across contexts. For example, Kahneman and Tversky (1979) find that people who seek to protect prior gains make less risky choices than those without prior gains to protect; Osborn and Jackson (1988) instead find that past success leads to more risky behavior. Staw, Sandelands, and Dutton (1981) also find that when people are threatened by likely losses, they become more rigid and make less risky decisions. Similarly, March and Shapira (1987) demonstrate that when the situation is perceived positively (i.e., full of opportunities), people make more risky choices; if they perceive the situation negatively (i.e., full of threats), they tend to make less risky choices. In the light of these ambiguous results, we propose that the effect of risk propensity on risk behavior is moderated by perceptions of the riskiness of the situational factors.

2.3 Hypotheses

Using a buyer perspective, we hypothesize that in buyer–seller relationships, the link between a manager's risk propensity and his or her intention to use destructive behavior depends on two situational factors: economic and social dissatisfaction. Other factors could have influences as well, but we focus on these two relational factors, because prior research has demonstrated their effects on destructive behavior in buyer–seller relationships (Geyskens and Steenkamp, 2000; Hibbard *et al.,* 2001; Ping, 1993). Economic and social dissatisfaction also are particularly relevant for our study because they invoke different temporal orientations for the relationship partners. A long-term orientation implies necessary commitment to a good working relationship; a short-term orientation stresses prompt results that energize the alliance. Managers with a short-term orientation view a buyer–seller relationship as transitional in nature and demand quick, tangible results. In contrast, a manager with a long-term orientation regards buyer–seller relationships as semi-permanent entities that require commitment and patience (Joshi and Stump, 1999). Social satisfaction accordingly relates to a manager's long-term orientation, whereas economic satisfaction is more important when a manager holds a short-term orientation. Because risk-averse and risk-prone managers have different time orientations, economic and social dissatisfaction likely represent two distinct cognitive framing contexts, with different moderating effects on the relationship between risk propensity and destructive behavior. Figure 1 graphically represents our hypothesized model.

[Insert Figure 1 about here]

Economic dissatisfaction reflects a manager's negative evaluation of the financial outcomes of a relationship, resulting from a negative discrepancy between expected and actual financial outcomes (Geyskens and Steenkamp, 2000). Economic dissatisfaction shifts the manager's focus from long-terms opportunities to short-term threats (Staw *et al.,* 1981). In economically dissatisfying relationships, calculative commitment is affected (Gilliland and Bello, 2002), and managers seek to restore efficiency quickly, before the performance of the relationship further deteriorates. In such an adverse situation (Tjemkes and Furrer, 2010), partners that do not engage in destructive behavior, in the hope of preserving the relationship, suffer sure economic losses in the present and uncertain benefits from the relationship in the future. These present and future outcomes contrast with the benefits of acting destructively, which likely accrue in the present and are more certain, as well as the negative consequences, such as retaliation or loss of reputation (Zajac and Olsen, 1993), that are more uncertain, as they only have consequences in the future.

When a buyer–seller relationship underperforms economically, destructive behavior may appear less risky than not acting destructively, because destructive behaviors generate immediate and sure returns, in contrast with the uncertainty associated with persistent economic underperformance. Confronted with a pressing challenge to deal with economic underperformance, more risk-averse managers value the sure gains from acting destructively more and discount the potential future losses associated with the consequences of such behavior. More risk-prone managers instead discount the potential future benefits of preserving the relationship less and value them more than the benefits of destructive behavior, which may be limited because of the underperformance of the relationship. That is, as economic dissatisfaction increases, the association between risk propensity and destructive behavior may switch from positive to negative; the more risk-prone managers are, the less likely they are to behave destructively compared with more risk-averse managers.

When economic dissatisfaction decreases, the association between risk propensity and destructive behavior may become more positive, such that more risk-prone managers tend to act more destructively than risk-averse managers. The relationship is generating benefits in the present, so more risk-averse managers are unlikely to endanger the relationship by acting destructively. In contrast, more risk-prone managers value the benefits to be gained from destructive behavior, because the costs of such behavior are uncertain, and if they occur, they will accrue only in the future.

In accordance with our arguments, some empirical studies demonstrate that when economic dissatisfaction is high, behaving destructively appears less risky than not acting this way; when economic dissatisfaction in low, behaving destructively is perceived as more risky than not doing so. Joshi and Stump (1999) find that managers who expect a buyer–seller relationship to last for an extended period are less likely to behave opportunistically, due to the shadow of the future created by the opportunity for retaliation (Poppo *et al.*, 2008). In economically satisfying relationships, behaving opportunistically therefore seems more risky than not behaving opportunistically (Parkhe, 1993). Liu *et al.* (2010) further find that managers who conduct cost-and-benefit calculations to evaluate their buyer–seller relationships likely notice their partner's opportunism. When partners have a short-term orientation, due to their economic dissatisfaction, opportunism is more likely to be detected, which increases the chances of retaliation, so both active and passive opportunistic behaviors become more risky than not behaving opportunistically. Geiger *et al.* (2012) find that managers who value their buyer–seller relationships more also are less likely to exit; in such a situation, exiting is perceived as more risky than continuing it. Thus, we hypothesize:

H1. Managers' economic dissatisfaction moderates the relationship between risk propensity and destructive behavior, such that for less economically dissatisfied managers, the relationship of risk propensity with (a) exit, (b) passive opportunism, and (c) active opportunism is positive, whereas for more economically dissatisfied managers, these relationships are negative.

Social dissatisfaction is a manager's negative evaluation of the psychosocial aspects of a relationship, reflecting a negative discrepancy between expected and actual quality in the working relationship (Geyskens and Steenkamp, 2000). Compared with economic dissatisfaction, social dissatisfaction shifts the manager's cognitive focus from the short-term opportunities of maintaining the relationship to potential threats in the future (Zajac and Olsen, 1993). In socially dissatisfying situations, managers' affective commitment likely diminishes (Gilliland and Bello, 2002), so relationship continuity is endangered (Geyskens and Steenkamp, 2000), because the promise of future joint collaborative efforts, such as flexibility, adaptability, and learning, are limited (Das and Teng, 2000).

When a buyer–seller relationship is socially dissatisfying, destructive behavior may appear more risky than not acting, because not behaving destructively allows for the preservation of the relationship's current benefits. Behaving destructively instead entails the risk of conflict escalation in the future. When the relationship is characterized by high social dissatisfaction, the likelihood of conflict and the chance that the partner behaves destructively are very high (Zajac and Olsen, 1993). Therefore, the more risk-averse managers are, the less likely they are to behave destructively, so they can avoid triggering destructive retaliation from their partner. In such a situation, risk-averse managers prefer the present gains of preserving the current relationship to the uncertain outcomes of a destructive conflict; more risk-prone managers instead prefer the potential gains they can extract from destructive behavior and are willing to accept the risk of conflict, betting on gaining a first-mover advantage through a preventive strike. As social dissatisfaction increases, the association between risk propensity and destructive behavior likely grows more positive, such that the more risk-prone managers are, the greater the chances that they will behave destructively compared with more risk-averse managers.

In contrast, when a buyer–seller relationship is socially satisfying, destructive behavior should seem less risky than not acting. When social dissatisfaction is low, the perceived risks of destructive behavior also are likely to be low, because the affective commitment of the partner creates some forgiveness for destructive behavior (Ganesan *et al.,* 2010; Geiger *et al.,* 2012; Liu *et al.,* 2010). Therefore, when social dissatisfaction is low, risk-averse managers prefer present gains from destructive behavior and discount the risk of retaliation; risk-prone managers instead refrain from destructive behavior, preferring to bet on the future gains generated by the relationship rather than the relatively small gains they could extract in the present from their destructive behavior. When social dissatisfaction decreases, the association between risk propensity and destructive behavior is likely to move from positive to negative; the more risk-prone managers are, the less likely they will behave destructively compared with more risk-averse managers.

Indirectly supporting this line of argument, a few empirical studies have shown that when social dissatisfaction is high, behaving destructively is perceived as more risky than not acting in this way; when social dissatisfaction is low, it seems less risky than otherwise. For example, Ganesan *et al.* (2010) and Geiger *et al.* (2012) find that in relationships characterized by high affective commitment, managers forgive mild opportunism by their partners, but they do not do so in relationships with low affective commitment. The strength of interfirm bonds determines parties' propensity to accept temporary disadvantages and exhibit relational

tolerance (Bello *et al.,* 2010). In such situations, opportunism—and passive opportunism in particular—likely appears less risky. Similarly, Gilliland and Bello (2002) find that when affective commitment is low because social dissatisfaction is high, the use of contractual enforcement mechanisms becomes more likely. Thus, opportunistic behavior is more likely to be detected, especially if it is active, and be perceived as risky compared with not behaving opportunistically. Patzelt and Shepherd (2008) find that managers might decide to persist with a current relationship even if social dissatisfaction is high, to avoid damaging their reputation. The shadow of the past should exert a strong effect on managers' perceptions of the termination of the relationship as risky, because a bad relational reputation could make finding alternative partners more difficult (Poppo *et al.,* 2008). Alajoutsijärvi *et al.* (2000) also find that when social dissatisfaction is low and relational quality is high, exiting the relationship might be less damaging and less risky, because the partner is unlikely to seek to damage its own reputation. Thus, we hypothesize:

H2. Managers' social dissatisfaction moderates the relationship between risk propensity and destructive behavior, such that for less socially dissatisfied managers, the relationship of risk propensity with (a) exit, (b) passive opportunism, and (c) active opportunism is negative, whereas for more socially dissatisfied managers, the relationships are positive.

3. Data and Methods

3.1 Data collection

To test our hypotheses, we developed an online survey and collected data from Dutch purchasing managers, whose contact details we obtained from a relevant business association. A link to the online survey was sent by e-mail to 2,239 purchase managers in the Netherlands. We asked respondents to read a screening question before participating in the project to ensure that only buyer–seller relationships consistent with the scope of our research were included in the final sample. We asked respondents to select a buyer–seller relationship that involved a long-term contractual arrangement; thus, we decreased the likelihood that governance forms, such as joint ventures, licenses, or franchises, appeared in the final data set. Because the number of purchase managers that not qualified is unknown, the response rate is a conservative estimate. The procedure resulted in 265 questionnaires, for a response rate of 11.8%, which is reasonable for this relatively long online survey (Deutskens *et al.,* 2004).

To assess non-response bias we compared early respondents and late respondents with respect to every individual questionnaire item and found no significant differences between the two groups. In addition, following Mentzer and Flint (1997) we contacted by telephone a random sample of 30 non-respondents and asked them five questions related to constructs under investigation. Based on a series of *t*-tests we found no significant differences between the answers of respondents and non-respondents to these questions.

Consistent with previous buyer–seller research (Heide and John, 1990; Lambe *et al.,* 2002), we used self-reporting and collected data from only one side of the dyadic relationship, namely, a manager from a buyer firm. The self-reporting approach adopted in this study is appropriate as the key variables in the study pertain to individuals' characteristics. That is, risk propensity denotes an personality trait and response strategy preference pertains to an individual's disposition to react to a situation. To reduce concerns about perceptual biases, we asked one question to ensure the respondent was knowledgeable about the selected buyer–seller relationship. On a seven-point Likert scale, with a cutoff value of 3, a low score indicated the respondent possessed little knowledge about the buyer–seller relationship. Only three respondents did not meet this criterion and were eliminated from further analysis, resulting in a final sample of 262. The average score across the sample was 5.8 (SD = 1.3) for

knowledgeability, comparable to the level in prior research (Jap and Anderson 2003), which suggests that we used appropriate respondents for our data analysis. The job titles (e.g., head of purchasing, senior purchasing manager, vendor manager, general manager) also indicated their ample knowledge of buyer–seller relationships.

The respondents worked for firms in two broad sectors: production/manufacturing (50.4%) and services (49.6%). On average, these firms had 4,238 employees (standard deviation [SD] = 17,621) and had managed 20.8 buyer–seller relationships (SD = 50.5) in the past five years. The average duration of a relationship was 7.0 years (SD = 8.3). The respondents, mostly male managers (239, or 91.2%), were 46.7 years (SD = 7.5).

3.2 Measures

To measure managers' preferences for the three destructive behaviors, we adapted existing scales developed in English that we translated into Dutch, using standard translation–back-translation procedures. The seven-point Likert scales ranged from (1) "I would definitely not react in this way" to (7) "I would definitely react in this way." For exit, we adapted items from Geyskens and Steenkamp (2000) and Ping (1999) and asked respondents to indicate their intentions to terminate the buyer–seller relationship. To measure passive opportunism, we adapted items developed by Ping (1993) to capture negligent relational behavior and modified them to cover its destructive aspect, such as not dealing with the situation and putting no more resources into the relationship. The scale used to measure active opportunism came from John (1984) and Ping (1993) and refers to withholding information, exaggerating the averse nature of the situation, and seeking to escape contractual obligations.

To measure social and economic dissatisfaction, we built on prior work (Geyskens and Steenkamp, 2000; Ping, 1993; Tjemkes and Furrer, 2010) and used items to capture a manager's satisfaction with the quality of the social interactions and the economic performance of the relationship. The social dissatisfaction items measure the extent to which the interaction between the partners is perceived as complicated, unfulfilling, and disappointing (Geyskens and Steenkamp, 2000). The economic dissatisfaction measure indicated the extent to which a manager is financially satisfied with the alliance, according to four items that measured managers' level of satisfaction with the alliance in terms of profit, performance, goal achievement, and efficiency (Geyskens and Steenkamp, 2000). We measured satisfaction rather than dissatisfaction to reduce multicollinearity issues and reversed the results prior to our analyses. The correlation between the dissatisfaction measures is .40, indicating that multicollinearity is not likely to be of concern. Finally, for risk propensity, we used four items developed by Jaworski and Kohli (1993) to evaluate the extent to which a manager is risk prone or averse. All items appear in the Appendix.

Destructive behavior could be influenced by factors other than economic and social dissatisfaction and managers' risk propensity. We therefore controlled for three firm-, three relationship-, and three individual-level variables identified in prior literature. At the firm level, we controlled for firm size (natural logarithm of the number of employees), because larger firms with more resources may assess the risk associated with destructive behavior differently (Lambe *et al.,* 2002). We also controlled for a firm's power relative to its partner's by adding a seven-point Likert scale to capture the degree to which the buyer possesses a bargaining advantage over its supplying partner. A bargaining power advantage reduces the risk of retaliation and thus should trigger more risk-taking preferences (Van Bruggen *et al.,* 2005). We created a dummy variable to capture the firm's sector: production/manufacturing or services. However, the industry dummy was not significant, so we removed it from further analyses, for parsimony.

At the relationship level, we controlled for alliance duration, the presence of attractive alternatives, and relationship-specific investments. With regard to alliance duration (measured

as the natural logarithm of the number of years in operation), managers involved in older relationships may be less inclined to act destructively (Ferguson and Johnston, 2011; Liu *et al.,* 2010). Attractive alternatives decrease the risk of exiting the relationship, but the presence of relationship-specific investments increases its costs (e.g., Ping, 1999; Rokkan *et al.,* 2003; Williamson, 1975). To operationalize these variables, we used three items each, adapted from Ping (1999) and measured on seven-point Likert scales. We discarded one indicator of relationship-specific investments due to its lack of reliability. The final reliability of the scales was acceptable, with Cronbach's alphas of .75 to .70.

At the individual level, personal characteristics beyond risk propensity might influence preferences for destructive behavior. First, we controlled for a manager's long-term orientation by adding a seven-point Likert scale; managers with more distant planning horizons should be less likely to act destructively (Das and Teng, 1997). Second, we considered individual experience, because more experienced managers might respond differently than less experienced managers (Tjemkes and Furrer, 2010). Third, we controlled for managers' social desirability tendency by including the M-C2 version of the Marlowe-Crowne social desirability scale (Strahan and Gerbasi, 1972); opportunism in particular may be influenced by the social desirability bias (Hawkins *et al.,* 2009).

3.3 Analytical method

As the main method of analysis, we used partial least squares (PLS) path modeling as implemented in ADANCO 1.0 (Henseler and Dijkstra, 2014). As a variance-based technique, PLS aims to maximize the explained variance of the endogenous variables. Even with many parameters, as are required for estimating moderating effects, it supports smaller sample sizes than covariance-based structural equation modeling techniques (Hair *et al.,* 2012). Furthermore, PLS does not rely on distributional assumptions, which is a relevant factor in the presence of heavily right-skewed variables (Cassel *et al.,* 1999). Because our structural model is saturated, the major disadvantage of PLS, namely, the lack of a global goodness-of-fit measure (Henseler and Sarstedt, 2013), is not a concern for our study. To avoid possible non-convergence issues, we chose a factor-weighting scheme and used a centroid scheme for triangulation (Henseler, 2010). Because PLS is based on a nonparametric estimation procedure, we applied bootstrapping with 5000 resamples for the significance tests (Chin, 1998).

We used a two-step procedure to assess the adequacy of the model (Anderson and Gerbing, 1988). First, we assessed the measurement model with regard to reliability and validity. For all multi-item measurements, we ensured sufficient levels of internal consistency reliability, unidimensionality, and discriminant validity. Second, we examined the structural model with regard to its significance and the substantiality of the effects. We created and compared three hierarchically ordered structural models: a first model with only the control variables, a second with the added direct effects, and a third model containing the moderating effects too.

With a hybrid orthogonalizing approach, we analyzed the moderating effects (Henseler and Chin, 2010). Orthogonalization (also called residual centering) means that instead of simply multiplying the interacting variables, we regressed the product of the interacting variables on the two original variables. The residuals served as the interaction terms. Orthogonalization eliminated the potential problems of multicollinearity, as are often encountered in analyses of moderating effects (Cronbach, 1987). It also facilitates the interpretation of regression coefficients, in that the single effects resulting from a regression with moderating effects strongly resemble the main effects obtained from a model without moderating effects. Here, hybrid refers to the approximated scores for the interaction term in each iteration of the PLS algorithm, which reflects the original approach proposed by Wold

(1982) to incorporate nonlinear effects into PLS path models. In contrast with other approaches (see Goodhue *et al.,* 2007), the hybrid approach does not capitalize on chance. Despite preventive measures, including reversing scales and residual centering for each model, we still assessed the possibility of multicollinearity by examining the variance inflation factors, all of which were smaller than the cutoff value of 3. Thus, multicollinearity was not a problem (Hair *et al.,* 2006).

Self-reporting may raise concerns about common method variance. We reduced these concerns by designing a questionnaire with different scale endpoints and creating psychological separation between the independent and dependent variables (Podsakoff *et al.,* 2003). In addition, to quantify common method variance and control for its remaining effects, we also included a marker variable in the questionnaire. The marker variable approach excels in terms of efficacy (Richardson *et al.,* 2009). Because the marker variable we chose captures the corporate-level strategy of the firm, it is theoretically unrelated to our study. This marker variable did not exert any effect on exit or active opportunism but had some influence on passive opportunism. To assess the extent of common method variance, we compared the path coefficients of two models, with and without the marker variable. The results showed no significant differences between models, indicating limited common method variance concerns. To account fully for common method variance, we retained the marker as a control variable.

4. Results

4.1 Measurement model

To assess the reliability and validity of the construct measurements, we followed Hair *et al.* (2012). The internal consistency reliability was estimated using Cronbach's alpha (α) and Jöreskog's rho (ρ_c). Whereas α is typically a lower bound for reliability, ρ_c (which relies on the upward-biased construct loadings of PLS; Gefen *et al.,* 2011) likely overestimates reliability. The true reliability of construct scores thus should lie between α and ρ_c. As Table 1 shows, all constructs exhibited sufficient levels of internal consistency reliability. In one case, α lies slightly below .70, but because the composite reliability is substantially higher, a common criterion of reliability is fulfilled (see Nunnally, 1978). The Appendix lists the indicators and their standardized loadings.

[Insert Table 1 about here]

We assessed the validity of the construct measurement in terms of unidimensionality and discriminant validity (Hair *et al.* 2012). For convergent validity, we used the average variance extracted (AVE). All AVE values except one were above the critical value of .50 (Fornell and Larcker, 1981); only the AVE value of passive opportunism (.47) was slightly below the threshold. We next conducted Sahmer *et al.*'s (2006) non-parametric test of unidimensionality using 1,000,000 bootstrap permutations. This test considers the first two eigenvalues of a set of indicators, whereas the AVE considers only the first. As the four rightmost columns of Table 1 demonstrate, all first eigenvalues exceeded their respective critical values; all second eigenvalues fell below their respective critical values. Thus, the likelihood of confounding the first two dimensions is very low. Overall, our assessment provides evidence of the unidimensionality of all constructs.

With regard to the descriptive statistics, Table 2 contains the square root of the AVE values and the interconstruct correlations. A comparison of the greatest absolute construct correlation (.57 between passive opportunism and exit) with the smallest square root of the AVE (.69 of neglect) affirmed the Fornell-Larcker criterion, in support of discriminant validity.

[Insert Table 2 about here]

4.2 Structural model

To determine how much additional variance is explained by the independent and moderating variables, after accounting for the controls, we ran three separate models for each dependent variable, such that we entered the control variables in model 1; economic dissatisfaction, social dissatisfaction, and risk propensity in model 2; and the interactions in step 3. We tracked the changes in the adjusted squared multiple correlation coefficient (R^2_{adj}, adjusted R^2). The adjusted R-square value is adequate here, because it penalizes any unjustified increase in model complexity. The results for the three dependent variables indicate that Model 2 has more explanatory power than Model 1 (exit: $\Delta R^2_{adj} = .26$, $p < .001$; passive opportunism: $\Delta R^2_{adj} = .21$, $p < .001$; active opportunism: $\Delta R^2_{adj} = .14$, $p < .001$), and in turn, Model 3 has more explanatory power than Model 2 (exit: $\Delta R^2_{adj} = .03$, $p < .05$; passive opportunism: $\Delta R^2_{adj} = .06$, $p < .01$; active opportunism: $\Delta R^2_{adj} = .04$, $p < .05$). Thus it is appropriate to use Model 3 to assess the hypotheses. Furthermore, Model 3 is supported by the data, because the R-square values of all endogenous constructs are substantial: exit ($R^2 = .36$, $R^2_{adj} = .33$), passive opportunism ($R^2 = .40$, $R^2_{adj} = .36$), and active opportunism ($R^2 = .29$, $R^2_{adj} = .25$). Next, we discuss the direct effects, before detailing the moderating effects and testing the hypotheses.

[Insert Table 3 about here]

Risk propensity has a positive effect on exit ($\beta = .12$, $p < .05$), passive opportunism ($\beta = .11$, $p < .05$), and active opportunism ($\beta = .17$, $p < .01$). Risk-prone managers are more likely to exit the relationship and actively and passively act opportunistically than are risk-averse managers. Economic dissatisfaction has a significant and positive effect on exit ($\beta = .11$, $p < .05$) and passive opportunism ($\beta = .21$, $p < .001$). That is, when managers are economically dissatisfied with their relationship, they likely prefer to exit or use passive opportunism. The effect on active opportunism is not significant though ($\beta = .08$, $p > .10$). Social dissatisfaction has significant positive effects on exit ($\beta = .44$, $p < .001$), passive opportunism ($\beta = .33$, $p < .001$), and active opportunism ($\beta = .30$, $p < .001$): The more socially dissatisfied managers are, the more likely they are to exit the relationship and act, actively and passively, opportunistically.

We proposed in H1 that economic dissatisfaction moderates the relationship between risk propensity and destructive behavior. The results indicate that this interaction is significant and negative for passive opportunism ($\beta = -.23$, $p < .05$) and active opportunism ($\beta = -.20$, $p < .05$), but not for exit ($\beta = -.05$, $p > .10$). The negative sign means that the positive effect of risk propensity on passive and active opportunism becomes stronger as economic dissatisfaction decreases, in support of H1bc. Regarding H2, we proposed that social dissatisfaction moderates the relationship between risk propensity and destructive behavior. The results indicate positive and significant interaction terms (exit $\beta = .20$, $p < .05$; passive opportunism $\beta = .19$, $p < .05$; active opportunism $\beta = .19$, $p < .05$). The positive sign means that the positive effect of risk propensity on exit, passive opportunism, and active opportunism becomes stronger as social dissatisfaction increases, in support of H2a–c.

4.3 Interpretation of the findings

To interpret the findings, we plotted the interaction effects (see Figure 2). As depicted, the results show that economic and social forms of dissatisfaction have opposing, interactive effects on destructive behavior. Economic and social dissatisfaction invoke different time orientations in managers' cognition. Managers with a long-term orientation are more sensitive to changes in social dissatisfaction, whereas managers with a short-term orientation are more

sensitive to changes in economic dissatisfaction. Thus, risk-averse managers, who have a short-term orientation, are more likely to perceive the present risk of acting destructively when economic dissatisfaction increases, compared with the future risk of not acting destructively. Conversely, risk-prone managers, who have a longer-term orientation, are more likely to perceive the future risk of not acting destructively when social dissatisfaction increases, compared with the present risk of acting destructively.

At high levels of economic dissatisfaction, risk propensity decreases the likelihood of active and passive opportunism, whereas at low levels of economic dissatisfaction, it increases the likelihood of opportunistic behavior (see Figure 2, Panels a-c). That is, in buyer–seller relationships characterized by high economic dissatisfaction, engaging in opportunism is likely to be perceived as less risky than not acting destructively; in relationships characterized by low economic dissatisfaction, engaging in such destructive behavior should be perceived as more risky than not behaving destructively. These findings are consistent with the shadow of the future argument and suggest that in a long-term relationship, the fear of retaliation likely curbs destructive behavior (Poppo *et al.*, 2008). Opportunism has the potential to generate short-term benefits for the partner that initiates such behaviors, but when this partner holds an expectation that the relationship will endure, the shadow of the future can curb a manager's actions in the present (Joshi and Stump, 1999). In contrast with expectations, the results suggest that risk propensity and economic dissatisfaction do not interact in influencing the intention to exit the relationship. This finding implies that, contrary to the shadow of the future, the shadow of the past has less influence on partners' behavior. That is, the possible damage to the exiting partner's reputation is not perceived as a risk.

[Insert Figure 2 about here]

The results further indicate that at high levels of social dissatisfaction, risk propensity increases the likelihood of destructive behavior, whereas at low levels, risk propensity decreases the likelihood of such destructive behavior (see Panels 2d-f). That is, in buyer–seller relationships characterized by high social dissatisfaction, engaging in destructive behavior is likely to be perceived as more risky than not acting destructively. In this situation, with low levels of affective commitment, partners likely enforce contractual mechanisms, which renders destructive behavior risky (Gilliland and Bello, 2002). Conversely, in relationships characterized by low social dissatisfaction, engaging in destructive behavior may be perceived as less risky than not behaving destructively, because affective commitment is high, and destructive behavior is more likely to be forgiven (Ganesan *et al.,* 2010; Geiger *et al.,* 2012).

5. Discussion and conclusion

The purpose of this study is to develop and empirically test a model that incorporates a moderating effect of the risk perceptions of situational factors on the relationship between a manager's risk propensity and the inclination to act destructively. Overall, the results suggest that a manager's perception of economic and social dissatisfaction moderates the relationship between this manager's risk propensity and its proclivity to exit the relationship, and to engage in active and passive opportunism.

5.1 Theoretical Contributions

We make three theoretical contributions. First, we advance the supply chain management literature. Prior studies examining buyer–seller relationship have focused on situational factors to explain destructive behavior, thereby neglecting to take into account managers' risk propensity (Das and Rahman, 2010; Geyskens and Steenkamp, 2000; Ping, 1993). We show that, given a similar situation, managers with different levels of risk propensity might behave

differently. Destructive behavior could be perceived as more or less risky, depending on how the situation is framed, such that risk-averse and risk-prone managers likely respond differently to the same situation. Specifically, when a manager experiences economic dissatisfaction, a risk-prone manager is less likely to act destructively when compared to a risk-averse manager. Alternatively, when a manager experiences social dissatisfaction, a risk-prone manager is more likely to act destructively when compared to a risk-averse manager. Accounting for managers' risk propensity in explaining different types of destructive behavior is therefore critical.

Second, we advance the risk literature (e.g., Sitkin and Pablo, 1992; Sitkin and Weingart, 1996) by showing that disentangling the relationships between risk propensity, risk perception, and risk behavior provides insights that are not available were we to rely on just one of these concepts. Advocates of the trait approach argue that risk propensity directly affects risk behavior; proponents of the cognitive approach contend that risk perception critically affects risk behavior. The trait approach might be too deterministic in its assertion that the effect of risk propensity is consistent across contexts, because it assumes that risk propensity involves a stable personality characteristic that is difficult to change. As we show, the effect of risk propensity actually depends on managers' cognitions, and their perception of the situation as satisfying or dissatisfying influences the relative perceived risk of acting or not acting. Managers' perceptions moderate the effect of risk propensity, which provides an opportunity to influence their risk behavior; these perceptions can be influenced by one's partner and by framing the situation differently (Kahneman and Tversky, 1979). Thus, only focusing on a manager's risk propensity might be misleading.

The third contribution from analyzing destructive behavior at the managerial level is that, in contrast with different streams of literature that make implicit assumptions about the level of managers' risk propensity, our study demonstrates the critical need to make this level explicit. Studies using an economic exchange perspective, such as transaction cost theory (Williamson, 1975), mostly assume that managers are risk averse. Consistent with this assumption, our findings show that when economic dissatisfaction is low, managers are less likely to act opportunistically, whereas they are more likely to do so when economic dissatisfaction is high. However, these findings are only valid for risk-averse managers. When managers are risk prone and their economic dissatisfaction is low, they are more likely to act opportunistically, but they are less likely to do so when economic dissatisfaction is high. Conversely, studies drawing on a social exchange perspective (Ring and Van de Ven, 1994) assume that managers are risk prone. Our results show that only when social dissatisfaction is low are risk-prone managers less likely to act opportunistically and only when it is high are the managers more likely to engage in opportunism. When managers are risk averse, social dissatisfaction does not have a significant effect on their destructive behavior. Thus, the incompatible implications and diverging recommendations reported by prior studies that draw on economic versus social exchange theories could be reconciled by taking managers' risk propensity into account.

5.2 Managerial Implications

In general, the supply chain management literature stipulates that exchange partners should concentrate on discouraging their counterpart's destructive responses (see e.g. Grudinschi *et al.*, 2014), as such acts may undermine the value creation potential of a buyer–seller relationship. To this extent, they should closely monitor their resellers' economic and social satisfaction and should focus on preventing destructive behavior using contractual and relational governance. Our results imply that the use of governance systems should be adapted to the risk propensity of partners' representatives. Using non-adapted mechanisms might induce, rather than prevent, destructive behavior. For example, the use of relational

governance mechanisms, such as building commitment and trust might be effective only with risk-prone partners; risk-averse managers are less sensitive to such relational mechanisms. To prevent destructive behavior from risk-averse partners, short-term economic incentives might be preferable.

Risk management approaches for buyer–seller relationship managers primarily focus on relationship level factors (Harland *et al., 2003)*, such as types relationship risks and solutions, because management of relationship risk increase the likelihood of relationship success (Hoffman *et al.*, 2013). It could be valuable to incorporate manager's risk propensity in risk management approaches, as our study shows that varying degree of risk proneness differentially influence decision-making. For example, having managers working in teams may prevent the potentially adverse consequences of individual risk-taking behavior, as team members jointly decide on how to respond to a specific situation (Grudinschi *et al.*, 2014). Furthermore, as part of risk management education, training initiatives may incorporate exercises and role plays to create awareness about a manager's risk propensity, as this may prevent erroneous decision-making.

5.3 Limitations and future research

Our study provides several avenues for future research. Individual-level characteristics only determine directly and indirectly to 6–7% of explained variance, compared to the 20%–24% explained by situational factors. However, even if the contribution of a manager's risk propensity seems rather small in comparison with the effects of the situational factors, it should be noticed that is only one facet of a manager's personality. Studies grounded in upper echelons theory for example found that managers' experiences, values, and personalities influence their interpretations of the situations they face and, in turn, affect their choices (Hambrick, 2007). Studies investigating how managers respond to adverse situations in alliance relationships suggest that taking account of managers' cognitive and emotional processes might be fruitful candidates to further studies seeking to increase explanatory power (Vidal, 2014). Therefore, accounting for other personal traits and other individual-level factors should increase explained variance.

We focus on three destructive behaviors—exit, passive and active opportunism—, whereas other, more constructive, behaviors might also occur in buyer–seller relationships. For example, Rusbult and colleagues (1992) proposed the EVLN framework, which comprises four behaviors (exit, voice, loyalty, and neglect) organized along two dimensions: active–passive and constructive–destructive behaviors. The EVLN typology has even been extended to seven behaviors by (Tjemkes and Furrer, 2010). In this study, we focus on destructive behavior to offer a more consistent theoretical framework. However, further studies would be useful to investigate if our findings also apply on the constructive side of managers' behavior in buyer–seller relationships.

In addition, the three destructive behaviors we study are not independent, because managers can use combinations of destructive behaviors. Their interdependence thus could be modeled to determine if managers use them sequentially, as suggested by Ping (1999). For example, dissatisfied managers might start with passive or active opportunism; if their satisfaction does not improve, they might turn to exit. A study of sequential behavior requires longitudinal data. In contrast, we focus solely on unilateral responses and regard behavioral responses as a decision, made autonomously by one of the parties.

In terms of limitations, we measure behavioral intentions rather than actual behaviors. Intentions are not flawless predictors of behavior, though our approach attempts to assess preferences for using a particular behavioral response and thereby suggests behavioral intentions. Field studies recording purchasing managers' actual behavior could complement our findings. It also might be helpful to investigate managers' destructive behavior across

different phases of the buyer–seller relationship, as suggested by Claycomb and Frankwick (2010), because experience with a partner might generate different assessments of situational factors and their risk.

To conclude, by demonstrating that managers' risk propensity influences preferences for acting opportunistically or exiting the relationship, both directly and interactively with relationship characteristics, our study offers new insights about buyer–seller relationship (risk) management. Relationship outcomes cannot be dissociated from the people who manage them, because managers' risk propensity strongly influences their preferences for acting more or less destructively.

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Table 1: Measurement Model Assessment

Construct	**α**	**ρ_c**	**AVE**	λ_1	$\lambda_1^{crit}(p = .001)$	λ_2	$\lambda_2^{crit}(p = .001)$
Exit	.80	.87	.63	2.52	1.31	.60	.96
Passive opportunism	.72	.82	.47	2.37	1.35	.83	.99
Active opportunism	.77	.85	.59	2.38	1.31	.66	.96
Risk propensity	.75	.83	.56	2.29	1.31	.77	.96
Economic dissatisfaction	.67	.80	.50	2.03	1.31	.75	.96
Social dissatisfaction	.77	.85	.59	2.37	1.31	.66	.96

Notes: n = 262. Reliability and unidimensionality of reflective constructs; first and second eigenvalues and respective critical values are based on 1,000,000 permutations (Sahmer *et al.*, 2006).

Table 2: Descriptive Statistics and Correlations

Variables	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Exit	2.40	1.14	**.79**													
2. Passive opportunism	2.29	.96	.57	**.69**												
3. Active opportunism	2.43	1.13	.32	.46	**.77**											
4. Economic dissatisfaction	3.30	1.36	.32	.36	.23	**.71**										
5. Social dissatisfaction	2.25	1.29	.50	.42	.32	.40	**.77**									
6. Risk propensity	3.94	1.14	.22	.21	.26	.06	.20	**.75**								
7. Firm size (log empl.)	5.11	2.38	.05	−.08	.01	.05	.00	−.02								
8. Firm's relative power	4.06	1.55	.06	−.05	.15	.00	−.11	.01	.15							
9. Alliance duration (log)	1.75	.74	−.01	.10	.02	−.13	−.02	−.01	−.09	−.10						
10. Rel.-specific investments	4.92	1.31	.02	−.12	.04	−.15	.05	.07	.06	.07	.01					
11. Alternative availability	4.20	1.09	.37	.25	.23	.21	.37	.13	.06	.12	.02	.10				
12. Long-term orientation	5.37	1.54	−.02	−.25	−.14	−.07	−.04	−.01	.01	.07	−.08	.09	.02			
13. Experience	2.86	1.53	.16	.09	.10	.25	.11	.00	−.13	−.06	−.11	−.03	.01	−.07		
14. Social desirability	7.70	1.49	−.13	−.10	−.18	−.09	−.04	−.16	−.02	.03	−.06	−.02	−.16	−.03	−.05	
15. Marker	5.63	1.21	−.03	−.16	−.05	−.27	−.08	.03	.00	−.02	.09	.01	.09	.05	−.14	.06

Notes: $n = 262$. Correlations $r > |.12|$ are significant at $p < .05$. Square root of the AVE appears in bold on the diagonal.

Table 3: Structural Model Results

	Independent variable (IV)	DV: Exit						DV: Passive Opportunism						DV: Active Opportunism					
		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Control Variables	Alliance duration (log)	−.01	n.s.	.02	n.s.	−.00	n.s.	.09	°	.11	**	.09	*	.04	n.s.	.05	n.s.	.03	n.s.
	Alternative availability	.15	*	.14	**	.13	*	.15	*	.15	**	.16	**	.05	n.s.	.04	n.s.	.04	n.s.
	Experience	.18	**	.11	*	.12	*	.06	n.s.	−.01	n.s.	.01	n.s.	.11	*	.06	n.s.	.08	n.s.
	Long-term orientation	−.03	n.s.	.00	n.s.	.02	n.s.	−.23	***	−.21	***	−.18	***	−.16	**	−.13	**	−.11	*
	Firm's relative power	.05	n.s.	.09	°	.11	*	−.04	n.s.	−.00	n.s.	.02	n.s.	.17	**	.19	**	.21	***
	Marker	−.02	n.s.	.01	n.s.	.04	n.s.	−.16	**	−.11	*	−.09	*	−.01	n.s.	.00	n.s.	.02	n.s.
	Social desirability	−.11	*	−.07	°	−.07	°	−.08	n.s.	−.03	n.s.	−.04	n.s.	−.19	***	−.14	**	−.15	**
	Firm size (log employees)	.06	n.s.	.05	n.s.	.05	n.s.	−.05	n.s.	−.07	°	−.08	*	.01	n.s.	−.01	n.s.	−.02	n.s.
	Rel. specific investments	−.01	n.s.	−.05	n.s.	−.03	n.s.	−.02	n.s.	−.04	n.s.	.00	n.s.	.05	n.s.	−.01	n.s.	.03	n.s.
Direct Effects	Risk propensity			.13	**	.12	*			.13	**	.11	*			.18	***	.17	**
	Economic dissatisfaction			.12	*	.11	*			.22	***	.21	***			.09	°	.08	n.s.
	Social dissatisfaction			.42	***	.44	***			.30	***	.33	***			.27	***	.30	***
Moderating Effec	Risk propensity × Economic dissatisfaction					−.05	n.s.					−.23	*					−.20	*
	Risk propensity × Social dissatisfaction					.20	*					.19	*					.19	*
		Model Fit		Model Fit		Model Fit		Model Fit		Model Fit		Model Fit		Model Fit		Model Fit		Model Fit	
	R^2	.07		.33		.36		.13		.34		.40		.10		.24		.29	
	Adjusted R^2	.04	***	.30	***	.33	***	.10	***	.31	***	.36	***	.07	***	.21	***	.25	***
	Δ adjusted R^2			.26	***	.03	*			.21	***	.05	**			.14	***	.04	*

Notes: $n = 262$.
*** $p < 0.001$; ** $p < 0.010$; * $p < 0.050$; ° $p < 0.100$, one-sided test; n.s. not significant

Figure 1: Conceptual Model

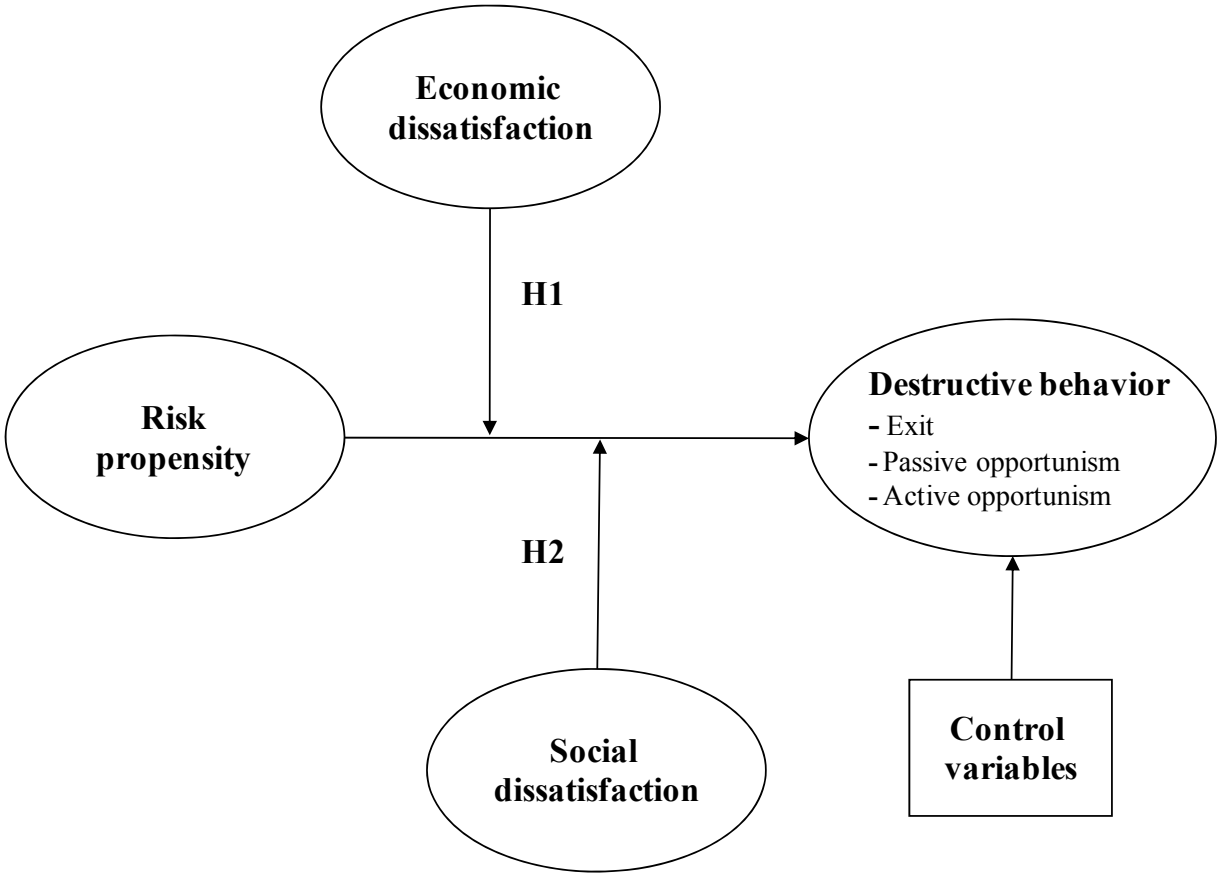
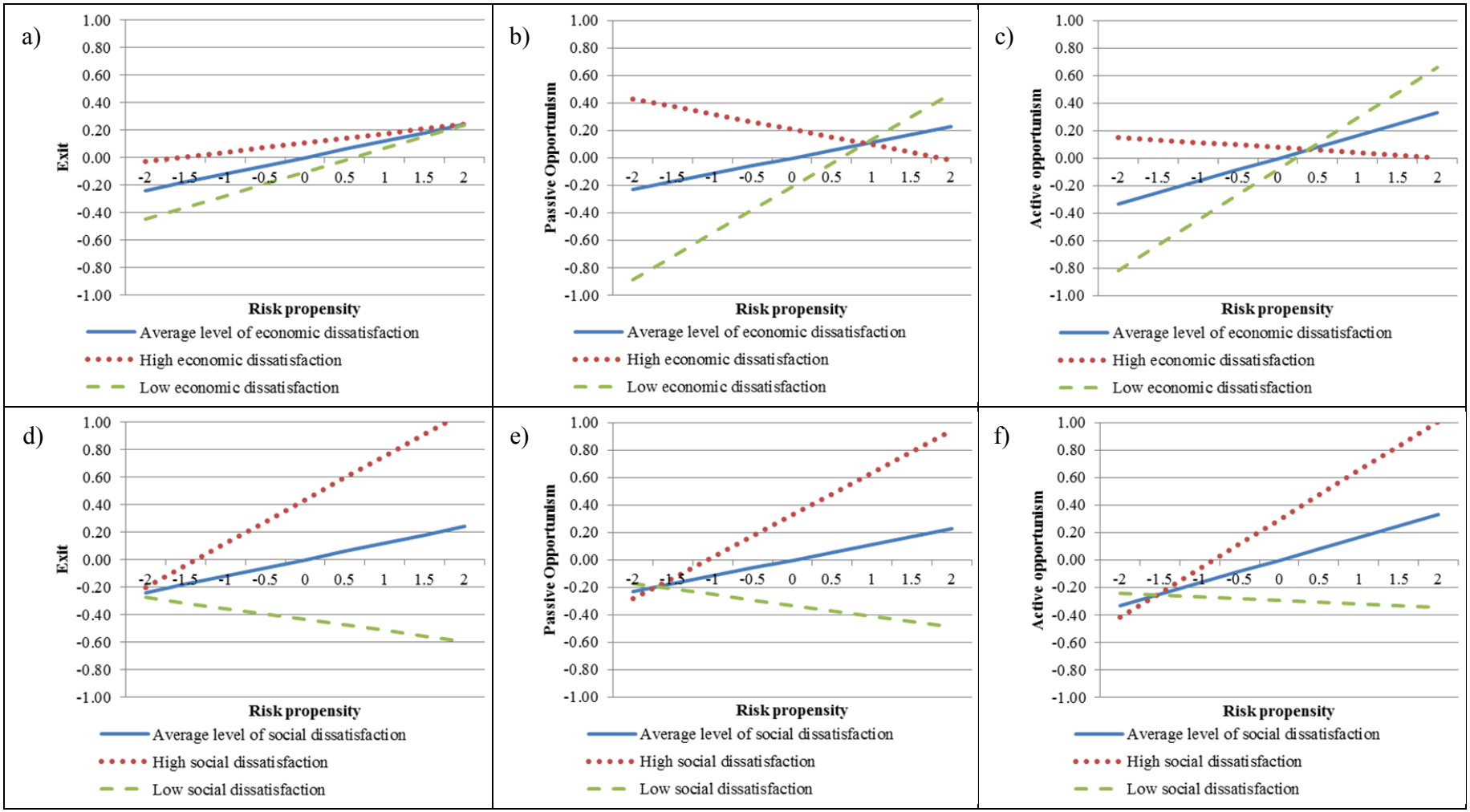


Figure 2: Interaction Effects



Appendix: Measurement Items and Standardized Loadings

Indicators	Standardized PLS Loadings
Dependent variables	
Exit (based on Geyskens and Steenkamp 2000; Ping 1999)	
I think that I will probably stop doing business with this supplier	.74
I am not likely to continue the alliance with this supplier	.85
I believe that I will terminate the relationship with this supplier	.75
I have the intention to exit the relationship with this supplier	.82
Passive opportunism (based on Ping 1993)	
I do not plan anything extra to solve the situation with this supplier	.65
I will not initiate anything to improve the situation with this supplier	.66
I will not deal with the situation	.69
I do not intent to put any effort in the relationship with this supplier to improve the situation	.73
I will not put any more resources (time and money) into the relationship with this supplier	.71
Active opportunism (based on John (1984); Ping (1993))	
I will purposefully exaggerate the situation in order to get additional benefits	.70
I will change the facts slightly in order to get what I need from my partner.	.75
I will describe the situation as negatively as possible to this partner in order to gain additional benefits	.80
I will deliberately make the situation sound more problematic than it really is to obtain more benefits from the relationship with this partner	.82
Independent variables	
Risk propensity (based on Jaworski and Kohli 1993)	
I believe that higher risks are worth taking for higher rewards	.60
I accept occasional failures as being normal	.64
I like to take big risks	.89
I encourage the development of risky strategies, knowing that some of them will fail	.83
Economic dissatisfaction (based on Geyskens and Steenkamp 2000; Tjemkes and Furrer 2010)	
The relationship with this partner has provided my firm with profits (r)	.69
Overall, the performance of this alliance is very satisfactory (r)	.75
This alliance has realized the goals my firm set out to achieve (r)	.72
The relationship with this partner is very attractive with respect to efficiency (r)	.67
Social dissatisfaction (based on Geyskens and Steenkamp 2000; Tjemkes and Furrer 2010)	
This partner only expresses negative criticism about my firm	.71
This partner leaves my firm in the dark about things my firm ought to know	.78
This partner refuses to explain the reasons for its policies	.81
The working relationship between my firm and this partner is characterized by feelings of hostility	.78

Notes: n = 262; (r) = reversed item.

A Circumplex Model of the Behavioural Antecedents of Unintended Strategic Alliance Termination: A PLS-based Analysis.

Completed Research Paper

Olivier Furrer
University of Fribourg, Switzerland
e-mail: olivier.furrer@unifr.ch

Brian Tjemkes
VU University Amsterdam, The Netherlands
e-mail: btjemkes@feweb.vu.nl

Jörg Henseler
University of Twente, The Netherlands
e-mail: j.henseler@utwente.nl

Abstract

How do firms terminate unsatisfactory strategic alliances? Previous literature on alliance termination has considered exiting an alliance to be a single event. Drawing on circumplex response strategy literature, we propose that alliance termination is part of an integrated system of behavioural responses to adversity. The findings of a scenario-based experiment, obtained through PLS modelling, demonstrate that alliance termination is part of an integrated structure of response strategies governed by two active–passive and constructive–destructive dimensions, which suggests that intermediate behavioural responses precede alliance termination. The article also shows that alliance termination can occur through two alternative termination paths depending on the nature of the adverse situation. Building on these findings, the article concludes with some guidelines for managers confronted with alliance termination.

Keywords: *Strategic alliances, Circumplex model, Partial least squares, Response strategies.*

1. Introduction

In recent decades, strategic alliances have emerged as cornerstones of the competitive strategy of many firms (Kale & Singh, 2009). However, they also tend to exhibit a mix of promise and peril, resulting in a high termination rate of between 60 and 70% (Hughes & Weiss, 2007). Such a high failure rate highlights the need for a better understanding of alliance termination, as unintended dissolution could often be avoided if the managers involved better understood the early warning signals (Ariño & Doz, 2000).

While there is a large amount of scholarly work on alliance formation and maintenance, little is known about the dissolution of alliances. In particular, studies of *how* partners exit from alliances are virtually non-existent (for a notable exception, see Alajoutsijärvi et al., 2000). Most scholars consider alliance dissolution to be a natural and unavoidable stage in the life cycle of an alliance and have identified a wide range of environmental, inter-partner, and partner-related factors that influence alliance dissolution (Makino et al., 2007; Park & Ungson, 2001). Despite such important advances, these alliance termination studies tend to view alliance dissolution as a single event, which they treat as a black box, and neglect the process that leads to dissolution (Halinen & Tähtinen, 2002). There is a particular dearth of studies on the behaviour of partner firms leading up to termination. A better understanding of behavioural antecedents of alliance dissolution would offer alliance managers the opportunity to react before it is too late.

To fill this void, the present study has drawn on the circumplex response strategy literature (Furrer et al., 2012a, b), which suggests that, in addition to alliance termination (i.e., exit), there are six other response strategies that alliance managers can use to deal with adverse alliance situations: opportunism, aggressive voice, creative voice, considerate voice, patience, and neglect. The study also suggests that the seven response strategies are not independent from each other; instead, they are organised systematically according to their degree of compatibility and incompatibility (Tjemkes et al., 2011). This made it possible to develop and assess a model of alliance termination that proposes two alternative termination trajectories: an active path and a passive path. The model and its predictions are empirically tested with PLS path modelling. In line with the topic of this conference, partial least square (PLS) modelling was used in a novel way to test the structural paths toward exit.

2. A Circumplex Model of Alliance Termination

2.1. Alliance termination

Alliance termination refers to the dissolution of an alliance resulting from a decision by one or more partners to exit the relationship (Ping, 1999). Although an alliance may also end on a predetermined date or when the partners have realised their objectives, the extant alliance termination studies have considered dissolution to be an unintended event triggered by unanticipated contingencies (Makino et al., 2007). These contingencies span a wide variety of factors, the most critical of which being external environment, partner firm's behaviour, and inter-partner relational outcomes. Studies have shown that changes in a partner firm's behaviour, such as changes in strategic objectives (Harrigan & Newman, 1990) and knowledge accumulation (Hamel, 1991), can lead to alliance termination. A third stream of research found that premature alliance dissolution can be caused by inter-partner relational outcomes, such as low economic performance poor working relationships (Ariño & de la Torre, 1998).

Together, these studies have advanced the understanding of *why* alliance partners

prematurely terminate their alliance relationships. However, because these studies investigate the factors that influence alliance termination, they consider the termination decision as a single event in the life cycle of an alliance. In doing so, they create a black box around the dissolution process and fail to account for the behaviour of the partners that lead to termination. Consequently, these studies reduce the ability of managers to prevent or manage the dissolution, as they ignore critical early warning signals incorporated in partners' behaviour.

Anecdotal evidence suggests that instead of viewing alliance termination as a single event, it should be seen as a trajectory involving a succession of behavioural responses to adverse contingences. For example, Awazu (2006) found in series of case studies that instead of terminating an alliance immediately, it is better to phase it out by reducing dependency on the alliance and then moving towards termination in graded phases. Lowering the intensity of alliances gives a partner firm an opportunity to reassess its needs and find a new partner to reach its objectives if warranted. To address this issue and identify alternative alliance termination trajectories, we next draw on response strategy literature.

2.2. Response strategies

A response strategy is a manager's intended reaction to relationship dissatisfaction (Tjemkes & Furrer, 2010; Tjemkes et al., 2012). The termination of an alliance and, more particularly, a partner's exit from an alliance, is one of several possible responses to adverse contingencies. Building on the active–passive and constructive–destructive two-dimensional space, Furrer et al. (2012a) demonstrated that a circumplex structure best represents the inter-relationships among the seven response strategies. A circumplex structure systematically organises response strategies according to their degree of compatibility and incompatibility (Fabrigar et al., 1997). A total of seven response strategies have been distinguished, and these can be classified according to their degree of activeness–passiveness and constructiveness–destructiveness (Furrer et al., 2012a).

Exit refers to the termination of the current alliance and is the most destructive response to an adverse situation (Rusbult et al., 1982). *Opportunism* represents an active–destructive response used by alliance partners in an attempt to increase their benefits from the alliance in ways that are explicitly or implicitly prohibited in the alliance contract (Ping, 1993). *Considerate voice* is a constructive and slightly active response strategy that is used to change an adverse situation by communicating in a relationship-preserving manner and discussing problems cooperatively with once partner (Hagedoorn et al., 1999). Compared to considerate voice, *aggressive voice* is more destructive and more active. It refers to the forceful imposition of own views on one's partners without making any attempt to avoid conflicts (Hagedoorn et al., 1999). *Creative voice* refers to the generation of innovative and potentially useful solutions to address the adverse situation (Zhou & George, 2001), which makes it both active and constructive (Furrer et al., 2012a). *Patience* refers to the response strategy used by an alliance partner that silently abides the issues in the belief that the situation will improve in the future (Ping, 1993). Patience is both constructive and passive because it involves voluntarily ignoring the issue in the hope that the situation will resolve itself. Finally, *neglect* is passive but destructive because as the alliance partner allows the relationship to deteriorate (Rusbult et al., 1982). A neglectful alliance manager believes that an alliance does not deserve to be salvaged and expends little effort keeping it afloat (Pressey & Qu, 2007).

2.3. Alliance termination paths

One important implication of the circumplex structure of response strategies is that

adverse contingencies do not necessarily and immediately lead to alliance termination. The circumplexity of the model allows for two alternatives paths towards exit. The active path towards exit stipulates that exit is associated with a series of anteceding active response strategies of increasing destructiveness: considerate voice, creative voice, aggressive voice and opportunism. In contrast, the passive path towards exit stipulates that exist is associated to a series of anteceding passive response strategies of increasing destructiveness: considerate voice, patience, and neglect.

> Hypothesis 1a: Exiting an alliance is associated with a series of increasingly destructive active behaviours in the following order: considerate voice, creative voice, aggressive voice, and opportunism.

> Hypothesis 1b: Exiting an alliance is associated with a series of increasingly destructive passive behaviours in the following order: patience and neglect.

The active and passive paths are likely to be triggered by different types of adverse contingencies. Previous studies (e.g., Tjemkes & Furrer, 2010; Tjemkes et al., 2012) have suggested that economic and social satisfaction, alliance-specific investments, and alternative availability influence the use of active or passive response strategies. Consistent with the investment model (Tjemkes & Furrer, 2010), social satisfaction, which pertains to the evaluation of the psycho-social aspects of an alliance (Geyskens & Steenkamp, 2000) and alliance-specific investments, which represent sunk costs that cannot be easily redeployed to another alliance without important costs (Ping, 1993), are likely to trigger the passive path towards exit. The findings of Tjemkes et al. (2012) also suggest that economic satisfaction and alternative availability might influence which termination path would be followed. An economically satisfied manager would consider the alliance to be a success in terms of goal attainment, effectiveness, productivity and the resulting financial outcomes (Geyskens & Steenkamp, 2000). Therefore, managers who are satisfied with the economic performance of the alliance are more likely to respond with patience (Tjemkes & Furrer, 2010), which would trigger the passive path towards exit if the adverse situation is not resolved. Alternative availability is the extent to which a partner firm in the alliance possesses attractive alternatives to reach its objectives (Ping, 1993). Firms without alternatives have strong incentives to make the current alliance work and to use considerate voice to improve the situation (Tjemkes & Furrer, 2010); if the adverse situation is not resolved, this is likely to be the trigger for the active path towards exit.

> Hypothesis 2: The active path towards exit is likely to be triggered by (a) financial dissatisfaction and (b) a lack of alternatives.

> Hypothesis 3: The passive path towards exit is likely to be triggered by (a) social dissatisfaction and (b) alliance-specific investments.

3. Data and Methods

The empirical part of this study uses PLS path modelling first to assess the circumplex structure of alliance termination and then test the structural model of the two paths towards exit.

3.1. Study setting and procedure

To assess the structure and the predictions of the circumplex model of response strategies, a scenario-based experiment was designed with a method that has proven useful for studying response strategies (Rusbult et al., 1988; Tjemkes & Furrer, 2010). To trigger response strategies, scenarios were developed that described an adverse situation in a strategic alliance between two partner firms. Following the design developed by Tjemkes and Furrer (2010), the scenarios manipulated four exchange variables—economic satisfaction, social satisfaction, alliance-specific investments, and the availability of alternatives at two levels each. The manipulations were combined to form 16 different scenarios and the all-positive scenario was removed because pre-tests indicated that it was not adverse enough to trigger a response.

We used business students as respondents to test the hypotheses. The sample consisted of 336 respondents, 303 of whom delivered complete information. The average age of the respondents was 26.4 years, and 32% were female. During class hours, students received an invitation to participate in an experiment. Participants in the study were asked to read the scenario and answer the questions as if they were the alliance manager responsible for dealing with the adverse situation.

3.2. Response strategy measurement

In order to measure the seven response strategies, the scales developed and validated by Tjemkes and Furrer (2010) were used. Exit was measured with items related to whether the respondent intended to end the relationship or stop doing business with their alliance partner. The measures for opportunism included items such as withholding information, exaggerating the severity of the situation, and escaping from contractual obligations. Aggressive voice items referred to pushing the firm's solution on its partner forcefully and being persistent. For creative voice, the items used related to the creation of novel and creative solutions. To measure considerate voice, the items consisted in working to create a consensus and finding a satisfactory solution acceptable for both partners. Patience was measured with items such as optimistically waiting for better times and trusting that the situation would resolve itself. The items for neglect referred to not dealing with the issue, not putting additional effort into the relationship, and not presenting initiatives to improve the situation. See Appendix A for the complete list of the items. All constructs were operationalised by reflective multi-item measures using seven-point Likert scales, ranging from "I would definitely not react in this way" [1] to "I would definitely react in this way" [7].

3.3. Exchange variables measures and manipulation checks

The four exchange variables were measured in order to assess the effects of the scenarios' manipulations. Economic satisfaction represents a partner's evaluation of the financial outcomes of the relationship (Geyskens & Steenkamp, 2000). Social satisfaction pertains to managers' evaluation of the psycho-social aspects of the relationship; it implies that interactions with partners are fulfilling, gratifying and facile (Geyskens & Steenkamp, 2000). Alliance-specific investments are sunk costs that cannot be easily redeployed to another relationship without some sacrifice in the productivity of the assets or a cost to adapt them to the new context. When such investments are unilateral and would be lost if the alliance were dissolved, they act as exit barriers. Available alternatives refer to the extent to which a partner firm possesses attractive alternatives that could enable managers to attain their firms' objectives (Ping, 1993, 1999). The availability of attractive alternatives provides managers with a source of power over the situation, whereas a dearth of alternatives increases their

dependence on counterparts (Emerson, 1962). Exchange variable were measured by multiple items on seven-point Likert scales.

3.4. Control variables

Several control variables were measured. Because some response strategies (such as considerate voice) may be more socially desirable than others (such as opportunism), the M-C2 version of the Marlowe-Crowne Social Desirability scale was included (Strahan & Gerbasi, 1972). In addition, the respondents' age and gender was measured because these individual characteristics have been shown to influence response strategies (e.g., Rusbult et al., 1988). In addition, one item was used to assess the perception of the severity of the situation described in the scenario.

4. Analysis

4.1. Measurement model

The reliability and validity of the construct measurement was assessed based on the recommendations formulated by Hair et al. (2012) and Henseler et al. (2009). The internal consistency reliability was estimated using Cronbach's alpha (α) and Jöreskog's rho (ρ_c). α is typically a lower bound to reliability, and ρ_c, which relies on PLS' upwards-biased construct loadings (Gefen et al., 2011), rather overestimates the reliability. Therefore, the true construct reliability is likely to lie between α and ρ_c. Based on reliability considerations, five indicators were discarded (see Appendix A for the list of indicators and their standardised loadings). As shown in the Appendix, all constructs exhibit sufficient levels of internal consistency reliability, passing the conventional threshold of .7 (Nunnally, 1978).

Convergent validity was assessed using the average variance extracted (AVE) method. All AVE values are above the critical value of .5 (Fornell & Larcker, 1981), which indicates that all constructs are uni-dimensional. The Appendix also shows the AVE values as well as the construct correlations. A comparison of the largest squared construct correlation (that is, .30 between considerate voice and creative voice) with the smallest AVE (.52 of considerate voice) shows that the Fornell-Larcker criterion is met. Therefore, discriminant validity can also be confirmed.

Finally, the experimental manipulations were validated. Bootstrapping was used with 1000 bootstrap samples and the individual sign change option was used to quantify the relationships between the experimental factors and the manipulation check variables. The correlation was determined for all four experimental factors, as was its significance and Cohen's f^2 (Cohen, 1988), economic satisfaction ($R = .58$, $p < .001$, $f^2 = .51$), social satisfaction ($R = .67$, $p < .001$, $f^2 = .81$), alliance-specific investments ($R = .56$, $p < .001$, $f^2 = .46$), and availability of attractive alternatives ($R = .64$, $p < .001$, $f^2 = .70$). Overall, the experimental manipulations showed adequate performance given that the four experimental factors explained their measured counterparts significantly and substantially.

In order to assess the circumplex structure of response strategies with PLS, the two active–passive and constructive–destructive dimensions of the structure were modelled first, we followed the procedure developed by Furrer et al. (2012b). The two passive–active and constructive–destructive dimensions of the structure were modelled first to assess the circumplex structure of response strategies. An enhanced hierarchical component model (depicted in Appendix B) was estimated to validate these two dimensions, using the repeated-indicator approach (Wetzels et al. 2009; Ringle et al. 2012) in combination with the factor-

weighting scheme (Lohmöller, 1989). We relied on deflation as a sequential estimation approach (Lohmöller, 1989), which implied two estimation rounds. The first round estimated the loadings of the first dimension of response strategies. The second round used the measurement residuals of the first dimension as indicators for the second component. This makes it possible to identify two orthogonal dimensions.

The hierarchical component model was enhanced by an orthogonal component rotation, including sign constraints. The PLS algorithm[1] was extended to determine the angle φ between the first higher-order dimension and the exit construct. Both higher-order dimensions of response strategies were then orthogonally rotated using the following rotation matrix:

$$R_{-\varphi} = \begin{pmatrix} \cos\varphi & \sin\varphi \\ -\sin\varphi & \cos\varphi \end{pmatrix}$$

Moreover, the first higher-order dimension was multiplied with the sign of the correlation with the exit construct. The second higher-order dimension was multiplied with the sign of the correlation with the aggressive voice construct. This procedure circumvented sign indeterminacy and ensured that the first dimension of the response strategy space (constructive–destructive) was equal to the exit construct, whereas the second dimension represented the passive–active dimension. Table 2 lists the path coefficients of the paths from the two dimensions to the seven response strategies as polar coordinates. For each response strategy, radius r was obtained as the Euclidean distance from the origin

$$r = \sqrt{b_1^2 + b_2^2}\ ,$$

where b_1 is the path coefficient from the constructive - destructive dimension and b_2 is the path coefficient from the passive - active dimension. The corresponding angle φ ($0° \leq \varphi < 360°$) was obtained by

$$\varphi = \mathrm{sgn}(b_2) \cdot \left(\cos^{-1}(b_1 / r) - 180°\right) + 180°$$

4.2. Structural model results

The guidelines established by Bagozzi (1977) were followed in order to evaluate the outcomes of the experiment and test Hypothesis 1. Bagozzi suggested that, instead of taking the direct manipulations as the independent variables, it would be preferable to model latent variables as independent variables, which are measured by manipulation checks and influenced by the manipulations. Based on this configuration, the model was estimated as depicted in Figure 1. SmartPLS 2.0 M3 was used (Ringle et al., 2005). To avoid possible problems of non-convergence, the path-weighting scheme was chosen and the factor-weighting scheme for triangulation was used (Henseler, 2010). No differences were found. We also applied bootstrapping with 1000 bootstrap samples and the individual sign change option for inference statistics.

The control variables were kept in the model because they had some influence on the endogenous variables. As anticipated, social desirability bias negatively affected opportunism ($\beta = -.072$, $p < .10$); it also stimulated considerate voice ($\beta = .127$, $p < .05$). Severity reduced the respondents' patience ($\beta = -.207$, $p < .001$) and made them more likely to use creative voice ($\beta = .094$, $p < .10$). There were also some effects of age and gender.

The model was able to explain a substantial proportion of variance of the endogenous constructs. Almost half of the variance of the final outcome variable (exit) could be explained

[1] We programmed this extension as part of an implementation of the PLS path modeling algorithm in R 2.14.1 (R Development Core Team, 2011). Results obtained by the R-based implementation of the standard PLS algorithm were equal to results obtained by SmartPLS 2.0 M3 (Ringle et al. 2005). The R code is available from the third author upon request.

(R^2 = .477). The other response strategies' coefficients of determination ranged from .047 for aggressive voice to .344 for creative voice. Figure 1 reports all of the R^2-values and path coefficient estimates.

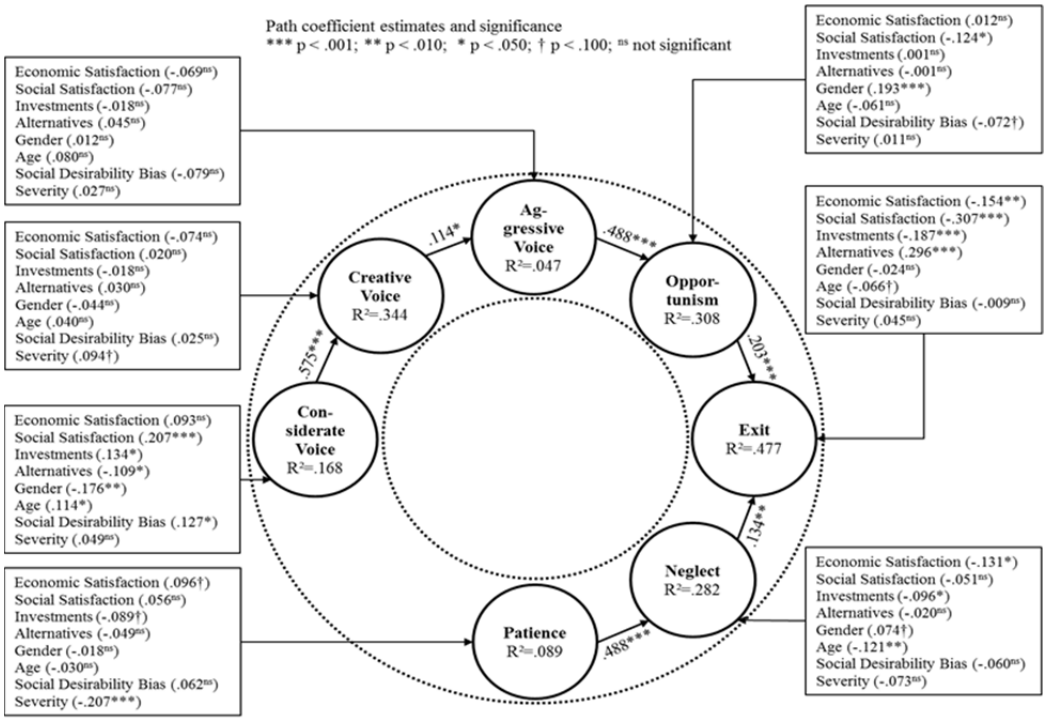


Figure 1: Model Results

The four manipulated exchange variables have different effects on the response strategies. A lack of economic satisfaction leads to neglect ($\beta = .131$, $p < .05$, $f^2 = .018$) and exit ($\beta = .154$, $p < .01$, $f^2 = .036$). However, the higher the economic satisfaction, the greater the likelihood that respondents are patient ($\beta = .096$, $p < .10$, $f^2 = .008$). Social satisfaction stimulates considerate voice ($\beta = .207$, $p < .001$, $f^2 = .042$) and causes respondents to refrain from opportunism ($\beta = -.124$, $p < .05$, $f^2 = .016$) and exit ($\beta = -.307$, $p < .001$, $f^2 = .081$). Large investments make respondents more inclined to use considerate voice ($\beta = .134$, $p < .05$, $f^2 = .019$); otherwise, patience ($\beta = -.089$, $p < .10$, $f^2 = .008$), neglect ($\beta = -.096$, $p < .05$, $f^2 = .013$) and exit ($\beta = -.187$, $p < .001$, $f^2 = .061$) are less likely. The availability of attractive alternatives has a negative influence on considerate voice ($\beta = -.109$, $p < .05$, $f^2 = .012$) and makes exit more likely ($\beta = .296$, $p < .001$, $f^2 = .155$).

As hypothesised, there is empirical support for the existence of two paths towards alliance termination. Exiting an alliance is preceded by a series of increasingly destructive active behaviours. Considerate voice leads to creative voice ($\beta = .575$, $p < .001$, $f^2 = .413$), creative voice leads to aggressive voice ($\beta = .114$, $p < .05$, $f^2 = .013$), aggressive voice leads to opportunism ($\beta = .488$, $p < .001$, $f^2 = .328$), and opportunism ultimately leads to exit ($\beta = .203$, $p < .001$, $f^2 = .069$). Therefore, Hypothesis 1a is supported.

Moreover, exiting an alliance is also preceded by a series of increasingly destructive passive behaviours. Patience leads to neglect ($\beta = .482$, $p < .001$, $f^2 = .292$), and neglect ultimately leads to exit ($\beta = .134$, $p < .01$, $f^2 = .031$). Therefore, Hypothesis 1b is also supported.

5. Discussion

5.1. Managerial implications

Understanding the trigger factors for exiting, as well as disengagement behavioural paths, is essential in order to avoid the costs and adverse repercussions resulting from alliance failure. Therefore, the findings of this study could help managers anticipate alliance termination, intervene to avoid the premature termination and dissolution of the alliance, or better manage their exit from the alliance. The circumplex model of alliance termination, specifically the compatibilities between response strategies, enables managers to assess the nature of their own and their counterparts' responses. A response to an adverse situation functions as a predictor of a future response, which enables managers to anticipate future behaviours. In other words, opportunism functions as a warning signal for exit, aggressive voice functions as a warning signal for opportunism, creative voice is a warning signal for aggressive voice, and considerate voice is a warning signal for creative voice. Similarly, neglect functions as a warning signal for exit, and patience for neglect. In order to capitalise on these early warning signals and prevent unnecessary evolution towards exit, managers should closely monitor their partners' behaviour and intervene in a timely manner.

Without management intervention, an alliance is likely to head towards exit. Therefore, it is crucial to choose the appropriate lever with which to turn around the active or passive trajectory towards exit. In order to avoid a partner's opportunism turning into exit, managers may invest in building relational quality, install monitoring mechanisms, deploy social sanctions, and require their partner to make alliance-specific investments to reduce opportunism and trigger constructive responses. Similarly, in order to avoid exit and turn neglect into a constructive patient behaviour, managers could erect exit barriers that promote constructive behaviour, and encourage communication that triggers more active responses.

Managers who are dissatisfied with the alliance and are considering terminating the relationship should understand that their response behaviour signals their intentions to their partners. Therefore, to avoid their counterpart locking them in with pre-emptive measures, these managers must plan their exit from the relationship by taking account of the intermediate response strategies. As the active path toward termination is more easily detected, managers might use the passive path to avoid retaliation (Pressey & Qu, 2007).

5.2. Methodological implications

The present paper illustrates how PLS path modelling can be used to assess a multi-dimensional set of constructs. More specifically, as far as can be ascertained, our study is the first to apply PLS as a means for analysing a circumplex structure. Estimating a hierarchical component model and applying deflation made it possible to extract two dimensions spanning a plain that contained alliance termination and anteceding response strategies. From a methodological viewpoint, this study provides a blueprint for future studies that explore the dimensionality of other complex strategy phenomena.

5.3. Limitations and future research

The empirical study has certain limitations. Firstly, the use of an experimental design, which used business students as respondents, increased the internal validity of the results but could also raise questions about external validity. Despite the fact that the results supported the predictions, further studies should conduct survey research in order to validate the results with alliance managers in natural settings.

Secondly, behavioural intentions were measured rather than actual behaviours. Although intentions are not always perfect predictors of behaviour, the approach taken here attempted

to assess the intensity of the likelihood of response strategies, an objective that is facilitated more readily by measuring behavioural intentions. It would be desirable to have an assessment of the circumplex model of alliance termination with a survey among alliance managers that taps into actual behaviour and the possible effect of adverse contingencies other that inter-partner factors.

6. Conclusion

This article has proposed and empirically tested a circumplex model of alliance termination. The article has demonstrated that alliance termination is part of an integrated structure of seven response strategies governed by two active–passive and constructive–dimensions, which suggest that intermediate partner firm's behaviour precedes premature alliance termination. Moreover, the article has shown that alliance termination can evolve through two alternative termination paths: an active path and a passive path depending on the nature of the adverse situation. In so doing, the study contributes to the alliance termination literature by answering the question of *how* partners exit an alliance, compared to the extant alliance research, which has focused mostly on the *why* question. Consequently, the present study provides valuable guidelines for managers who are confronted with unintended alliance termination.

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Appendix: Descriptive Statistics and Correlation Matrix

	Variable	Mean	SD	Items	α	ρ_c	AVE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Economic satisfaction	3.99	1.42	2	.83	.92	.85														
2	Social satisfaction	4.28	1.30	3	.80	.88	.72	.41													
3	Investments	3.41	1.55	3	.82	.92	.85	-.13	-.07												
4	Alternatives	4.65	1.29	3	.66	.84	.73	-.07	-.01	.27											
5	Exit	3.14	1.38	5	.92	.94	.76	-.37	-.44	.33	.35										
6	Opportunism	3.45	1.07	5	.78	.85	.53	-.10	-.16	.04	.04	.31									
7	Aggressive voice	4.55	1.07	3	.75	.86	.66	-.11	-.10	.04	.07	.21	.50								
8	Creative voice	5.60	.78	5	.81	.87	.58	.02	.12	-.07	-.03	-.27	-.06	.09							
9	Considerate voice	5.49	.84	5	.77	.85	.52	.19	.25	-.20	-.15	-.50	-.20	.00	.55						
10	Patience	1.95	.76	4	.70	.82	.53	.18	.14	.04	-.06	-.02	.11	-.04	-.19	-.01					
11	Neglect	2.11	.88	3	.68	.82	.60	-.06	-.03	.12	-.03	.21	.19	.04	-.37	-.25	.46				
12	Age	26.37	2.92	1	n.a.	n.a.	n.a.	.04	.08	.04	.05	-.09	.00	.09	.09	.09	-.02	-.13			
13	Gender	1.68	.47	1	n.a.	n.a.	n.a.	.04	.06	.04	.01	-.01	.18	.00	-.13	-.15	-.02	.04	.15		
14	Problem severity	4.56	1.42	1	n.a.	n.a.	n.a.	-.31	-.25	.07	.10	.21	.08	.09	.08	-.05	-.25	-.13	.03	.01	
15	Social desirability	5.60	2.01	10	n.a.	n.a.	n.a.	.07	.04	-.05	-.08	-.10	-.12	-.08	.11	.16	.08	-.03	.01	.00	-.02

Notes: n = 303. Correlations with absolute value greater than .11 are significant at 5%.

The Role of Strategic and Value Chain Flexibility in Achieving Sustainability Performance: An Empirical Analysis Using Conventional and Consistent PLS

Completed Research Paper

Carsten Gelhard
University of Twente
c.gelhard@utwente.nl

Stephan von Delft
University of Amsterdam
s.vondelft@uvan.nl

Abstract

We contribute to the clarification of the link between dynamic and operational capabilities by examining how strategic flexibility and value chain flexibility translate into superior sustainability performance. Using survey data of chemical firms in Germany, our structural equation model shows that value chain flexibility fully mediates the relationship between strategic flexibility and sustainability performance. Further, we contribute to the ongoing research on the partial least squares (PLS) approach to structural equation modeling by estimating the proposed research model with both conventional and consistent PLS (PLSc) and outlining a guideline for evaluating and reporting PLSc-related findings.

Keywords: *Strategic Flexibility, Value Chain Flexibility, Sustainability Performance, Consistent PLS, Structural Equation Modeling*

1. Introduction

How companies can reconcile economic, social, and environmental performance has been actively debated in the management literature (Hart, 1995; Kolk and Pinske, 2005) While firms aim to create a differentiation-based competitive advantage by integrating sustainability into their strategy, there is a disconnection between these thoughts and action: As recently shown, only 40% of executives report that their organizations address sustainability issues and even more surprising only 10% state that their business fully tackles these issues (Kiron et al., 2013). Scholars conclude that companies should do more in order to actually transfer their direction towards sustainability issues into true business solutions (Berns et al., 2009).

One particular challenge in becoming more sustainable is to create flexibility in exploiting and controlling resources in the pursuit of alternative strategic actions. Companies that are able to flexibly allocate their resources are in a better position to deal with environmental changes, design more sustainable offerings (e.g., products that are based on renewable inputs), invest in manufacturing technologies that demand less energy or avoid toxic by-products, commit resources to new business opportunities, or reverse unproductive resource deployment (Bock et al., 2012; Zhou and Wu, 2010). Indeed, flexibility in resource allocation may explain why some companies move faster into new niches than their competitors through initiating strategic and organizational change, e.g., developing new business models, and committing resources to implement strategic actions rapidly (Eisenhardt and Martin, 2000; Nadkarni and Narayanan, 2007).

However, although strategic flexibility is considered to be indispensable to respond to environmental changes, including the increasing demand to satisfy economic needs while simultaneously considering human welfare and ecological constraints, it remains unclear how

this dynamic capability translates into superior sustainability performance (e.g., Nidumolu et al., 2009). Changing a firm's strategy might be ineffective without adequately adapting structures and processes at the operational level (e.g., Milgrom and Roberts, 1990). Helfat and Peteraf argue that "[d]ynamic capabilities do not directly affect output for the firm in which they reside, but indirectly contribute to the output of the firm through an impact on operational capabilities" (2003, p. 999). Hence, we argue that strategic flexibility - representing an important dynamic capability - does not directly impact sustainability performance (e.g., Eisenhardt et al., 2010; Teece et al., 1997). Since strategic flexibility rather builds, integrates, and reconfigures operational capabilities, we eventually propose value chain flexibility as an important operational capability in the pursuit of superior sustainability performance (Helfat and Peteraf, 2003; Kortmann et al., 2014; Teece et al., 1997). Value chain flexibility relates to the firm's ability to adapt its operational activities across the entire value chain, including product development, manufacturing, logistics, and spanning activities, to changing customer needs (Zhang et al., 2002).

Taken together, this study empirically examines the mediating role of value chain flexibility within the relationship of strategic flexibility and sustainability performance. Using a top-level manager dataset of chemical firms located in Germany, we contribute to the ongoing debate on the triple bottom line within the management literature by showing how superior sustainability performance results from a firm's ability to (i) flexibly allocate its resources at the strategic level and (ii) adequately adapt it structures and processes at the operational level. Furthermore, we contribute to the ongoing research on the partial least squares (PLS) approach to structural equation modeling (SEM). Following most recent literature, we estimated our proposed research model by means of consistent PLS (PLSc) as an extension to conventional PLS. While maintaining all strengths of conventional PLS, PLSc overcomes the lack of consistency and corrects for attenuation of regression path estimates. We finally examine whether the results deriving from conventional PLS and PLSc significantly differ for our proposed research model. In so doing, we borrow from the literature on PLS-SEM and outline a guideline for evaluating and reporting PLSc-related findings.

2. Hypotheses

2.1 Strategic Flexibility and Value Chain Flexibility

As business environments have become more competitive and dynamic than ever before, companies are continuously forced to adapt to environmental changes (Grewal and Tansuhaj, 2001; Young-Ybarra and Wiersema, 1999). The ability of a company to rapidly identify major changes in the competitive landscape, reallocate resources to new courses of action and reconfigure existing organizational routines that support these actions, will ultimately determine whether a company can faster create competitive advantage than its rivals (e.g., Eisenhardt, 1989; Shimizu and Hitt, 2004; Nadkarni and Narayanan, 2007). This adaptive capability is known as strategic flexibility and refers to the "ability of a firm to reallocate and reconfigure its organizational resources, processes, and strategies to deal with environmental changes" (Zhou and Wu, 2010, p. 549). Following prior literature, strategic flexibility is classified as an important dynamic capability (Eisenhardt et al., 2010; Teece et al., 1997), which represents the ability to build, integrate, and reconfigure operational capabilities (Helfat and Peteraf, 2003; Kortmann et al., 2014; Teece et al., 1997). Hence, by continuously creating and recombining resources in novel ways, dynamic capabilities have a direct impact on operational capabilities (Helfat and Peteraf, 2003; Kortmann et al., 2014). The latter involve the execution and coordination of various tasks, such as the development, manufacturing, and marketing of products and services (Helfat and Peteraf, 2003). Based on this classification of dynamic and operational capabilities, we argue that strategic flexibility is positively associated with value

chain flexibility. Value chain flexibility represents an operational capability that ensures the flexible adaption of operational activities across the entire value chain, including product development, manufacturing, logistics, and spanning activities, to changing customer needs (Zhang et al., 2002). Strategic flexibility enables companies to redeploy assets such as product-creating resources to meet a variety of customer expectations (e.g., meeting high ecological standards while reducing product price) and supplier demands without performance loss. Through enabling response to unanticipated changes and unexpected consequences of predictable changes (Bahrami, 1992), strategic flexibility acts as an organizing principle, which enhances the coordination of product design, production and distribution, and allows firms to take operational actions, e.g., adjust production volume or respond to ad-hoc requests made by customers (Nair, 2005; Young-Ybarra and Wiersema, 1999; Zhang et al., 2003). We therefore hypothesize:

H1: Strategic flexibility is positively associated with value chain flexibility.

2.2 Value Chain Flexibility and Sustainability Performance

In order to effectively and efficiently respond to changing customer needs, including the increasing demand for sustainable offerings, firms are forced to re-design their operational processes and implement a flexible system of structures and processes across their value chain (e.g., Nair, 2005; Kolk and Pinske, 2005; Zhang et al., 2002; Zhang et al., 2003). Nidumolu et al., for instance, argue that operational innovations are central to building a sustainable value chain and, hence, conclude that companies need to develop the "ability to re-design operations" (2009, p. 61). Following Zhang et al., "the breadth and intensity of flexibility needed to cope with changing customer requirements [however] cannot be provided by one department or function" (2003, p. 175). In order to increase responsiveness and to eliminate bottlenecks across the value chain, flexibility in operational activities needs to be present in various activities, including product development, manufacturing, logistics, and spanning activities (Zhang et al., 2002; Zhang et al., 2003). These activities include the integration, coordination, and communication across the internal as well as external value chain (e.g., Zhang et al., 2003). Considering that the increasing demand for sustainable solutions very often implies a shift from the sole focus on end-customers toward the consideration of earlier stages of the value chain, the ability to share information with suppliers and customers is indispensable in the pursuit of superior sustainability performance. Although sustainability has been identified as an emerging global trend in almost all industries, the willingness to pay an extra price for sustainable offering still varies among customers. Hence, the successful introduction of sustainable products or services might also strongly benefit from the firm's ability to externally and internally share both standardized (e.g., information on the general function and usability of a product or service) and customized information (e.g., information on customer-specific needs associated with sustainability). Based on this discussion, we propose:

H2: Value chain flexibility is positively associated with sustainability performance.

3. Methodology

3.1 Sample and Key Informant Check

The data of the present study derive from an undertaken online survey of top-level managers of chemical firms located in Germany. The chemical industry was chosen as research context since it reflects an industry that has been successful in making business cases for sustainability (e.g., Jenck et al., 2004). For data collection, we choose an online questionnaire with closed questions. Apart from advertising our study within a practitioner-oriented magazine, we directly invited top-level managers via email to participate in our online survey.

3.2 Non-Response Bias

Since the present study might be potentially threatened by non-response bias, we performed a post-hoc analysis and tested for differences between (i) early and late respondents (Armstrong and Overton, 1977; Li and Calantone, 1998) and (ii) participants that completed the survey and participants that abandoned. Both Mann-Whitney U-tests revealed no significant differences between the different groups.

3.3 Key Information Check

For data collection, we applied a key informant approach and solely included responses of top-level managers in the final dataset of our study. To reduce the potential risk that participants respond to questions beyond their level of responsibility, we applied the following key informant criteria: (i) involvement in strategic, innovation, and operational decision making, (ii) job title, (iii) job experience, and (iv) organizational tenure (see Appendix A).

3.4 Measures

Our proposed research model consists of three multi-item reflective scales. Strategic flexibility was measured using a six-item construct adapted from Zhou and Wu (2010). Value chain flexibility was measured using a six-item construct adapted from Nair (2005), who drew upon the conceptualization introduced by Zhang et al. (2002). Sustainability performance is a new performance measure we developed to operationalize competitive advantage that is achieved by meeting the needs of organizational stakeholders while simultaneously considering human welfare and ecological constraints (e.g., Chow and Chen, 2012; Nidumolu et al., 2009). The measurement items are outlined in Appendix B.

3.4 Common Method Variance

In order to test whether our findings are potentially threatened by common method bias, we included a common method variance factor that comprises all principal constructs' indicators in our structural model (Podsakoff et al., 2003, Liang et al., 2007). We compared the variance of each principal construct's indicator as explained by the common method and substantive factors. The model estimation with PLS revealed an average substantive explained variance of 0.71 and an average common method based variance of 0.01. The resulting ratio of the average substantive explained variance to the average common method based variance is about 71:1.

4. Analysis and Results

Following recent research across various business disciplines, e.g. marketing, operations management, and information systems, we applied PLS-SEM. Among variance-based SEM techniques, PLS can be regarded as the most advanced approach to SEM (Dijkstra and Henseler, 2015a). PLS path modeling is to be preferred over alternative covariance-based techniques, when the primary aim of the study rather relates to causal-predictive analysis than theory testing (e.g., Hair et al., 2012; Henseler et al., Sinkovics, 2009). Compared to covariance-based techniques, PLS-SEM has minimum demands regarding sample size (Chin et al., 2003; Hair et al., 2012). Furthermore, PLS-SEM is more favorable when the proposed research model comprises a high degree of complexity (Chin and Newsted, 1999; Henseler and Chin, 2010). However, similar to other analysis techniques, PLS-SEM is not without disadvantages. The main downsides of PLS-SEM are the lack of (i) consistency and (ii) and overall goodness-of-fit measure (e.g., Dijkstra and Henseler, 2015b; Henseler and Sarstedt, 2013). PLS estimates are only consistent under the conditions of 'consistency at large' and, hence, demand large numbers of both observations and measurements items per construct (Dijkstra and Henseler, 2015a,b; Peng and Lai, 2012). The reason is the approximation of latent variables as linear

combinations of their respective observed indicators within PLS-SEM (Henseler et al., 2014; Dijkstra and Henseler, 2015b). While this approach is proper to estimate composite factor models, the PLS-SEM is not consistent for common factor models (e.g., Henseler et al., 2014; Dijkstra and Henseler, 2015a,b). Considering that the PLS algorithm approximates common factors as linear composites of observed indicators (Dijkstra and Henseler, 2015a,b), prior scholars have acknowledged that "parameter estimates for paths between observed variables and latent variable proxies are biased upward in PLS (away from zero), while parameter estimates for paths between proxies are attenuated" (Gefen et al. 2011, p. vi). To overcome the lack of inconsistency, recent literature has introduced an important advancement to PLS: consistent PLS (PLSc) (Dijkstra and Henseler, 2015a,b). PLSc corrects the estimates of reflectively measured constructs deriving from the traditional iterative PLS algorithm by employing a new reliability coefficient, termed as Dijkstra-Henseler's rho (pA). Considering the advantages implied by PLSc, we employed the PLSc approach to SEM in addition to conventional PLS, using SmartPLS 3.0 (Ringle, Wende, and Becker, 2015) and Adanco 1.0 (Composite Modeling, 2014). Borrowing from the literature on PLS-SEM (e.g., Gefen et al., 2011; Hair et al., 2012; Henseler et al., 2009; Hulland, 1999; Peng and Lai, 2012), we outline a guideline for evaluating and reporting PLSc-related findings.

4.1 Validity and Reliability

Following prior literature (e.g., Hair et al., 2011; Hulland, 1999), we assessed the outer model by means of (i) individual item reliability, (ii) internal consistency reliability, (iii) convergent validity, and (iv) discriminant validity. Individual item reliability refers to the correlation of each indicator with its latent variable and, hence, is represented by the outer loadings within PLS/PLSc. While all items exceed the suggested threshold of 0.70 with regard to the estimation using PLS (Henseler et al., 2009; Hulland, 1999), the estimation of our proposed research model with PLSc reveals some outer loadings that are below the recommended cut-off value of 0.70 (see Table 1). The comparison between PLS and PLSc in Table 1 eventually supports prior literature (Dijkstra and Henseler, 2015a), which also shows that the estimation with conventional PLS leads to an overestimation of the absolute value of loadings.

Table 1. Individual item reliability (outer loadings)

	Strategic Flexibility		Value Chain Flexibility		Sustainability Performance	
	PLS	PLSc	PLS	PLSc	PLS	PLSc
SF_1	0.76	0.58				
SF_2	0.80	0.76				
SF_3	0.74	0.49				
SF_4	0.91	0.96				
SF_5	0.84	0.90				
VCF_1			0.75	0.68		
VCF_2			0.78	0.67		
VCF_3			0.84	0.90		
VCF_4			0.90	0.77		
VCF_5			0.84	0.84		
VCF_6			0.72	0.71		
SP_1					0.90	0.90
SP_2					0.92	0.88
SP_3					0.90	0.94
SP_4					0.88	0.80
SP_5					0.88	0.81

Furthermore, we evaluated the internal consistency reliability of our measurement constructs. While Cronbach's alpha (CA) and composite reliability (CR) are commonly applied criteria for the evaluation of reflective measurement constructs, prior scholars suggest to prefer

CR over CA when using PLS-SEM (Chin, 2010; Hair et al., 2012). The limitation of CA is grounded in its bias against short measurements scales and the assumption that all indicators are equally reliable (; Hair et al., 2011). Thus, we specifically emphasize to consider these limitations when interpreting CA estimates using PLS-SEM. For adequate internal consistency reliability, values of 0.70 or higher are suggested for both CA and CR (Nunnally, 1978). As shown in Table 2, all measurement constructs exceed the suggested threshold of 0.70 and, hence, indicate sufficient internal consistency reliability. However, as Dijkstra and Henseler (2015a, p. 3) state, "Cronbach's coefficient alpha (Cronbach 1951) and composite reliability (Chin 2010), are not consistent themselves". Since CA tend to underestimate and CR tend to overestimate the actual reliability of construct scores, the authors recommend to refrain from using CA and CR when estimating models with PLSc (Dijkstra and Henseler, 2015a). Instead, researchers should evaluate and report construct reliability by means of the Dijkstra-Henseler's rho (p_A) reliability coefficient (Dijkstra and Henseler, 2015a).[1] Similar to CA and CR, the reliability coefficient ρ_A should indicate values of 0.70 or higher in exploratory research and values above 0.80 or 0.90 for more advanced stages of research (Hair et al., 2011; Henseler et al., 2009; Nunnally and Bernstein, 1994). As shown in Table 2, the reliability coefficient ρ_A of each measurement construct is above 0.70.

Convergent validity was evaluated by means of the average variance extracted (AVE). Prior literature suggests an AVE value of 0.50 or higher (Hair et al., 2011; Henseler et al., 2009). The estimation with both conventional PLS and PLSc reveal satisfactory AVE values with regard to all measurement constructs (see Table 2). The comparison of both estimation techniques eventually shows that the AVEs deriving from PLSc are slightly below those deriving from traditional PLS. Moreover, we assessed the outer model by means of discriminant validity. Here, we firstly referred to the Fornell-Larcker criterion, which "postulates that latent variable shares more variance with its assigned indicators with another latent variable in the structural model" (Hair et al., 2011, p. 146). In order to fulfill this criterion, the square root of each AVE should be greater than its correlation coefficients with any other latent construct. The Fornell-Larcker criterion is fulfilled with regard to all measures (see Table 2). Secondly, we assessed discriminant validity on the indicator level. To this end, we referred to the cross-loadings and evaluated whether each indicator loading with its associated construct exceeds is loading with each of the other constructs (Hair, Ringle, and Sarstedt, 2011; Henseler, Ringle, and Sinkovics, 2009). As shown in Appendix B, this criterion is fulfilled with regard to all measurement items.[2] Thirdly, we drew upon the recent literature (Henseler, Ringle, and Sarstedt, 2015) and assessed discriminant validity by means of the heterotrait-monotrait ratio (HTMT). While some scholars propose a threshold of 0.90 (e.g., Teo et al., 2008), others recommend values of HTMT that are below 0.85 in order to ensure discriminant validity (Clark and Watson, 1995; Kline, 2011). The HTMT values and the corresponding confidence intervals deriving from a bootstrapping procedure with 500 resamples are outlined in Table 3.[3] Since none of our measurement constructs violates the $HTMT_{0.90}$ and $HTMT_{0.85}$ criterion and all constructs additionally fulfill the $HTMT_{inference}$ test, we infer adequate discriminant validity (Henseler, Ringle, and Sarstedt, 2015).

[1] For a more detailed description of the new consistent reliability coefficient ρ_A, please refer to Dijkstra and Henseler, 2015a).
[2] The indicator loadings indicated in Appendix B derive from the conventional iterative PLS algorithm. Since the existing software packages (e.g., SmartPLS 3.0 or Adanco 1.0) do correct the indicators' cross-loadings with other constructs, discriminant validity on the indicator level was not evaluated with regard to the model estimation using PLSc.
[3] The calculation of HTMT is based on the correlations of individual indicators (Henseler et al., 2015). Since the estimation with PLS and PLSc leads to the same item correlation matrix, the values of HTMT do not differ with regard to PLS and PLSc. Hence, the HTMT values and their corresponding confidence intervals presented in Table 3 relate to the model estimation with both PLS and PLSc

Table 2. Properties of measurement scales and correlations

	ME	SD	CA	CR (p_c)	p_A	AVE	1	2	3	4	5
1. Strategic Flexibility	4.45	1.20	0.87 (/)	0.91 (/)	/ (0.91)	0.66 (0.58)	**0.81 (0.76)**[a]				
2. Value Chain Flexibility	4.54	1.33	0.89 (/)	0.92 (/)	/ (0.90)	0.65 (0.58)	0.47 (0.52)	**0.81 (0.76)**[a]			
3. Sustainability Performance	4.38	1.49	0.94 (/)	0.95 (/)	/ (0.94)	0.80 (0.75)	0.21 (0.23)	0.47 (0.51)	**0.89 (0.87)**[a]		
4. Firm Age	86.10	53.68	- (-)	- (-)	- (-)	- (-)	0.10 (0.11)	0.09 (0.09)	0.36 (0.37)	-	
5. Firm Size	4.53	1.24	- (-)	- (-)	- (-)	- (-)	-0.03 (-0.03)	0.01 (0.01)	0.17 (0.17)	0.63 (0.63)	-

Note: ME = Mean. **SD** = Standard Deviation. **CR** = Composite Reliability. **CA** = Cronbach's Alpha. $\mathbf{p_A}$ = Dijkstra-Henseler's rho. **AVE** = Average Variance Extracted. [a] Value on the diagonal is the square root of AVE. Values indicated as follows: PLS (PLSc).

Table 3. Heterotrait-monotrait ratio (HTMT)

	Strategic Flexibility			Value Chain Flexibility			Sustainability Performance			Firm Age		
	HTMT	Confidence Interval		**HTMT**	Confidence Interval		**HTMT**	Confidence Interval		**HTMT**	Confidence Interval	
		Low	Up		Low	Up		Low	Up		Low	Up
Value Chain Flexibility	**0.51**	0.31	0.69									
Sustainability Performance	**0.23**	0.00	0.44	**0.50**	0.28	0.69						
Firm Age	**0.11**	-0.12	0.32	**0.09**	-0.14	0.30	**0.37**	0.15	0.55			
Firm Size	**-0.04**	-0.25	0.21	**0.01**	-0.19	0.21	**0.17**	-0.11	0.42	**0.63**	0.51	0.73

4.2 Results

While the path coefficients were estimated with the path method (Chin, 2001), their corresponding standard errors have been estimated by performing a bootstrapping procedure with replacement, using 500 resamples (Chin, 1998; Nevitt and Hancock, 1998). Figure 1 and Table 4 entail the results we obtained using both PLS and PLSc.

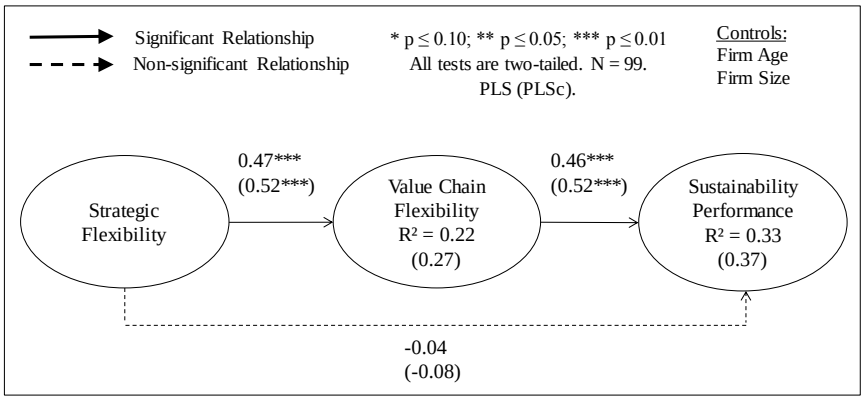

Figure 1. Results of structural equation modeling with PLS and PLSc

Table 4. Results of structural equation modeling with PLS and PLSc

	Value Chain Flexibility		Sustainability Performance	
	β-value	p-value	β-value	p-value
Controls				
Firm Age	0.04 (0.03)	0.75 (0.83)	0.37 (0.38)	<0.001 (<0.001)
Firm Size	0.00 (0.01)	0.99 (0.96)	-0.07 (-0.07)	0.62 (0.61)
Main Effects				
Strategic Flexibility	0.47 (0.52)	<0.001 (<0.001)	-0.04 (-0.08)	0.71 (0.53)
Value Chain Flexibility			0.46 (0.52)	<0.001 (<0.001)
R-Square	0.22 (0.27)		0.33 (0.37)	

All tests are two-tailed. N = 99. PLS (PLSc)

4.3 Mediation Analysis

To further define the degree of the mediating effect of value chain flexibility within the strategic flexibility-sustainability performance relationship, we followed Subramani (2004) and compared two competing models: (i) a full mediation model (research model) and (ii) a partially

mediated model (nested model). We specifically assessed whether the incorporation of a direct path substantively improves the explanation of the dependent variable. As shown in Table 5, value chain flexibility fully mediates the relationships between strategic flexibility and sustainability performance with regard to the estimation with both PLS ($f^2 = 0.001$; $p = 0.708$) and PLSc ($f^2 = 0.003$; $p = 0.584$).[4]

Table 5. Nested-model comparison

Estimation Method	R^2 in Nested Model	R^2 in Full model	Magnitude of the change (f^2)	Pseudo F	p-value	Conclusion[a]
PLS	0.325	0.326	0.001	0.141	0.708	Full mediation
PLSc	0.368	0.370	0.003	0.302	0.584	Full mediation

[a]Significance level: $p \leq 0.05$.

4.4 Model Fit and Prediction Analysis[5]

To assess the prediction power of our proposed research model, we referred to the explained variance (R^2) of all dependent variables. Since our results indicate a R^2 value of 0.22 (0.27) for value chain flexibility and 0.33 (0.37) for sustainability performance, our proposed research models shows weak to moderate prediction power (Chin, 1998). We also evaluated the effect size of the predictor constructs by computing their corresponding Cohen's f^2 values (Cohen, 1988; Henseler et al., 2009). Cohen's f^2 values are represented in Table 6. As rule of thumb, prior scholars (Cohen, 1988; Chin, 1998) recommend Cohen's f^2 values of 0.02, 0.15, and 0.35 for small, medium, and large effect size. Furthermore, we evaluate the prediction relevance of our proposed research model by means of a non-parametric Stone-Geisser test. The Stone-Geisser Q^2 values derive from a blindfolding procedure with an omission distance of 5 and were calculated by means of the cross-validated redundancy approach (Hair et al., 2012). Since all values are greater than zero, we infer that all endogenous constructs show adequate predictive relevance (see Table 6) (Götz et al., 2010; Henseler et al., 2009). Table 6 further indicates the relative prediction relevance (q^2) of each predictor variable for the endogenous constructs of our proposed research model. The effect of strategic flexibility on value chain flexibility ($q^2 = 0.159$) and the effect of value chain flexibility on sustainability ($q^2 = 0.179$) both show small to medium prediction relevance.[6]

Table 6. Effect size (Cohen's f^2) and relative prediction relevance (q^2)

	Effect size			Relative prediction relevance		
Path	R^2_{incl}	R^2_{excl}	Cohen's f^2	Q^2_{incl}	Q^2_{excl}	q^2
Strategic Flexibility – Value Chain Flexibility	0.223 (0.273)	0.011 (0.012)	0.273 (0.359)	0.140 (/)	0.003 (/)	0.159 (/)
Strategic Flexibility – Sustainability Performance	0.326 (0.373)	0.325 (0.368)	0.001 (0.008)	0.255 (/)	0.255 (/)	0.000 (/)
Value Chain Flexibility – Sustainability Performance	0.326 (0.373)	0.166 (0.178)	0.237 (0.311)	0.255 (/)	0.122 (/)	0.179 (/)

Values presented as follows: PLS (PLSc).

In contrast to CB techniques for SEM, PLS lacks a global goodness-of-fit measure. To overcome this shortcoming, prior scholars (e.g., Vinzi et al., 2010; Tenenhaus et al., 2005) suggest the use of the goodness-of-fit' (GoF) criterion, which can be understood as the geometric mean of the average communality and average explained variance. Both model estimation with PLS reveal a GoF that exceeds the suggested threshold of 0.36 for large effect

[4] Moreover, we evaluated the magnitude and significance of the indirect path between strategic flexibility and sustainability performance via value chain flexibility. For both estimation techniques, i.e., PLS ($\beta = 0.21$, $p < 0.001$) and PLSc ($\beta = 0.21$, $p < 0.001$), the indirect path is positive and significant.

[5] Values presented as follows: PLS (PLSc).

[6] Since PLSc does not impact the consistency of the predictive relevance of the research model, we solely performed the blindfolding procedure for the model estimation with PLS.

sizes of R^2 (PLS: 0.44; PLSc: 0.45). However, more recent literature particularly shows that the measure is not suitable for model validation (Henseler and Sarstedt, 2013). Hair et al. (2014), therefore, recommend evaluating the model's overall quality in terms of how well it predicts the endogenous constructs. Considering the inadequacy of GoF as global goodness-of-fit measure, we followed Henseler et al. (2014) and additionally referred to the standardized root mean square residual (SRMR) as index for model validation. The absolute measure of model fit is defined as the difference between the observed correlation and the predicted correlation. Values below 0.08 are generally considered as favorable (Hu and Bentler, 1999). While the model estimation with PLS (composite factor model) reveals a SRMR value of 0.075, the estimation with PLSc (common factor model) indicates a SRMR value of 0.164.

5. Discussion and Implications

Product innovations that transform the nature of production and consumption, an increasingly interconnected global economy that is altering social conditions, and an environment that is more unpredictable than ever before, have prompted sustainability as an important business issue on the agenda of many managers and force them to question existing assumptions of how to create value (Kiron et al., 2013). As Nidumolu et al. argue, "the quest for sustainability is already starting to transform the competitive landscape, which will force companies to change the way they think about products, technologies, processes, and business models" (2009: 58). Considering sustainability as an important business issue, our study underlines the critical role of flexibility in both strategic and operational actions in achieving high sustainability performance. Stimulated by strategic flexibility, value chain flexibility enables firms to deliver sustainable products and services in a timely manner, cope with changing customer requirements, shorten lead times and reduce inventory costs (Zhang et al., 2002). Apart from contributing to the ongoing debate on the triple bottom line within the management literature, these findings contribute to the dynamic-resource based view of the firm (e.g., Helfat and Peteraf, 2003; Teece, 1997). The results of our empirical analysis demonstrate that an operational capability, here value chain flexibility, fully mediates the relationship between a dynamic capability, here strategic flexibility, and sustainability-related performance outcomes. Hence, our empirical findings reveal strategic flexibility and value chain flexibility as distinct yet interlinked capabilities in the pursuit of superior sustainability performance. By this means, we empirically support Helfat and Peteraf, who argue that "[d]ynamic capabilities do not directly affect output for the firm in which they reside, but indirectly contribute to the output of the firm through an impact on operational capabilities" (2003, p. 999).

Furthermore, we contribute to the ongoing research on the PLS approach to SEM by estimating our proposed research model using both conventional PLS and consistent PLS. The comparison of both estimation methods reveals the typical pattern of results with regard to traditional PLS: While the outer loadings were overestimated, the inter-construct correlations were attenuated (Dijkstra and Henseler, 2015b). Considering the high values of the reliability coefficient ρ_A, the subsequent correction undertaken by PLSc however was rather weak, causing merely small differences the estimates deriving from PLS and PLSc. Both estimation methods eventually lead to the same conclusion: value chain flexibility fully mediates the relationship between strategic flexibility and sustainability performance.

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Appendix A: Descriptive Statistics

Key Informant Descriptive Statistics		**Firm Descriptive Statistics**	
Job Title		**Firm Size (Number of Full Time Employees)**	
CEO	15	1-10	3
CTO	1	11-50	8
Vice President	1	51-250	6
Executive Director	1	251-1000	14
Director	4	1.001-50.000	53
Chairman	2	> 50.000	15
Business Unit Manager	5		**AVG (SD)**
Head of Department	21	**Firm Age** (in years)	86.10 (53.68)
Senior Manager	2		
Partner	1		
Operations Manager	6		
General Manager	40		
Involvement in…	**AVG (SD)**		
… strategic decision making	5.14 (1.72)		
… innovation decision making	5.39 (1.52)		
… operation decision making	4.91 (1.77)		
Organizational tenure (in years)	12.64 (9.87)		
Overall work experience (in years)	19.87 (10.23)		
Age (in years)	46.23 (11.35)		

Appendix B: Measures

	ME	**SD**	**1**	**2**	**3**
1. Strategic Flexibility (Zhou and Wu, 2010)					
SF 1 The flexible allocation of marketing resources (including advertising, promotion and distribution resources) to market a diverse line of products.	4.36	1.37	**0.76**	0.24	0.24
SF 2 The flexible allocation of production resources to manufacture a broad range of product variations.	4.39	1.58	**0.80**	0.38	0.16
SF 3 The flexibility of product design (such as modular product design) to support a broad range of potential product applications.	4.39	1.53	**0.74**	0.25	0.10
SF 4 The redefinition of product strategies in terms of target market segments.	4.70	1.47	**0.91**	0.48	0.21
SF 5 The reallocation of organizational resources to support the firm's intended product strategies.	4.34	1.42	**0.84**	0.47	0.15
2. Value Chain Flexibility (Nair, 2005)					
VCF 1 We have a flexible program of special services that can be matched to changing customer requirements.	4.29	1.70	0.41	**0.75**	0.28
VCF 2 We have established a program to authorize and perform special requests made by selected customers	4.89	1.65	0.40	**0.78**	0.26
VCF 3 We are able to accommodate a wide range of unique customer requests by implementing pre-planned solutions.	4.36	1.70	0.42	**0.84**	0.47
VCF 4 We have adequate ability to share both standardized and customized information externally with suppliers and/or customers.	4.54	1.66	0.36	**0.90**	0.39
VCF 5 We have adequate ability to share both standardized and customized information internally.	4.87	1.57	0.34	**0.84**	0.49
VCF 6 We have increased operational flexibility through supply chain collaboration.	4.20	1.61	0.36	**0.72**	0.34
3. Sustainability Performance					
SP 1 We are the first that offer environmental-friendly products/services at the marketplace.	4.37	1.62	0.21	0.43	**0.90**
SP 2 Our competitors consider us as a leading company in the field of sustainability.	4.09	1.67	0.18	0.44	**0.92**
SP 3 We develop new products/services or improve existing products/services that are regarded as sustainable for society and environment.	4.59	1.79	0.20	0.41	**0.90**
SP 4 Our reputation in terms of sustainability is better than the sustainability reputation of our competitors.	4.48	1.68	0.16	0.40	**0.88**
SP 5 Compared to our competitors, we more thoroughly respond to societal and ethical demands.	4.37	1.55	0.21	0.42	**0.88**

Notes: ME = Mean; SD = Standard Deviation.

Stakeholder salience and social responsibility: Study of small businesses in Malaysia

Completed Research Paper

Mehran Nejati
Graduate School of Business,
Universiti Sains Malaysia (USM),
Penang 11800, Malaysia

Azlan Amran
Graduate School of Business,
Universiti Sains Malaysia (USM),
Penang 11800, Malaysia

Noor Hazlina Ahmad
School of Management,
Universiti Sains Malaysia (USM),
Penang 11800, Malaysia

Abstract

This study empirically examined the role of stakeholders' influence on social responsibility practices of small businesses in Malaysia, and analysed the importance and current attention of small firms to these stakeholder groups using the Importance-Performance Matrix Analysis (IPMA). Findings of this study revealed that community's influence and customers' influence had significant positive impact on the social responsibility practices of small firms. Moreover, the results of IPMA for the social responsibility construct indicated that community's influence had the highest importance for small businesses and was given the highest level of attention by the firms. In contrast, customer's influence was given lower attention by small firms despite its high level of importance for social responsibility practices of the firm.

Keywords: *Social responsibility, Stakeholder relations, Small business, Importance-Performance Matrix Analysis (IPMA), Malaysia.*

1. Introduction

Following McWilliams and Siegel (2001), corporate social responsibility (CSR) is defined as actions undertaken by the firm which advance some social good, beyond the immediate interests of the firm and its shareholders and beyond what is required by law. The CSR journey that started centuries ago is still growing at an unprecedented pace with no sign of slowing down (Nejati, Quazi, & Amran, 2015). The increasing attention to CSR has been partly caused by the growing level of awareness and salience on the social responsibilities of organizations. While over 50 definitions of stakeholder have been offered since 1963 (Friedman & Miles, 2006), it often refers to "any group or individual who can affect or is affected by the achievement of the organization objectives" (Freeman, 1984, p. 46).

According to stakeholder theory, stakeholders can influence social practices of a firm. Moreover, based on institutional theory firms are surrounded by formal and informal institutions (North, 1990). The formal institutions comprise of national legislation and government regulation, whereas the informal institutions consist of cognitive issues (e.g., norms, conventions and shared beliefs). As a result of these formal and informal institutions,

small firms are come under various social and cultural pressures to comply with their institutional environments for achieving legitimacy and social fitness (Scott, 1995). Therefore, small firms should respond to these pressures and adequately embed in the local society to ensure their business sustainability and continued growth. This can be achieved through accommodating the demands of key stakeholders.

Earlier studies have investigated the role of stakeholders on CSR (Perez-Batres, Doh, Miller, & Pisani, 2012). However, the individual role of each stakeholder group on social responsibility practices of small firms has rarely been investigated (Nejati, Amran, & Hazlina Ahmad, 2014; Park & Ghauri, 2014). Furthermore, according to Bourne (2009), a balanced view of success for organizations requires a balanced combination of delivering value, managing relationships and managing risks. This highlights the necessity of managing key stakeholders and commitment to firm's social responsibilities to minimize and manage risks. Thus, this study aims to elucidate the role of stakeholder salience on social responsibility of small firms by answering the following question: Does stakeholder salience influence social responsibility practices of small firms?

The stakeholder salience will be measured by the influence of each stakeholder group on small firms toward practicing social and environmental behaviours. It is also of paramount importance for organizations to accurately determine the relevance of each stakeholder group (Henriques & Sadorsky, 1999; Perez-Batres, Miller, & Pisani, 2010). Thus, we will examine the importance-performance index for the social responsibility practices and identify the most important and influential stakeholder groups for small businesses in Malaysia, while determining the current performance of the firms in addressing their demands.

According to Small and Medium Industries Development Corporation (SMIDEC), Malaysian small businesses account for 27.3 percent of total manufacturing output, 25.8 percent of value-added production, and 27.6 percent of fixed assets in the country. In addition, value-added products from small and medium-sized enterprises (SMEs) are expected to be worth RM 120 billion - or 50 percent of total production - in the manufacturing sector by 2020 (Saleh & Ndubisi, 2006; SMIDEC., 2002). Besides, in the service sector, according to the Department of Statistics (DOS) by the year 2006 in Malaysia, there were 192,527 establishments in the services sector, and 186,728 (or 96.7 percent) of these were made up of small firms. Given the significant scale of small businesses in Malaysian economy, their aggregate achievements have a major impact on the country's success. Moreover, their operations, in total, have great impacts on society and environment.

2. Social Responsibility and Small Firms

Although the issue of corporate social responsibility has been mainly associated with large firms, there has been a shift in perception towards the social responsibilities of small businesses caused by the recognition of their growing significance (Azmat & Samaratunge, 2009). Recognition of the growing significance of the small firms (Fuller, 2003) has resulted in an emphasis on their social and environmental impacts. Apart from their significant contributions towards job creation and economic prosperity of their country, small businesses are thought to have considerable environmental impacts by accounting for 60% of all carbon dioxide emissions and 70% of all pollution (Parker, Redmond, & Simpson, 2009).

Beliefs and attitudes regarding the nature of CSR have varied over time (Hill, Stephens, & Smith, 2003) with most recent definitions describing CSR through the lens of stakeholder theory (Jones, 2005; Sweeney, 2007; Vos, 2003). Bowmann-Larsen and Wiggen (2004) defined stakeholders as all those individuals and groups with a 'critical eye' on corporate actors. Stakeholder theory offers a new way to organize thinking about the responsibilities of

a firm (Jamali, 2008). Since stakeholders hold the power over the resources required by small businesses, it is crucial for firms to get the approval of stakeholders and adjust their activities to ensure that such an approval is obtained (Zain, 2009). Gadenne, Kennedy, and McKeiver (2009) examined the influence of various stakeholders on the awareness and attitudes of SME owners and its relation to actions taken within the businesses to reduce the environmental impact of their operations. They found that supplier and legislation had significant influences, whereas customer influence was not significant.

Earlier studies have indicated that small businesses experience more difficulty to engage in social responsibility initiatives. As Hitchens, Thankappan, Trainor, Clausen, and De Marchi (2005) discussed, many small business owners/managers have never thought about CSR or even believed that their social and environmental impacts are negligible. Besides, several small business managers argue that they do not have time or resources to dedicate to social responsibility (BITC, 2002; Observatory of European SMEs, 2002).

It is argued that majority of small businesses are simply content to survive (Baker, 2003). Since social responsibility is increasingly seen as a vital factor in the long-term survival of companies (Khan, Halabi, & Samy, 2009), small businesses can involve in responsible business behaviours to establish a better relationship with their key stakeholders and ensure their survival. This is crucial to small businesses since relationships with stakeholders mean everything to them (Fuller & Lewis, 2002). Murillo and Lozano (2006) supported the use of stakeholder theory as a helpful theoretical framework within which small businesses are able to make sense of their activities. This selection is grounded in the belief that the relationship between firm and stakeholders is an essential asset that managers must manage (Post, Preston, & Sachs, 2002). Stakeholders encourage firms to practice social responsibility (Nejati & Amran, 2009), and responsible behaviours towards stakeholders can lead to establishing trust links between firm and the stakeholders (Battaglia, Bianchi, Frey, & Iraldo, 2010). Therefore, in line with stakeholder theory, small businesses are expected to engage in social responsibility practices as a way to respond to their stakeholder demands. To this end, the salience level of stakeholders and the perceived importance of each stakeholder group are likely to influence firm's social responsibility. Thus, we hypothesize that stakeholders' influence positively influences social responsibility practices of small firms.

3. Methods

The data for this study was collected using surveys distributed among small businesses in Malaysia, randomly selected from the directory of small businesses in Malaysia (SMEinfo). From the 350 distributed questionnaires, 148 responses were collected representing 42% response rate. Participating firms were mainly from manufacturing, construction, logistics, retail, and information technology sector. This study used the definition of SMEs given by SME Corp (2012), which defines SMEs as firms with less than 150 employees in manufacturing sector and less than 50 employees in the service sector, which is consistent with other definitions of SMEs in different contexts (Australian Bureau of Statistics, 2002). Stakeholders' influence was measured using items adapted from the study by Gadenne et al. (2009), whereas social responsibility was measured from the construct by Spiller (2000).

This study applied Partial Least Squares (PLS) Structural Equation Modelling to analyse the data, due to having a formative construct (i.e. social responsibility) in the study. Moreover, PLS is able to accommodate smaller sample size better than Covariance Based-SEM (Chin & Newsted, 1999; Hsu, Chen, & Hsieh, 2006) in terms of its ability to generate predictive accuracy. This study performed Harman's single factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) to assess the presence of common method bias, and it

did not appear to be a pervasive problem in the current study. Additionally, the sample size adequacy was confirmed through using G*Power 3.1.3 software (Faul, Erdfelder, Lang, & Buchner, 2007).

PLS path modelling was performed in two steps. First, the measurement model was evaluated and confirmed (Figure 1). Then, structural model was evaluated for examining the proposed research paths. Table 1 presents the assessment of the measurement model in terms of convergent validity and reliability.

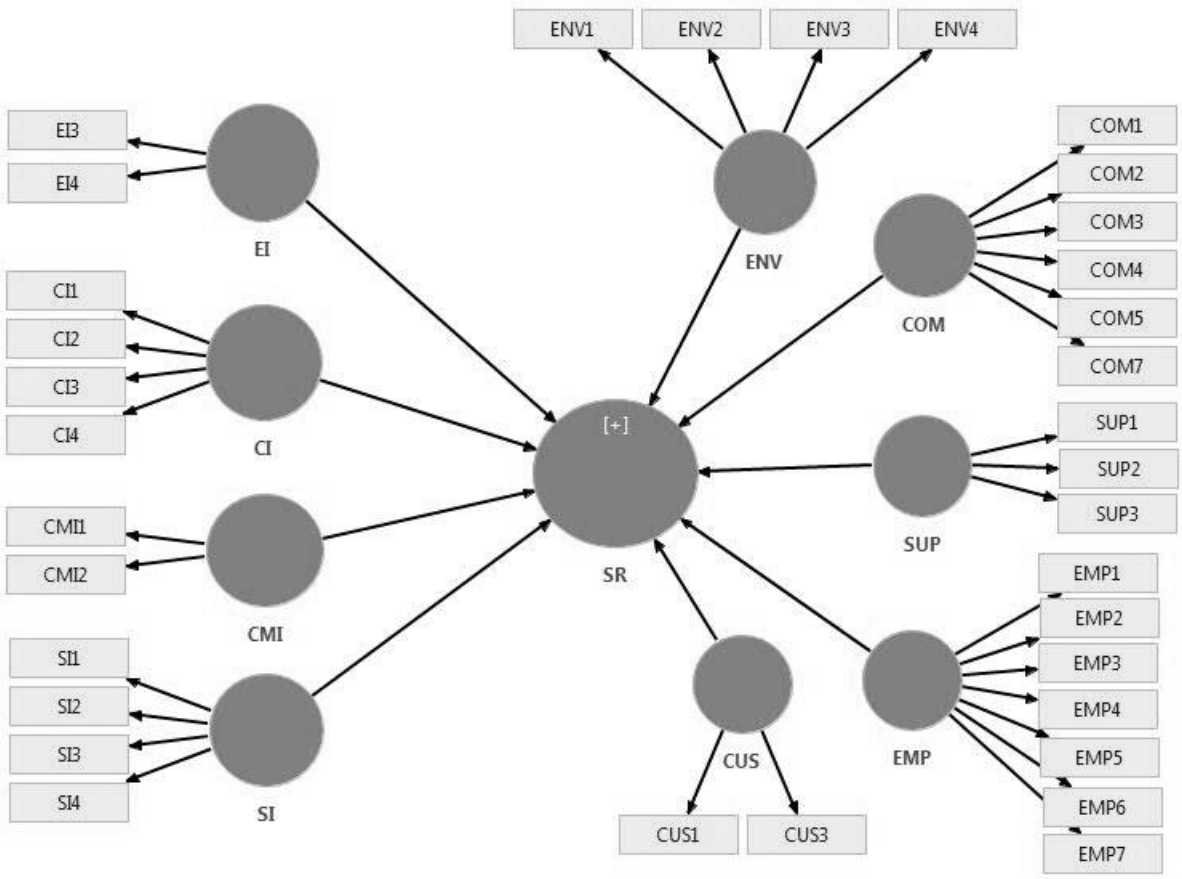

Figure 1: Measurement model in SmartPLS

Table 1: Item loadings, AVE, composite reliability (CR) for reflective constructs and weights, VIF, t-value for the formative construct

Construct Scale	Measurement Model	Item	Loadings	AVE	CR
Employees' Influence (EI)	Reflective	EI3	0.798	0.733	0.845
		EI4	0.910		
Customers' Influence (CI)	Reflective	CI1	0.865	0.831	0.952
		CI2	0.942		
		CI3	0.934		
		CI4	0.903		
Community's Influence (CMI)	Reflective	CMI1	0.960	0.905	0.950
		CMI2	0.943		
Suppliers' Influence (SI)	Reflective	SI1	0.931	0.913	0.977
		SI2	0.959		
		SI3	0.968		

		SI4	0.964		
Responsibility toward Environment (ENV)	Reflective (1st Order)	ENV1	0.757	0.674	0.892
		ENV2	0.815		
		ENV3	0.832		
		ENV4	0.876		
Responsibility toward Community (COM)	Reflective (1st Order)	COM1	0.899	0.597	0.897
		COM2	0.787		
		COM3	0.708		
		COM4	0.801		
		COM5	0.842		
		COM7	0.552		
Responsibility toward Suppliers (SUP)	Reflective (1st Order)	SUP1	0.778	0.670	0.859
		SUP2	0.799		
		SUP3	0.875		
Responsibility toward Employees (EMP)	Reflective (1st Order)	EMP1	0.730	0.586	0.908
		EMP2	0.765		
		EMP3	0.772		
		EMP4	0.789		
		EMP5	0.696		
		EMP6	0.795		
		EMP7	0.806		
Responsibility toward Customers (CUS)	Reflective (1st Order)	CUS1	0.852	0.627	0.770
		CUS3	0.726		
			Weights	VIF	T-Value
Social Responsibility	Formative	ENV	0.258	1.944	9.460**
		COM	0.377	2.438	11.707**
		SUP	0.111	1.262	5.619**
		EMP	0.424	2.555	11.340**
		CUS	0.106	1.857	9.554**

* $p<0.05$; ** $p<0.01$

The discriminant validity of the measurement model for reflective constructs was confirmed through evaluation of the heterotrait-monotrait ratio of correlations (HTMT) proposed by (Henseler, Ringle, & Sarstedt, 2014). Results of the HTMT approach (Table 2) verified the discriminant validity of the model as all ratio were below the conservative threshold of 0.85 (Clark & Watson, 1995; Kline, 2011).

Table 2: Discriminant validity of reflective constructs

	EI	CI	CMI	SI
EI				
CI	0.78			
CMI	0.57	0.55		
SI	0.20	0.34	-0.04	

4. Findings and Conclusion

This study found that among the four major stakeholder groups investigated (employees, customers, community and suppliers) only community and customers had a significant positive influence on the social practices of the firm (Table 3). Since small firms operate in a small local community, establishing and maintaining a good relationship with key stakeholders plays an important role in ensuring firm's survival. Hence, customers and suppliers are found to have a significant and influential stakeholder group for small firms.

Table 3: Results of path modelling

Relationship	Path Coefficient	t-value	Decision
EI → SR	0.139	1.393	Not Supported
CI → SR	0.230	1.901*	Supported
CMI → SR	0.242	1.584	Not Supported
SI → SR	0.201	2.519**	Supported

* $p<0.05$; ** $p<0.01$

To further investigate the results of the structural model, importance-performance matrix analysis of path modelling for social responsibility was carried out. IPMA results indicate the areas which need to be paid attention and improved with management activities (Hock, Ringle, & Sarstedt, 2010). In particular, by measuring the total effect (i.e. importance) and index values of the latent variables (i.e. performance), the latent variables with a relatively high importance and relatively low performance on a particular endogenous latent variable would be identified to provide managerial insights (Hock et al., 2010; Schloderer, Sarstedt, & Ringle, 2014). Accordingly, in this study, importance and performance of the latent exogenous variables (i.e., employees' influence, customers' influence, community's influence and suppliers' influence) on the endogenous variable (i.e. social responsibility) was measured. The results are illustrated in Table 4 and visualized in Figure 2.

Table 4: Total effects and index values

Latent Variable	Social Responsibility	
	Total Effect (Importance)	Index value (Performance)
Employees' Influence	0.139	64.522
Customers' Influence	0.230	64.458
Community's Influence	0.242	82.014
Suppliers' Influence	0.201	65.471

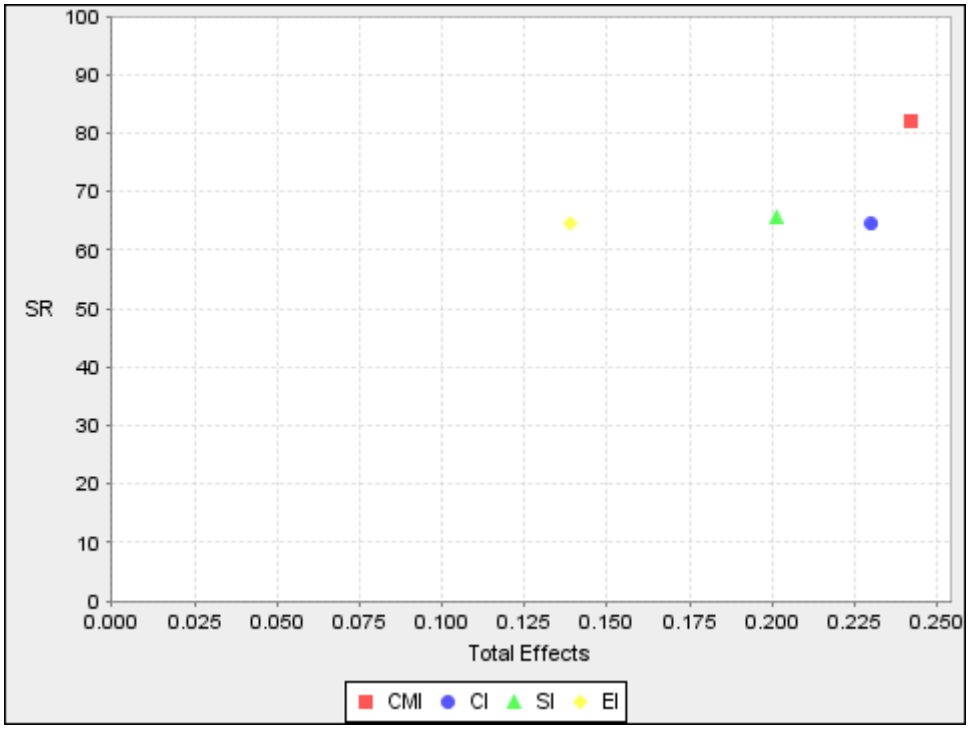

Figure 2: Importance-Performance Matrix Analysis (IPMA) for social responsibility construct

As depicted in the importance-performance matrix analysis map, the highest level of importance belongs to community's influence, followed by customers' influence, suppliers' influence and employees' influence. Besides, among the four antecedents of social responsibility, community's influence has the highest performance which indicates that firms pay their highest attention to the community and their demands in addressing the firm's social responsibilities. However, customers' influence which is the second priority for firms has a relatively low performance and requires more attention by small businesses. These findings provide insights to small businesses in Malaysia to not only focus on community aspect, but also engage their other important stakeholders, specifically customers, in planning and practicing their social responsibilities.

Despite the growing interest in the social responsibility of companies, small firms have been under-researched and no areas of research into CSR and SMEs can be claimed to be well undertaken (Moore & Spence, 2006). Results of this study revealed that stakeholders' influence could predict 33% of variation in the social responsibility practices of small firms (R-Square = 0.33). Findings of this study are in line with the stakeholder theory and corroborated earlier studies which indicated the influence of stakeholders in social responsibility practices of companies (Coppa & Sriramesh, 2013; Figar & Figar, 2011; Morsing, 2006). Results are also consistent with earlier studies which indicate that maintaining a good reputation among neighbours and community is very crucial for small businesses (Fitjar, 2011). Additionally, earlier studies in Malaysia had also shown that employees and customers were among the most important dimensions of social responsibility by Malaysian SMEs (Irawati, Nejati, Amran, & Shafaei, 2012). The current study confirmed the significant role of customers along with suppliers in encouraging responsible practices by small businesses. This can be contributed to the dependence of small businesses to these groups, as well as the necessity of dealing personally with customers and suppliers (Spence, 1999), and thus the need for maintaining good relations with these stakeholder groups.

This study is limited by its sample size. Nonetheless, previous literature states that this is a common phenomenon in SME research and obtaining a large sample size from small

businesses is very difficult. Future studies may investigate the impact of responsible practices by small businesses on their relationship with stakeholders.

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