Managing Global Transitions

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Determinants of Science-Based Cooperation: Evidence in a Sample of Small and Micro Firms

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We study the determining factors of science-based cooperation in the case of small and micro firms. In this research, we propose an analytical framework based on the resource-based view of the firm and we identify a set of organisational characteristics, which we classify as internal, external and structural factors. Each factor can be linked to at least one reason, from the firm's point of view, to cooperate with universities and public research centres. Each reason can, in turn, be used as an indicator of a firm's organisational needs or organisational capacities. In order to validate the theoretical model, we estimate a logistic regression that models the propensity to participate in science-based cooperation activities within a sample of 285 small and micro firms located in Barcelona. The results show the key role played by the absorptive capacity of new and small companies.

Key Words: science-based cooperation, determinants, absorptive
    capacity, small and micro firms
JEL *Classification:* L26, O32

Introduction

The goal of this paper is to study the motivations that small and micro firms have to engage in science-based cooperation. To this aim, we will identify a set of determinants of cooperation based on a firm's needs and capabilities to network with science institutions. Our theoretical approach is grounded in the resource-based view – RBV – of the firm (Barney 1986a; 1986b; 1991) and is related as well to the concept of absorptive capacity suggested by Cohen and Levinthal (1989; 1990).

The RBV theory states that the essence of the firms' strategy is defined (or should be), by the own and unique set of resources and capacities of each firm (Rumelt 1984). So it has been assumed that firms' strategy is shaped by two main elements:

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- the opportunities provided by the environment, that is, market opportunities; and
- the restrictions imposed by organizational weaknesses and strengths, that is, internal assets and capacities.

Innovative agents take part in multiple and complex network relationships with the aim of sharing and acquiring knowledge. In this sense, innovation can be described as a collective process (Malecki 1991) that is increasingly interdependent and interactive.

One specific form of networking is cooperation (Vázquez Barquero 1999). In particular, we focus our interest on science-based cooperation, defined as those agreements set by firms with universities and public research centres addressed to innovation. The cooperation with universities and research centres plays an important role for the improvement of business performance, as university research has important and pervasive effects on industry R&D and innovation (for a summary, see Zucker et al. 2001, or Kim, Lee and Marschke 2005). Cooperation, however, is not a universal practice as only 25% of the innovative EU firms are engaged in cooperation activities (CIS 2006). For this reason, the strengthening of cooperation between science and business is a goal for innovation policies in the European Union (Eurostat 2009).

This paper is structured as follows. The next section is devoted to the development of our analytical framework, which is based on the relationship between organizational resources, cooperation and innovation. Our analysis follows with an empirical application to validate the identified determinants of science-based cooperation among a specific sample of small and micro firms. The section on discussion and conclusions closes the paper.

Analytical Framework

ABSORPTIVE CAPACITY

Absorptive capacity is one of the most important conceptual constructs that have emerged in the research on organization in the last decades (Lane, Koka and Pathak 2002; 2006). Its emergence coincided with the development of the RBV theory and its derivative, the knowledge-based view of the firm. The most common definition of absorptive capacity was set by Cohen and Levinthal in 1990. The authors state that:

> Absorptive capacity is the firm ability to recognize the value of new external information; to assimilate it; and to apply it with commercial purposes.

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Cohen and Levinthal point out that firms' absorptive capacity constitutes a critical element that shapes their ability to develop innovations, as an organization needs some previous related knowledge in order to assimilate and use newly acquired external knowledge. As learning is a cumulative and dynamic process, learning productivity increases when the object of the process of learning is previously known. For that reason, diversity of knowledge within the firm plays a very important role regarding absorptive capacity. As a result, absorptive capacity is firm-specific and is path-dependent. It is shaped as well by the individual absorption capacities of the members of the organization individually considered. In sum, absorptive capacity is not a goal but a means – an instrument – that determines and modulates the results a firm can achieve. In fact, van den Bosch, van Wijk and Volverda 2003 state that it is a multidimensional, multilevel and trans-disciplinary construct.

The historical approach to innovation suggests that the benefits of scale and scope for internal R&D encourage a vertical integration innovation model, where large companies internalize their firm-specific R&D activities and commercialize them by means of development, manufacturing and distribution processes (Chesbrough 2006). In fact, firms develop innovations in a less hierarchical way. If companies cannot develop sufficient absorptive capacity themselves, they utilize strategic alliances in order to obtain new knowledge or use complementary external resources to exploit that knowledge (Nooteboom 1999).

Many models have been developed to explain how firms can exploit external knowledge. A common way to overcome the first-mover strategy from a rival company is imitation (Lieberman and Montgomery 1998) or, alternatively, consulting with the lead customers or suppliers can provide useful ideas about how to improve the quality and performance of firms' products and services.

Moreover, in many economies, public sources of knowledge (such as government R&D spending) are an important stimulus for private R&D (David, Hall and Tool 2000). But, as Powell, Koput and Smith-Doerr (1996) state, the construction of alliances and the development of networks by firms and institutions is an active way to incorporate external knowledge into the innovations process of firms. At present, university research is often explicitly funded by companies to generate external spillovers (Colyvas et al. 2002). In fact, spatial location results in knowledge spillovers between firms and from university research in many economic activities, especially the high-tech industries (Porter 1990; Baptista and Swann 1998).

Therefore, organizational strategy is related, among others, to the adoption and diffusion of innovations, the cooperation agreements in R&D or the development of basic research. Absorptive capacity affects all these activities (Cohen and Levinthal 1990). Specifically, it shapes cooperation for innovation with universities and research centers: firms have different absorptive capacities which, in turn, determine the propensity of the organization to establish cooperation agreements (Hernán, Marin and Siotis 2003). Absorptive capacity even plays a relevant role in the relationship among weak links with other economic agents and the achievement of innovation results, as it encourages a higher profit from the exploitation of these links with external agents (Julien, Andriambeloson and Ramangalahy 2004).

Indeed, a wide number of empirical analyses study how absorptive capacity shapes cooperation activities (see, among others, Bönte and Keilbach 2005; Cassiman and Veugelers 2002; Frenz, Michie and Oughton 2003; Hernán, Marin and Siotis 2003; Laursen and Salter 2004; or Miotti and Sachwald 2003). And particularly, formal education of the staff positively affects cooperation activities (Belderbos et al. 2004).

In order to engage in cooperation activities a sufficient capacity is required (Foss 1999), since 'firms need resources to get resources' (Eisenhardt and Schoonhoven 1996, 137). A specific and relevant case is science-based cooperation, in which firm-university relationships can be extraordinarily difficult to manage (Pavitt 2005). Transaction costs can be higher when the interlocutor is a university or a research center, because of their differences with respect to firms concerning commercial and general organizational goals and aims.

However, internal factors are necessary but not sufficient to define the absorptive capacity of the firm (Camisón and Forés 2007). Therefore, there is a clear need of an appropriate combination of internal and external assets, so absorptive capacity gets the highest rate of results and firm performance. We look at those specific (internal and external) assets. In turn, these elements can also be identified with the reasons of firms for engaging in science-based cooperation.

REASONS FOR SCIENCE-BASED COOPERATION IN SMALL AND MICRO FIRMS

Available statistical evidence on innovation shows that larger firms cooperate most (CIS, 2006). However, small and micro firms may be more dependent on external links and external resources because cooperation

TABLE 1　Reasons for science-based cooperation in small and micro firms

Structural factors	Size	Exploitation of complementarities	(c)
		Lack of resources	(n)
	Sector	Risk sharing	(n)
External factors	Institutional support	Risk sharing	(n)
	Turbulent environment	Risk sharing	(n)
Internal factors	Human capital	Exploitation of complementarities	(c)
	Ongoing R&D	Exploitation of complementarities	(c)

NOTES　c – capacity to cooperate, n – need to cooperate.

would act as a mechanism to compensate size-inherent competitive dis-advantages (Audretsch and Feldman 2003). In this sense, firm size is one of the elements that must be taken into account when analysing the determinants of cooperation.

Therefore, as organisational factors affect the propensity to cooperate, our taxonomy identifies three different categories of elements:

- structural factors, such as firm size or industry;
- external factors, such as the access and use of institutional support for innovation or the existence of market turbulences; and
- internal factors, such as the knowledge embedded in a firm's staff (identified as human capital) or its continuous engagement in R&D activities.

We can also identify each one of these factors as an indicator of the main reasons to engage in science-based cooperation (see table 1). From the point of view of a small firm, there are three main motivations to co-operate (Hanna and Walsh 2002; Tether 2002; Jong and Vermeulen 2004):

- lack of internal resources,
- risk sharing, and
- search of complementarities.

These three reasons are not incompatible and they can as well be understood in terms of the firm's needs or capacities to cooperate. The first two reasons have to do with need, as their rationale is the necessity to access external resources in order to compensate the organisational weaknesses. In contrast, the third reason relates to a firm's cooperation capacity, as any firm aiming to create and take advantage of potential complementarities must be able to share its (own) assets and/or knowledge.

In this theoretical approach, these factors can be considered indicators of the determinants of science-based cooperation among small and micro firms. Through an empirical application we will try to validate the theoretical framework.

Empirical Application

In order to validate the proposed analytical framework with an empirical application, we use a logistic regression to model the propensity of small and micro firms to engage in science-based cooperation. We look at self-declared cooperation activities, without distinguishing between formal agreements and weaker ties. This broad definition affords a closer and more realistic picture of these types of firms. A set of indicators is used to proxy the factors (structural, external and internal) that shape science-based cooperation activities.

FIELDWORK AND SAMPLE DESCRIPTION

The above information can only be gathered through a survey. Data collected for our specific application comes from a cross-sectional sample of 285 mainly young, small and micro firms. These firms are located in Barcelona and are either closely or loosely linked to the local development agency, an institution created by the City Council (for more details, see Fernández-Ardèvol 2009; Fernández-Ardèvol and Lladós 2009; Castells and Vilaseca 2007).

We conducted two online surveys, designed under the same conceptual framework. Fieldwork was developed between July 2005 and April 2006. Respondents had the choice of answering the survey in Catalan or Spanish, while in order to encourage the response, an institutional e-mail was sent introducing the research. The tool allows multiple consistency controls that guarantee the quality of the data and prevent respondents from answering more than one questionnaire. The first survey was addressed to entrepreneurs leading a firm who usually interact with the local development agency (256 individuals). With a response rate of 52.4%, total number of questionnaires equals 136 questionnaires. The second targeted population corresponds to the users of an internet-based platform to foster entrepreneurship. Created by the local development agency, it had more than 11,500 registered users. In this case, the response rate was 5.0% (585 questionnaires). Among them, only one set of individuals was selected for this research: entrepreneurs with an active firm. The total number of questionnaires in this second group equals 164.

Finally, merge and depuration of the two surveys led to a unique sample of 285 firms.

The studied firms present distinctive features that differentiate them from the Catalan average. Firms are characterized by their youth, as the average age is 3.3 years, and almost 60% of them started the activity during the previous 36 months. One third of the firms in the sample were incubated by the local development agency (27.7%). With an average of 4.6 full-time workers, more than 80% having less than 5 employees. In most cases, their personnel hold a university degree (76.19%), while firms' activities lie mainly in the Information and Communication Technologies (ICT) sector (28.8%) and in business services (21.1%). Firms are able to pay high salaries, as 50.9% of the companies pay annual gross wages per employee of between 18,000 and 24,000 EUR, while 17% pay over 24,000 EUR. In Catalonia, average gross annual wage in 2005 was 20,067 EUR, while the third quartile equalled 22,704 EUR (source: Spanish industrial wage structure survey, www.ine.es). Surveyed firms also show good performance indicators despite their youth.

MODEL BUILDING: SELECTION OF VARIABLES

The selection of variables for the empirical application is based on the literature review. Given the available data gathered through the survey, implemented variables are considered as follows.

Regarding structural factors, or basic organizational characteristics, the dimension is measured as the total number of employees (expressed in full time equivalent). As size would not be enough to predict the propensity to cooperate, here it is considered as a control variable and we do not present any hypothesis regarding its influence in the endogenous variable. Sector of activity is also included by taking into account whether the firm belongs to the ICT sector or not. Indeed, the survey gathered information on the next activity sectors: ICT; firm services; industrial production; commercial distribution; personal services and social activities; and other services. Given the distribution and the characteristics of the survey, we selected the ICT sector as the indicator of the necessity of risk sharing within a sector. As the ICT sector shows higher levels of innovation activities and a short life-cycle of technologies, we expect that firms in that sector will be more prone to cooperate with science agents.

Regarding external factors, the first of them is institutional support. This is a discrete and quantitative variable that gathers the intensity of in-

TABLE 2   Qualitative variables in the models (dichotomous)

Variables	Model		Yes	Role in the model
	1	2		
Science-based cooperation for innovation	×	×	16.1%	Endogenous
Majority of employees holding a univ. degree	×	×	76.1%	Internal factor
R&D&I own department	×	×	27.0%	Internal factor
High competitive pressure (perception)		×	82.8%	External factor
ICT sector		×	28.8%	Structural factor

NOTES   Valid observations = 285.

TABLE 3   Quantitative variables in the models

Variables	Model		M	SD	Role in the model
	1	2			
Dimension: Total number of employees (full time equivalent)	×	×	4.58	6.32	Structural factor Control variable
Institutional support intensity (1–7)		×	1.86	0.99	External factor

NOTES   Valid observations = 285.

stitutional support. It is bounded between 1 and 7. The lower value corresponds to those firms that are only supported by Barcelona Activa, while the higher value corresponds to those that are supported by all the seven different institutions considered in the survey. Institutions range from universities and business schools to the chamber of commerce, among others.

The second external factor shows the competitive pressure perceived by the manager of the firm, that is whether the markets in which the firm acts do or do not place relevant pressure on the business activity. This is a dichotomous variable that takes value one when competitive pressure is stated to be 'high' or 'very high' and zero otherwise.

Finally, we include two other dichotomous variables or internal factors, that could be understood as indicators of the firm's absorptive capacity:

1. human capital: whether the majority of employees have high degree qualifications, and
2. the existence in the firm of a specific R&D department.

Two models are specified. Model 1, the baseline model, has three explanatory variables: the two internal factors usually identified as indi-

cators of absorptive capacity, and firm dimension, the control variable. Model 2, on the other hand, is an enlarged model which includes the industry and the external factor variables listed in tables 2 and 3. Both models include a constant term.

Goodness of fit *G* statistic shows that both models are significantly different from a model in which the only predictor was the constant term (see table 4). Besides, covariances among explanatory variables stay at very low levels (values not shown in the table). Complementary statistics confirm that Model 2 is preferable to Model 1: predictive capacity is similar (76.1% vs. 76.5%) but in Model 2 there is a higher balance in correct predictions for the positive category of the endogenous variable. Apart from that, Akaike and Bayes Information Criterion (AIC and BIC) are lower in Model 2, and the deviance statistics show that the contribution of the variables added to Model 1 to build Model 2 really plays a significant role. Therefore, in the next paragraphs we will set our attention on results for Model 2.

It can be seen that the dimension of the firm positively influences the probability of engaging in science-based cooperation. In light of this result we can consider that the number of employees is an indicator of absorptive capacity in the context of a sample of small companies, as the average firm size is below five employees. It confirms that, in order to assume the transaction cost inherent to science-based cooperation, the firm needs a sufficient amount of internal resources.

A higher dimension, in this context, would mean the availability of more complex and diverse knowledge and skills (Lee, Lee and Pennings 2001; Kogut and Zander 1996). So, a larger knowledge base would increase the firm's capability to engage in cooperation with science institutions because firm's perception of risk would be lower regarding these relationships.

On the other hand, the two internal factors (human capital and R&D department) positively affect the endogenous variable as well. Higher education seems to be a key determinant factor, as can be seen from the magnitude of the estimated parameter (2.132). As 76.1% of the companies in the sample have a majority of employees holding a university degree, this result is especially outstanding as it signals the importance of internal capacities to engage in science-based cooperation.

In view of these results, we can consider that the three first exogenous variables (number of workers; human capital and R&D department) act as indicators of the absorptive capacity of the sampled firms. This set of

TABLE 4   Determinants of science-based cooperation for innovation

Logit regression models	Model 1	Model 2
Endogenous: Science-based cooperation for innovation (yes = 16.11%)		
Total number of employees (full time equivalent)	0.079	0.073
	(0.001)	(0.006)
Majority of employees holding a university degree	2.365	2.132
	(0.003)	(0.013)
R&D&I own department	1.146	0.834
	(0.001)	(0.032)
Institutional support intensity (1–7)	—	0.765
		(0.000)
High competitive pressure (perception)	—	0.562
		(0.331)
ICT sector	—	0.398
		(0.331)
Constant term	−4.575	−6.482
	(0.000)	(0.000)
Goodness of fit classification table (percentage of correct predictions, cut = 16%)		
Yes	63.0%	73.9%
No	79.1%	76.6%
Total	76.5%	76.1%
Number of observations	285	285
Degrees of freedom	3	6
Ji-squared test of global significance: G	41.755	64.363
	(0.000)	(0.000)
Deviance of variables added to the model	—	22.608
		(0.000)
−2 ln likelihood	210.179	187.571
Akaike Information Criterion (AIC)	216.179	199.571
Bayes Information Criterion (BIC)	227.137	221.486
Nagelkerke Pseudo R^2	0.232	0.344
Hosmer-Lemeshow test	5.364	6.746
	(0.616)	(0.564)

NOTES   In brackets *p*-values.

minimal internal capabilities seems to favour the ability of the firms to consider science institutions for cooperation, a strategy that, as Duysters and Lokshin (2007) point out, would make more complex the portfolio of external alliances.

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A third group of variables corresponds to external factors. It is confirmed that institutional support has a significant and positive influence on the propensity towards science-based cooperation. However, although competitiveness pressure shows a positive influence as well, its parameter is not statistically significant. As entrepreneurs' perception is highly extreme (with 82.8% declaring that their business faces a high competitive pressure), this variable maybe is not the optimum instrument to measure the competitiveness situation in those markets in which the surveyed firms develop their activity.

Belonging to the ICT sector, which has been considered as an indicator of market dynamism, shows a positive parameter. However, it is not statistically significant either. As a consequence, the multivariate model shows that the activity sector is not significant when absorptive capacity indicators are taken into account.

Finally, as already stated in previous works (see, for instance, Fritsch and Lukas 2001), the predictive capacity of the model probably could be improved with the inclusion of variables regarding the internalization of spillovers generated by the innovative activity or the effective cost saving due to the cooperative activity. Unfortunately, that information was not available.

Discussion and Conclusion

The results show the key role played by absorptive capacity as a determinant of science-based cooperation activities among small and micro firms. More specifically, it is possible to identify two different sources of absorptive capacity: a set of internal factors and a set of external factors. Both of them improve the propensity to engage in that kind of cooperation for innovation.

From an internal perspective, the most important factor is the labour qualification, that is, the educational degree of employees. It is also confirmed that the existence of an R&D department is also very significant. Both elements are key components that help organizations to better deal with universities and research centres for cooperation. On the other hand, firm size is relevant as well. In the studied milieu of very young firms, the companies are clearly shaped by the number of employees, because the marginal contribution of a new employee would have more significance than in the case of a larger company.

From an external perspective, institutional support appears to be a crucial element for improving the absorptive capacity of small compa-

nies, as it can help these firms to strengthen their organizational knowledge and to give access to networks configured by more diverse members. We do understand, therefore, that support institutions act as an effective interface between small and micro firms and universities and research centres. Summing up, absorptive capacity positively increases the propensity to establish cooperation with universities and research centres, even among firms located in a non-university innovative milieu which is managed by the local development agency in Barcelona. In turn, the absorptive capacity can be effectively improved both from inside and outside these new and small companies.

References

Audretsch, D. B., and M. P. Feldman. 2003. 'Small-Firm Strategic Research Partnerships: The Case of Biotechnology.' *Technology Analysis and Strategic Management* 15 (2): 273–88.

Baptista, R., and P. Swann. 1998. 'Do Firms in Clusters Innovate More?' *Research Policy* 27 (5): 525–40.

Barney J. B. 1986a. 'Strategic Factor Markets: Expectations, Luck and Business Strategy.' *Management Science* 32 (10): 1231–41.

———. 1986b. 'Organizational Culture: Can it Be a Source of Competitive Advantage?' *Academy of Management Review* 11 (3): 656–65.

———. 1991. 'Firm Resources and Sustained Competitive Advantage.' *Journal of Management* 17 (1): 99–120.

Belderbos, R., M. Carree, B. Diederen, B. Lokshin, and R. Veugelers R. 2004. 'Heterogeneity in R&D cooperation strategies.' *International Journal of Industrial Organization* 22 (8–9): 1237–63.

Bönte, W., and M. Keilbach. 2005. 'Concubinage or Marriage? Informal and Formal Cooperation for Innovation.' *International Journal of Industrial Organization* 23:278–302.

Bosch, van den F. A. J., R. van Wijk, and H. W. Volverda. 2003. 'Absorptive Capacity: Antecedents, Models and Outcomes.' In *Blackwell Handbook of Organizational Learning and Knowledge Management,* edited by M. Smith, and M. A. Lyles, 273–302. Malden, MA: Blackwell.

Camisón, C., and B. Forés. 2007. 'Factores antecedentes de la capacidad de absorción de conocimiento: un estudio teórico.' In *Empresa Global y Mercados Locales:* XXI *Congreso Anual* AEDEM. *Comunicaciones, 6.– 8. Junio 2007, Madrid,* edited by C. Mercado Idoeta, 48–65. Madrid: Universidad Rey Juan Carlos I.

Cassiman, B., and R. Veugelers. 2002. 'R&D Cooperation and Spillovers: Some Empirical Evidence from Belgium.' *American Economic Review* 92 (4): 1169–84.

Castells, M., and J. Vilaseca, ed. 2007. *Entorno innovador, iniciativa emprendedora y desarrollo local.* Barcelona: Octaedro.

Chesbrough, H. 2006. 'Open Innovation: A New Paradigm for Understanding Industrial Innovation.' In *Open Innovation: Researching a New Paradigm,* edited by H. Chesbrogh, W. Vanhaverbeke, and J. West, 1–12. Oxford: Oxford University Press.

CIS. 2006. 'Community Innovation Survey 2006.' http://epp.eurostat.ec .europa.eu/portal/page/portal/science_technology_innovation/data/ database

Cohen, W. M., and D. A. Levinthal. 1989. 'Innovation and Learning: The Two Faces of R&D.' *The Economic Journal* 99 (397): 569–96.

———. 1990. 'Absorptive Capacity: A New Perspective on Learning and Innovation.' *Administrative Science Quarterly* 35 (1): 128–52.

Colyvas, J., M. Crow, A. Gelijns, R. Mazzoleni, R. R. Nelson, N. Rosenberg, and B. N. Sampat. 2002. 'How Do University Inventions Get into Pratice?' *Management Science* 48 (1): 61–72.

David, P., B. H. Hall and A. A. Tool. 2000 'Is Public R&D a Complement or Substitute of Private R&D? A Review of the Econometric Evidence.' *Research Policy* 29 (4–5): 497–529.

Duysters, G., and B. Lokshin. 2007. 'Determinants of alliance portfolio complexity and its effect on innovative performance of companies.' UNU-MERIT Working Paper Series 033, United Nations University, Maastricht Economic and Social Research and Training centre on Innovation and Technology, Maastricht.

Eisenhardt, K., and C. Schoonhoven. 1996. 'Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms.' *Organization Science* 7 (2): 136–50.

Eurostat. 2009. *Science, Technology and Innovation in Europe.* Eurostat Statistical Books. Brussels: European Communities. http://epp.eurostat .ec.europa.eu/cache/ITY_OFFPUB/KS-EM-09-001/EN/KS-EM-09-001 -EN.PDF.

Fernández-Ardèvol, M. 2009. 'Determinants de la competitivitat de les petites i micro empreses en un entorn d'innovació.' PhD diss., University of Barcelona.

Fernández-Ardèvol, M., and J. Lladós. 2009. 'Science-based cooperation and business success: Transmittal mechanisms in a sample of small and micro firms.' In *Proceedings of the 10th Management International Conference, Sousse, Tunisia, 25–28 November,* 199–217. Koper: Faculty of Management.

Foss, N. J. 1999. 'Networks, Capabilities, and Competitive Advantage.' *Scandinavian Journal of Management* 15 (1): 1–15.

Frenz, M., J. Michie, and C. Oughton. 2003. 'Regional Dimension of Inno-

vation: Results from the Third Community Innovation Survey.' Paper presented at the SIEPI 2003 conference, Urbino, 1–2 December.

Fritsch, M., and R. Lukas. 2001. 'Who Cooperates on R&D?' *Research Policy* 30 (2): 297–312.

Hanna, V., and K. Walsh. 2002. 'Small Firm Networks: A Successful Approach to Innovation?' R&D *Management* 32 (3): 201–207.

Hernán, R., P. Marín, and G. Siotis. 2003. 'An Empirical Evaluation of the Determinants of Research Joint Venture Formation.' *The Journal of Industrial Economics* 51 (1): 75–89.

Jong, J. P. J. de, and P. A. M. Vermeulen. 2004. *Determinants of Product Innovation in Small Firms: A Comparison across Industries.* Zoetermeer: EIM.

Julien, P. A., E. Andriambeloson, and C. Ramangalahy. 2004. 'Networks, weak signals and Technological Innovations among SMEs in the Land-Based Transportation Equipment Sector.' *Entrepreneurship and Regional Development* 16 (4): 251–69.

Kim, J., S. J. Lee, and G. Marschke. 2005. 'The Influence of University Research on Industrial Innovation.' NBER Working Paper Series 11447, National Bureau of Economic Research, Cambridge, MA.

Kogut, B., and U. Zander. 1996. 'What Firms do? Coordination, Identity, and Learning.' *Organization Science* 7 (5): 502–18.

Lane, P. L., B. Koka, and S. Pathak. 2002. 'A Thematic Analysis and Critical Assessment of Absorptive Capacity Research.' *Academy of Management Proceedings* 1:1–7.

———. 2006. 'The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct.' *Academy of Management Review* 31 (4): 833–63.

Laursen, K., and A. Salter. 2004. 'Searching Low and High: What Types of Firms use Universities as a Source of Innovation?' *Research Policy* 33 (8): 1201–15.

Lee, C., K. Lee, and J. M. Pennings. 2001. 'Internal Capabilities, External Networks, and Performance: A Study on Technology Based Ventures.' *Strategic Management Journal* 22 (6–7): 615–40.

Lieberman, M. B. and D. B. Montgomery. 1998. 'First-Mover Advantages.' *Strategic Management Journal* 9:41–58.

Malecki, E. J. 1991. *Technology and Economic Development: The Dynamics of Local, Regional and National Change.* London: Longman.

Miotti, L., and S. Sachwald. 2003. 'Co-Operative R&D: Why and With Whom? An Integrated Framework of Analysis.' *Research Policy* 32 (8): 1481–99.

Noteboom, B. 1999. *Inter-Firm Alliances: Analysis and Design.* London: Rutledge.

Pavitt, K. 2005. 'Innovation Process.' In *The Oxford Handbook of Innovation,* edited by J. Faberger, D. C. Mowery, and R. R. Nelson, 86–114. Oxford: Oxford University Press.

Porter, M. 1990. *The Competitive Advantage of Nations.* New York: The Free Press.

Powell, W. W., K. W. Koput, and L. Smith-Doerr. 1996. 'Interorganisational Collaboration and the Locus of Control of Innovation: Networks of Learning in the Biotechnology Industry.' *Administrative Science Quarterly* 41:116–45.

Rumelt, R. 1984. 'Toward a Strategic Theory of the Firm.' In *Competitive Strategic Management,* edited by R. Lamb, 556–70. Englewood Cliffs, NJ: Prentice-Hall.

Tether, B. S. 2002. 'Who Co-Operates for Innovation, and Why: An Empirical Analysis.' *Research Policy* 31 (6): 947–67.

Vázquez Barquero, A. 1999. *Desarrollo, redes e innovación: Lecciones sobre desarrollo endógeno.* Madrid: Pirámide Ediciones.

Zucker, L. G., M. R. Darby, and J. S. Armstrong. 2001. 'Commercializing Knowledge: University Science, Knowledge Capture, and Firm Performance in Biotechnology.' NBER Working Paper Series 8499, National Bureau of Economic Research, Cambridge, MA.

Knowledge Resources and Competitive Advantage

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The paper discusses some definitions of knowledge as a potential source of competitive advantage. It reviews the literature pertaining to the assessment of knowledge assets. According to the resource-based view, which links the competitive advantage of organizations with resources and capabilities that are firm-specific, and difficult to imitate or substitute, a firm's competitive advantage is built on a set of strategically relevant resources (Barney 1991; Grant 1991; Peteraf 1993). When firms have access to similar resources, it is those companies that are able to maximize the utilization of those resources that attain a competitive advantage. Among various strategic resources and capabilities that help determine the extent of competitive advantages, a pivotal role is often assigned to knowledge – as both a resource in itself and an integrating factor that makes other resources and capabilities effective – especially in complex and dynamic environments.

Key Words: knowledge, competitiveness, firm performance, knowledge-based theory

JEL *Classification:* L26

Introduction

Managers share the opinion that the mere identification of competitive factors, opportunities and threats, as suggested by Porter (1980), is not enough for an efficient company strategy. It should also be determined which competences and sources are available in the organization in order to make accurate assessments of a company's strategic competences (Andrews 1971). As different companies develop different distinctive competences (Selznick 1957), the most important question is: does the company have appropriate competences in order to reach its targets? For understanding the importance of knowledge for firms, we should consider the contribution of the theory based on resources – the resource-based theory (RBT); and the theory, based on knowledge – knowledge-based

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theory (KBT). Penrose (1959) developed the concept of competitiveness based on competences; this concept was further developed by Werner-felt (1984), Rumelt (1984) and Barney (1986). They propose the firm as a collection of individual unique resources. This collection is increasingly knowledge-based.

The resource-based view focuses on resources that are permanently tied to a firm (Wernerfelt 1984). The combination of resources over time allows for the evolution of specific capabilities which optimally lead to competitive advantage (Amit and Shoemaker 1993). The most commonly used application of the resource-based view in literature is to use it for identifying different types of competences, where distinctive competence is defined as something a firm can do better than any of its competitors. Specifically, the resource-based view identifies two types of distinctive competence: resources and capabilities (Collis and Montgomery 1997). Resources may be either tangible or intangible. Tangible resources are physical assets that a firm owns, such as a unique product, plant and equipment. Intangible resources, on the other hand, do not physically exist, however they provide significant value, such as a brand name recognition, reputation, patents, and technological or marketing know-how (Collis and Montgomery 1995). The contemporary accounting practice must introduce solutions in the sense of measuring the intangible assets as well. The traditional balance sheet of a company does not provide sufficient information, since it does not contain intangible resources in the sense of the concept of a knowledge-based company (Ivankovič 2006). Capabilities are a company's skills at coordinating its resources and putting them to productive use (Collis and Montgomery 1995). Capabilities include values, people, and processes (Collis and Montgomery 1997).

The resource-based perspective takes the firm's internal approach. The basic logic is that the firm's unique capabilities in terms of knowhow and managerial ability are important sources that may create sustained competitive advantages. The distinctive knowledge and superior organizational routines in one or more of the firm's value chain functions may enable the firm to generate profit from a resource advantage (Mahoney and Pandian 1992; Hitt and Ireland 1985). The resource-based view stresses the internal capabilities of the firm, which determine the strategic decisions for competing in its external environment. As noted by Penrose (1959), firms may achieve performance and profit not because they possess better resources, but because their distinctive knowledge allows

them to make better use of their resources. In order to turn a distinctive competence into a sustainable competitive advantage, a firm not only needs to possess a unique resource, but must also have the capabilities to exploit that resource. Therefore, the distinction between resources and capabilities is critical in order to to understand what generates a competitive advantage. A company may have unique and valuable resources, but unless it has the capability to use those resources effectively, it may not be able to create or sustain a competitive advantage

The use of firm's knowledge also has a social dimension. In firms with positive cultures, where the teamwork is effective and goal directed the utilization of knowledge seems to be more efficient. Many firms outdo their competitors not because their knowledge base is better or different, but because their management of knowledge is rather better. Firms should necessarily analyze their knowledge, so that methods can be implemented to further develop and protect it.

The personal knowledge approach derives from the fundamental assumptions that knowledge is essentially personal in nature and that knowledge is therefore very difficult or even impractical to extract from the minds of individuals. One important reason why some knowledge is found difficult to share between people and organizations is because it has not been codified. Knowledge that cannot be represented by codes is often classified as tacit knowledge, a term introduced by Michael Polanyi (1958). Polanyi argues, that the reason why we are not able to express all that we know, is that our awareness encompasses a lot more than we are consciously aware of. This approach assumes that the knowledge within an organization essentially consists of tacit personal knowledge in the minds of individuals in the organization. Tacit knowledge is the knowledge that employees have, but is hard to articulate (Polanyi 1967).

Working from the premise that knowledge is inherently personal in nature and will therefore largely remain tacit in the minds of individuals, this approach offers recommendations for strategies that focus on managing people as individual generators and carriers of knowledge. To manage the personal knowledge of individuals, managers are typically urged to identify the kinds of knowledge possessed by various people in an organization and then to arrange appropriate interactions between knowledgeable individuals (Sanchez 2005)

Knowledge in firms represents the foundation on which a company's competitiveness strategy is constructed. Similarly, knowledge is the most important resource for company profitability (Grant 1991) and growth

in domestic and international markets (Ruzzier et al. 2007). Companies should therefore identify, improve, develop and employ their knowledge resources in order to strengthen or retain their competitive advantages and to improve their effectiveness (Peteraf 1993; Prahalad and Hamel 1990; Teece, Pisano and Shuen 1997, Ruzzier, Antončič and Konečnik 2006). This means that knowledge should be understood as the fundamental resource of revenues (Grant 1991; Spender and Grant 1996). The organizational knowledge approach assumes that knowledge is something that can be articulated and explained by individuals who have knowledge, even though some effort and assistance may sometimes be required to help individuals articulate what they know. As a result, the organizational knowledge approach fundamentally assumes that much, if not all, of the knowledge of individuals that is useful to an organization can be articulated and thereby made explicit and available to others. The organizational knowledge assets can be disseminated within an organization, usually through documents, drawings, standard operating procedures, manuals of best practice, and the like (Sanchez 2005).

Companies have always been based on knowledge. Knowledge is even more a crucial asset in current times of global competition; organizations are becoming more knowledge intensive and they are hiring 'minds' more than 'hands' (Wong 2005).

Firms with more knowledge will be able to notice changes on the market faster. Furthermore, they are capable of perceiving the profitable opportunities on the market faster than their competitors. Firms should constantly develop their competences, skills and techniques and acquire specific knowledge in order to survive and innovate new opportunities in their industries. Firms are becoming learning organizations. They make considerable efforts to build a systematic strategy for acquiring, storing and disseminating knowledge.

The Classification of Knowledge

Within an organization we can find knowledge taking different forms. There are important differences between the explicit or implicit/silent knowledge forms of knowledge. Explicit knowledge can be coordinated, stored and exchanged (Popper 1972). This is theoretical knowledge, which can be found in the form of databases, handbooks, instructions, etc. On the other hand, implicit knowledge is personal knowledge of people, intuitive and difficult to transmit and to describe. It is acquired through experience. Nonaka (1991) mentions four forms of

flows, namely the flows between implicit and explicit knowledge, the flows from implicit to implicit knowledge, the flows from explicit to implicit knowledge and, last but not least, the flows from explicit to explicit knowledge. For the firm, managing knowledge requires a deep understanding of its characteristics.

While data, information and knowledge can all be viewed as assets of an organisation, knowledge provides a higher level of meaning about data and information. It conveys meaning, and hence tends to be much more valuable (Turban and Aronson 2001). Knowledge is information that changes something or somebody, either by becoming grounds for actions, or by making an individual or an institution capable of different or more effective actions (Drucker 1994). These definitions affirm that knowledge is more valuable to an organisation than in its lower forms such as data or information.

Table 1 shows the classification of knowledge by different authors.

Knowledge and Competitive Advantage

Nowadays firms must compete in a challenging context that is being transformed by globalization, technological development, increasingly rapid diffusion of new technology and the development and use of knowledge (Hitt, Keats, and DeMarie 1998). Firms are required to do things differently in order to survive and prosper. Specifically, they must look to new sources of competitive advantage and engage in new forms of competition. Besides knowledge being an important resource in itself, the efficient allocation and use of other resources requires relevant knowledge. Not all forms and kinds of knowledge are equally important for acquiring competitiveness. Demarest (1997) described the nature of commercial knowledge, which goal of which is not to find the truth, but to ensure performance.

Competitiveness is the ability to provide products and services, as effectively as, or more effectively and efficiently than the relevant competitors. Measures of competitiveness include firm profitability, the firm's export quotient (exports or foreign sales divided by output), and regional or global market share. Performance in the international marketplace provides a direct measure of a firm's competitiveness. Competitiveness is also the ability to match or even beat the world's best firms in cost and quality of goods or services. Measuring competitiveness is often difficult. Measures of competitiveness include firm profitability and measures of cost and quality. In industries characterized by foreign direct investment,

TABLE 1 Classification of knowledge

Nonaka and Takeuchi (1995)	Knowledge is a dynamic human process, it can be either explicit or implicit, in both cases it represents intellectual capital. Authors focus on the transformation of tacit knowledge into explicit knowledge and then back.
Klein and Prusak (1994)	Klein and Prusak (1994) define Intellectual capital as 'packaged useful knowledge.' It is a kind of knowledge converted into some higher form.
Davenport and Prusak (1998)	Knowledge is a 'fluid mix of framed experience, values, contextual information and expert insights that provides a framework for evaluating and incorporating new experiences and information.' In firms knowledge can be found not only in documents but also in firm business routines and processes. Knowledge is information combined with experience.
Bertels and Savage and Bertels (1999);	The authors stress the significance of firm knowledge as it allows the firm to keep up with market needs. As we are in the knowledge Era, working with raw materials is not enough, we should also use raw ideas. The companies that invest in their own knowledge and knowledge management capabilities are not only improving their competitiveness but also increasing their corporate valuation.
Čater (2000)	The author defines the following dimensions of knowledge: *know-what* – it is a conceptual knowledge which is a fundamental knowledge, a necessary one, but not always a condition for success; *know-how* – it can be defined as the applied knowledge which helps translate a written theory into an efficient implementation; *know-why* – this kind of knowledge represents the employee's intuition and his/her ability to react in unexpected situations; *care why* – this is the fourth level of knowledge; it is composed of perseverance, adaptability and motivation.

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the firm's percentage of foreign sales and its share of regional or global markets can provide measures of firm competitiveness.

For the nation, competitiveness means the ability of the nation's citizens to achieve a high and rising standard of living. According to Porter (1990), competitiveness should be measured by the level and growth of aggregate productivity which determines the long-term level and growth of a nation's standard of living. Also, Porter (1990) suggests that no single country can be competitive in all industries, considering that resources (work and capital) are limited. A country should effectively allocate its resources to the areas with competitive advantages. In so doing, a country should create an environment in which companies would develop and grow in such a manner as to be able to successfully compete on

TABLE 1 *Continued from the previous page*

Lam (2000)	The author defines four categories of knowledge, i. e. embedded, encoded, embodied and embrained knowledge. This typology integrates the cognitive and the firm's dimensions. We can define *embrained knowledge* as the conceptual knowledge of the individual. It is based on his/her ability to understand theoretical concepts. It can be formal, abstract or theoretical. The systematic knowledge of scientists, which represents the rational understanding of the basic principles and laws of nature, also belongs to this category. We can define *embodied knowledge* as empirical knowledge, as it is created through practical experience. It is individual and silent and proceeds from experience ('doing'). The embedded knowledge is the collective form of tacit knowledge. It can be found in companies in the form of system routines and generally accepted rules. It is essential in processes which require employee interaction without written rules. We can understand encoded knowledge as information, already codified and stored. It includes written procedures, instructions and rules. We can find encoded knowledge in books, papers or in electronic forms.
Laszlo and Laszlo (2002)	Knowledge is relevant for the firm's performance. It is a product of human experience and reflection. Knowledge is one of the firm's resources that can be individual or collective. Knowledge in the firm is also the main source of value creation. Knowledge is power; it is up to managers to decide how to use it.
Brooking (1998)	The author defines four forms of intellectual capital, of which two of them contain knowledge dimensions. One of these encompasses overall expertise, creativity and ability to solve problems. The second one includes philosophy of management and organization culture.

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international markets. Porter (1990) authored the national competitive advantage theory, according to which the competitive advantages are influenced by human resources, knowledge, natural resources, infrastructure, and capital resources. Porter's (1990) 'diamond of national competitiveness' model postulates that success in international competition in a given industry depends on the relative strength of an economy in a set of business-related features or 'drivers' of competitiveness, namely 'factor conditions;' 'demand conditions;' 'related and supporting industries,' and 'firm strategy, structure, and rivalry.'

In most nations, the standard of living is determined by the productivity with which the nation's resources are deployed, the output of the economy per unit of labour and/or capital employed. Competitiveness at the national level is measured by the level and growth of the nation's

TABLE 1   *Continued from the previous page*

Nemec Rudež and Mihalič (2007)	The authors divide knowledge into four forms of intellectual capital. They are human capital, structural capital and two categories of relationship capital: end-customer relationship capital and non-end-customer relationship capital. Such a model enables us to study the importance of end customers separately, as well as the importance of other firms' relationships with business, government, local authorities and other associations, the media and the general public.
Rodriguez Perez and Ordonez de Pablos (2003)	Companies benefit from so-called core knowledge, which is characterized by high-value and high-level uniqueness. Companies should invest especially in this form of knowledge with a view to increasing company value potential. Firms need also specific knowledge, as it is a potential source of differentiation. It is very important to develop this form of knowledge. The compulsory knowledge can also be important for a company; however, investments in this type of knowledge are different from investments in core knowledge. For the company's operating activities the ancillary knowledge is created. This form of knowledge does not constitute a competitive advantage.
Stewart (2003)	Knowledge must continuously circulate within the organization. As long as there is a stock of knowledge, there should be a flow of knowledge as well. Knowledge is a public good and can be used by several individuals simultaneously. Knowledge is independent of place and can be in several places at the same time. Firms should be aware that the creation of knowledge can be rather expensive, while its propagation and sharing is rather inexpensive.

standard of living, the level and growth of aggregate productivity, and the ability of the nation's firms to increase their penetration of world markets through exports or foreign direct investment.

To be competitive a firm should be able to learn quickly and apply the acquired knowledge faster than the competitors. A company should improve its existing skills as well as master new ones continually. A company's infrastructure should be organized in such a manner that the adequate technological equipment, internet and intranet, knowledge banks, libraries, continuous training, and meetings stimulate efficient team work, creativity, positive attitudes, and self-confidence; and favourable work environments should be organized with a view to gaining or maintaining a competitive advantage (Rampersad 2007). To understand why certain competitive strategies are more effective than others, one must consider the distribution of resources in competing firms. Competitive advantages that are sustained over time lead to higher performance (Peteraf 1993). In the more traditional competitive landscape,

tangible resources, such as buildings, machinery, or access to capital were the most important potential sources of competitive advantage. But firms employ both tangible and intangible resources, and as the nature of work and competition changes, intangible resources are becoming more important. Examples of intangible resources are reputation, brand equity, and knowledge. Among a firm's intangible resources, knowledge is the most important and critical for competitive advantage because it is the most difficult to imitate.

A firm is represented by a series of different resources. Knowledge, as one of the resources, is an important element for company performance. Moreover, knowledge, as a part of human capital, is considered to be the most important factor for selecting and managing crucial resources to implement the desired strategy to achieve performance (Baird and Mashoulam 1988; Bergman Liechtenstein and Brush 2001). Managers should be aware that the unique and relevant knowledge is usually linked to employees. This is why the firm is extremely vulnerable to the degree that these employees are inclined to move to another company. Employees are transferable assets, and the organizations have to do their best to retain the employees with high knowledge capabilities.

KNOWLEDGE CAPITAL

Knowledge capital can be acquired (through education, training, etc.) and preserved (through lifelong learning and continuing education). Unlike other forms of the firm's assets, knowledge cannot be separated from its holder and it is entirely dependent on that person's capability to apply her/his knowledge in an organization. Considering knowledge as the main resource for creating company value suggests that it has come to regard knowledge as capital. Knowledge capital is synonymous with intangible capital. Its existence is difficult to measure. It comes from investments that firms make in their employees. These investments produce knowledge whose benefits extend beyond the years in which the expenditures occur. These investments are perhaps most frequently associated with expenditures on research and development (R&D). The type of knowledge capital that firms develop varies considerably across a wide range of industries. Unfortunately there is nothing to guarantee that by spending money on research and development, firms will actually develop useful knowledge capital (Baldwin and Gellatly 2006).

Throughout history, the forms and the role of capital have been changing. At the beginning capital had a monetary meaning, later, in the 17th

and 18th centuries, capital was closely related with national welfare and wealth. At the end of the 18th century, capital acquired the typical meaning of money intended for the purchase of goods. Nowadays the business world has started considering new forms of capital (Tymon and Stumpf 2003, 13).

The capital structure of firms has received extensive theoretical and empirical attention, including the role of intangible assets on optimal leverage (Rajan and Zingales 1995). The Zucker, Darby, and Brewer (1998) study explores the characteristics and growth of firms. Their findings reveal a connection between the location and growth of intellectual capital. It is apparent from these studies that knowledge capital can influence both the location and capital structure of firms. Liu (2001) studied the interaction among firms' knowledge capital, growth opportunities, earnings dynamics, and optimal leverage. Results suggest that investments in research and development and knowledge capital are related to leverage.

If we regard the value of knowledge as a resource with certain economic effects, this suggests that we understand knowledge as capital. Since knowledge as capital produces economic effects for its holders, it can be assigned economic market value according to supply and demand. In this value process, knowledge turns into capital. When defining knowledge as capital, it is reasonable to emphasize the investment aspect of knowledge, since investments increase the existing pool of knowledge and create sources of future income (Kešeljević 2004). Such investments result in the creation of new human capital which cannot be separated from the individual.

Human capital is a general term that refers to all of the resources that individuals directly contribute to an organization: physical, knowledge, social, and reputational. Human capital resources help individuals contribute to gaining and sustaining a competitive advantage. During the industrial age, human capital was valued because of physical resources such as strength, endurance, and dexterity – these were the aspects of human capital that were most likely to lead to competitive advantages. But as new machinery and technology were introduced, these characteristics became less important. In the current economic landscape, human capital is more likely to be valued for intellect, social skills, and reputation (DeNisi, Hitt, and Jackson 2010).

The understanding of the role of employees is not a new phenomenon. The role of individual entrepreneurial resources is ever changing; while

the importance of financial capital is on the decrease, human capital is gaining importance as a resource. Company employees as holders of knowledge, emotions, competencies, experiences and values are becoming the most important competitive advantage and, consequently, the most important source of company performance (Tomažič 2003, 27).

The human capital theory defines human capital at several levels. From the individual aspect, it emphasizes the importance of understanding knowledge acquisition as the investment in the individual. Investments result in the creation of new capital. From the entrepreneurial aspect, it emphasizes the benefits and costs in the relationship between employer and employee. Training is successful if a company's additional income exceeds the costs of substitute workers and training. From the national-economic aspect, a company as a whole benefits from education advantages (Kešeljević 2004). The implementation of company tasks, processes and transactions requires combinations of different dimensions of employee competencies (Stewart 2003). There exist general competences (more or less applicable in several branches, like typewriting, answering the telephone, and similar), balanced competences (can be applied by other companies, and not only by a single company, like tax consultants, lawyers, and similar) and special competencies (specific to an individual company and determining its strategy, for which reason they constitute its competitive advantage).

The entire human capital is owned by employees. Firms' managements aim at transferring human capital in the form of explicit knowledge and pass it into company ownership. The value created by an employee in a company returns partly to the individual in the form of payment, while part of it remains in the firm in the form of return on capital. Human capital is part of the individual (Nonaka and Takeuchi 1995) and consists primarily of the knowledge acquired on the basis of education and experience. Formal education is only one part of forming human capital. In many ways it is more useful to think of human capital formation as an experience or training, acquired by the life-long learning process. In their study Anderson, Locker and Nugent (2002) stated that in addition to social capital, human capital is the most important factor in entrepreneurship (2002). The impact of human capital on company growth has been studied by many researchers (Watts, Cope, and Hulme 1998; Johanisson 1999; Cope and Watts 2000; Edelman, Brush, and Monolova 2001; Honig 2001; Piazza-Georgi 2002; Ar-

gyris 2002; Baron and Markman 2003). In the literature, the most frequent mention is made of the impact of knowledge on market value, on increasing profitability and, thereby, on performance and competitiveness.

KNOWLEDGE AND FIRM COMPETITIVENESS

Different researchers have shown that there is a significant relationship between organizational resources, capabilities and performance (Barney 1991; Fahy 2000; Gimenez and Ventura 2002; Wiklund and Shepherd 2003; Bowen and Ostroff 2004; Morgan, Kaleka, and Katsikeas 2004; Sirmon, Hitt, and Ireland 2007). Empirical studies by Schroeder, Bates and Junttila (2002) and Ketokivi and Schroeder (2004) have found that a significant level of performance can be explained by organizational resources, capabilities and systems. Indeed, organizational resources, capabilities and systems are regarded as good predicting variables for the variance in firm performance. Competitive advantage plays a significant mediating role in the relationship between organizational resources, capabilities, systems and performance (Prahalad and Hamel 1990; Barney 1991; Mascarenhas, Baveja, and Jamil 1998; Fahy 2000; Ma 2000; Gimenez and Ventura 2002; Morgan, Kaleka and Katsikeas 2004; Sirmon, Hitt, and Ireland 2007).

Employees' knowledge is related to firm performance (Bergman, Liechtenstein, and Brush 2001; Smith, Collins, and Clark 2005; Subramanian and Youndt 2005). There exists the positive impact of the experience of employees on the firm's performance, measured by the return on investment and sales growth (Piercy, Kaleka, and Katsikeas (1998) The linking between knowledge and competitive advantage has been confirmed (Makovec, Brenčič, and Žabkar 2001), as also between knowledge and profitability (Čater and Alfirevič 2003).

Prusak (in Marti 2001, 150) agrees with the economists who have found that knowledge, the manner of its application, and the ability to employ new knowledge as quickly as possible are the most important factors that provide and sustain an organization's competitive advantages. This is why the lack of knowledge constitutes the main obstacle to the achievement and creation of a company's competitiveness. Competitiveness has become more and more a really 'dangerous obsession' (Krugman 1994) for the entities operating in the global economic world. Firm's management has to look closer at the impact of different factors affecting the firm's competitiveness. It has to evaluate them in order to

integrate the positive effects they may generate, and to avoid / reject them if their impact is negative.

Companies should be capable of adapting to competitive trends and taking defensive measures. The company itself is the basis of its competitive advantage (Porter 1980). Firms aim at improving their position through their actions and use competitive factors to their own benefit by accurately anticipating them. Porter proposed a model consisting of five competitive forces, namely: threat of entry of new competitors, intensity of market rivalry, availability and pressure from substitute products, bargaining power of buyers, and bargaining power of suppliers. These forces are viewed as the determinants of the industry's overall competitiveness and profitability. For creating competitive advantage, he proposed (first) lower costs and (second) differentiation of products or services. The latter, however, is not possible without knowledge as a source of intellectual capital. The very relevant and important aspect of the competitiveness of the firm is the industry in which the firm competes. In Porter's wording, 'the industry is the "arena" where competition takes place.'

Nonaka and Takeuchi (1995, 46) note that the competitive environment has changed so much that Porter's five-factor model for strategic decision-making has become obsolete. Companies are indeed forced to rapidly adapt their products or services, markets and sometimes even the entire activity. The consumer needs are changing constantly and transparency among markets and eventual competitors is decreasing. In such an environment, company performance must rely on the use of its own capacities.

Employees of certain companies are being considered a strategic resource which can play a key role in the realization of company strategies and goals. People and their abilities are the creators of value and of invisible structures (Sveiby 2001). Within the company this means the tangible and intangible assets, meanwhile outside a company the value is created through the sale of products and services and through relations between buyers and suppliers as well.

The internal company resources are of key importance in creating competitive advantages Fahy (2000). Fahy classifies the internal resources into tangible and intangible assets and, on the other hand, into competencies. For the analysis of relevance of these categories, Fahy defines the added value as the extent to which an individual category contributes to the realization of a strategy and set goals, satisfies customers and, thereby, increases company performance. The resources which defy

simple imitation and whose transferability and substitution are impeded are important in creating competitiveness. The resources which create such an added value, that for the most part remains in the ownership of a company, are the most important in creating competitiveness.

Fahy (2000) includes among intangible assets: customer confidence, company reputation, intellectual property, databases, and networks of connections within and outside a company. He further adds that intangible assets and competencies constitute rather complex categories of assets, for which reason they are difficult to imitate and transfer from one company to another. Added value created by intangible assets is owned by a company with a mark-up on selling prices, while employee competencies and experience should be integrated in a company's operation system to the greatest extent possible. An adequate management strategy, which can apply intangible assets and competencies on the market with a view to creating added value is required as well.

Conclusion

It is possible for firms to successfully substitute firm resources in the short term, but it is unlikely to be the same for knowledge resources. This is the reason why knowledge meets the criteria for being a source of sustainable competitive advantage. Knowledge adds value to the firm and it cannot be imitated. Certain competitive strategies are more effective than others, it is important to distribute resources effectively. A firm may possess more or less different resources, but only those resources that are rare and difficult to imitate provide a sustainable competitive advantage (Amit and Schoemaker 1993; Barney 1991).

Globalization, technical evolution, and deregulation are changing the competitive structure of markets in such a way that the effectiveness of traditional sources of firms' competitive advantage is often debilitated. Competitive advantages based on physical, financial, or even technological assets are less and less sustainable since these assets are more easily transmittable. This is the reason why firms need to concentrate on the development of difficult imitable capabilities. Such capabilities relate to employees of the firm. They develop and apply their abilities, knowledge and skills, organized and coordinated in ways which can be also distinctive.

The aim of this study was to review the literature in the field of knowledge and to analyze some fundamental challenges regarding the knowledge resources of a firm as sources of competitive advantage. Knowledge

is a source of sustained competitive advantage because it is valuable, rare, inimitable and non-substitutable. It is the resource based theory of the firm that suggests integrating knowledge into the firm's strategy. The resource based theory provides a framework for viewing knowledge as a pool of capital. Examining organizational competitive advantage from the resource-based view of the firm is crucial, as it can be used as a conceptual framework for business organizations in particular to enhance their competitive advantage position and performance via the identification of organizational resources, capabilities and systems. Such a research can contribute to the knowledge by lending empirical support and further extending the resource-based view of competitive advantage by examining the relative importance of organizational internal attributes towards attaining competitive advantage and enhancing firm performance.

We consider that the source of competitive advantages depends on knowledge, as also that knowledge is a necessary, but not a sufficient condition. Future research must be conducted in order to develop more deeply the relationship between different capabilities, especially knowledge, and different measures of competitiveness.

References

Amit, R., and P. J. Shoemaker. 1993. 'Strategic Assets and Organizational Rent.' *Strategic Management Journal* 13 (3): 33–46.

Anderson, C. L., L. Locker, and R. Nugent. 2002. 'Microcredit, Social Capital and Common Pool Resources.' *World Development* 30 (1): 95–118.

Andrews, K. R. 1971. *The Concept of Corporate Strategy.* Homewood, IL: Dow Jones-Irwin.

Argyris, C. 2002. 'Double-Loop Learning, Teaching, and Research.' *Academy of Management Learning and Education* 1 (2): 206–18.

Baird, L., and I. Meshoulam. 1988. 'Managing Two Fits of Strategic Human Resource Management.' *Academy of Management Review* 13 (1): 116–28.

Baldwin, J. R., and G. Gellatly. 2006. *Innovation Capabilities: The Knowledge Capital Behind the Survival and Growth of Firms.* Ottawa: Statistics Canada.

Baron, A. R., and D. G. Markman. 2003. 'Beyond Social Capital: The Role of Entrepreneurs' Social Competence in Their Financial Success.' *Journal of Business Venturing* 18 (1): 41–60.

Barney, J. B. 1986. 'Strategic Factor Markets: Expectations, Luck and Business Strategy.' *Management Science* 32 (10): 231–41.

Barney, J. B. 1991. 'Firm Resources and Sustained Competitive Advantage.' *Journal of Management* 17 (1): 99–129.

Becker, B. B., and M. A. Huselid. 1998. 'High Performance Work Systems and Firm Performance: A Synthesis of Research and Managerial Implications.' *Personnel and Human Resource Management* 16:53–101.

Bergmann Liechtenstein, B. M., and C. G. Brush. 2001. 'How Do Resource Bundles Develop and Change in New Ventures? A Dynamic Model and Longitudinal Exploration.' *Entrepreneurship Theory and Practice* 25 (3): 37–59.

Bertels, T., and C. M. Savage. 1999. 'A Research Agenda for the Knowledge Era: The Tough Questions.' *Knowledge and Process Management* 6 (4): 205–12.

Bowen, D. E., and C. Ostroff. 2004. 'Understanding HRM–Firm Performance Linkages: The Role of the "Strength" of the HRM System.' *Academy of Management Review* 29 (2): 203–21.

Brooking, A. 1998. *Intellectual Capital: Core Asset for the Third Millennium Enterprise.* London: Thomson.

Collis, D. J., and C. A. Montgomery. 1995. 'Competing on Resources: Strategy in the 1990's.' *Harvard Business Review* 73 (4): 118–28.

Collis, D. J., and C. A. Montgomery. 1997. *Corporate Strategy: Resources and the Scope of the Firm.* Chicago, IL: Irwin.

Collison, M. 2002. 'Clear Thinking.' *Summit,* Autumn.

Cope, J., and G. Watts. 2000. 'Learning by Doing: An Exploration of Experience, Critical Incidents and Reflection in Entrepreneurial Learning.' *International Journal of Entrepreneurial Behaviour and Research* 6 (3): 104–24

Čater, T. 2000. 'Znanje kot vir konkurenčnih prednosti in management znanja.' *Naše gospodarstvo* 46 (4): 505–20.

Čater, T., and N. Alfirević. 2003. 'Sources of Competitive Success of Large Enterprises in Transition: The Case of Croatia and Slovenia.' In: *Enterprise in Transition,* 2372–92. Split: Faculty of Economics.

Davenport, T. H., and L. Prusak. 1998. *Working Knowledge: How Organizations Manage What They Know.* Boston, MA: Harvard Business School Press.

DeNisi, A., M. A. Hitt, and S. E. Jackson. 2010. 'The Knowledge-Based Approach to Sustainable Competitive Advantage.' http://media.wiley.com /product_data/excerpt/78/07879571/0787957178.pdf

Demarest, M. 1997. 'Understanding Knowledge Management.' *Long Range Planning* 30 (3): 374–84.

Drucker, P. 1994. *The New Realities: in Government and Politics/in Economics and Business/in Society and World View.* New York: Harper Business.

Edelman, L. F., C. G. Brush, and T. S. Manolova. 2001. 'The Impact of Human and Organizational Resources on Small Firm Strategy.' *Journal of Small Business and Enterprise Development* 9 (3): 236–44.

Fahy, J. 2000. 'The Resource Based View of the Firm: Some Stumbling Blocks on the Road to Understanding Sustainable Competitive Advantage.' *Journal of European Industrial Training* 24 (2): 94–104.

Gimenez, C., and A. Ventura. 2002. 'Supply Chain Management as a Competitive Advantage in the Spanish Grocery Sector.' UPF Working Paper Series 641, Universitat Pompeu Fabra, Barcelona.

Grant, R. M. 1991. 'The Resource Based Theory of Competitive Advantage: Implications for Strategy Formulation.' *California Management Review* 33 (3): 14–35.

Hitt, M. A., and R. D. Ireland. 1985. 'Corporate Distinctive Competence, Strategy, Industry and Performance.' *Strategic Management Journal* 6 (3): 273–93.

Hitt, M. A., B. A. Keats, and S. M. DeMarie. 1998. 'Navigating in the New Competitive Landscape: Building Strategic Flexibility and Competitive Advantage in the 21st Century.' *Academy of Management Executive* 12 (4): 22–42.

Honig, B. 2001. 'Human Capital and Structural Upheaval: A Study of Manufacturing Firms in the West Bank.' *Journal of Business Venturing* 16 (6): 575–94.

Ivankovič, G. 2006. 'Marketing-Oriented and Strategic Management Accounting.' In *Destination Management,* edited by R. Ovsenik and I. Kiereta: 134–56. Frankfurt am Main: P. Lang.

Johannisson, B. 1999. 'Networking and Entrepreneurial Growth.' In *Handbook of Entrepreneurship,* edited by D. Sexton and H. Landstrom: 368–86. London: Blackwell.

Kešeljević, A. 2004. 'Intelektualni kapital kot nadgradnja človeškega in socialnega kapitala.' *Organizacija* 37 (1): 43–9.

Ketokivi, M., and R. Schroeder. 2004. 'Manufacturing Practices, Strategic Fit and Performance: A Routine-Based View.' *International Journal of Operations and Production Management* 24 (2): 171–91.

Klein, D., and L. Prusak. 1994. *Characterizing Intellectual Capital.* Boston, MA: Ernst and Young.

Krugman, P. 1994. 'Competitiveness: A Dangerous Obsession.' *Foreign Affairs* 73 (2): 28–44.

Lam, A. 2000. 'Tacit Knowledge, Organizational Learning and Societal Institutions: An Integrated Framework.' *Organization Studies* 21 (3): 487–513.

Laszlo, K. C., and A. Laszlo. 2002. 'Evolving Knowledge for Development: The Role of Knowledge Management in a Changing World.' *Journal of Knowledge Management* 6 (4): 400–12.

Liu, Q. 2001. 'Knowledge Capital, Growth Opportunities, and Leverage: Evidence from US Biotechnology Firms.' Working paper, School of Economics and Finance, University of Hong Kong.

Ma, H. 2000. 'Competitive Advantage and Firm Performance.' *Competitiveness Review* 10 (2): 16–7.

Mahoney, Y. T., and J. R. Pandian. 1992. 'The Resource Based View within the Conversation of Strategic Management.' *Strategic Management Journal* 13 (5): 363–80.

Makovec-Brenčič, M., and V. Žabkar. 2001. 'Competitive Advantage as a Result of Non-Price Factors: Application of the Structural Equation Model.' *Economic and Business Review* 3 (1): 25–44.

Marti, J. M. V. 2001. 'ICBS: Intellectual Capital Benchmarking System.' *Journal of Intellectual Capital* 2 (2): 148–65.

Mascarenhas, B., A. Baveja, and M. Jamil. 1998. 'Dynamics of Core Competencies in Leading Multinational Companies.' *California Management Review* 40 (4): 117–32.

Morgan, N. A., A. Kaleka, and C. S. Katsikeas. 2004. 'Antecedents of Export Venture Performance: A Theoretical Model and Empirical Assessment.' *Journal of Marketing* 68 (1): 90–108.

Nahapiet, J., and S. Ghoshal. 1998. 'Social Capital, Intellectual Capital, and the Organizational Advantage.' *Academy of Management Review* 23 (2): 242–66.

Nemec Rudež, H., and T. Mihalič. 2007. 'Intellectual Capital in the Hotel Industry: A Case Study from Slovenia.' *International Journal of Hospitality Management* 26 (1): 188–99.

Nonaka, I. 1991. 'The Knowledge Creating Company.' *Harvard Business Review* 69 (6): 96–104.

Nonaka, I., and H. Takeuchi. 1995. *The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation.* New York: Oxford University Press.

Penrose, E. T. 1959. *The Theory of the Growth of the Firm.* New York: John Willey and Sons.

Peteraf, M. A. 1993. 'The Cornerstones of Competitive Advantage: A Resource Based View.' *Strategic Management Journal* 14 (3): 179–88.

Piazza-Georgi, B. 2002. 'The Role of Human and Social Capital in Growth: Extending Our Understanding.' *Cambridge Journal of Economics* 26 (4): 461–79.

Piercy, N. F., A. Kaleka, and C. S. Katsikeas. 1998. 'Sources of Competitive Advantage in High Performing Exporting Companies.' *Journal of World Business* 33 (4): 378–93.

Polanyi, M. 1958. *Personal Knowledge.* London: Routledge.

Polanyi, M. 1967. *The Tacit Dimension.* New York: Anchor.

Popper, K. R. 1972. *Objective Knowledge: An Evolutionary Approach.* Oxford: Clarendon.

Porter, M. E. 1980. *Competitive Strategy.* New York: The Free Press.

Porter, M. 1990. *The Competitive Advantage of Nations.* New York: The Free Press.

Prahalad, C. K., and G. Hamel. 1990. 'The Core Competence of the Corporation.' *Harvard Business Review* 68 (3): 79–91.

Rajan, G. R., and L. Zingales. 1995. 'What Do We Know about Capital Structure? Some evidence from International Data.' *Journal of Finance* 50 (5): 1421–60.

Rampersad, H. K. 2007. 'Organisational Learning for Successful Companies.' Http://www.marshallgoldsmithlibrary.com/docs/ThoughtLeaders/Rampersad/Organisational-Learning.pdf.

Rodriguez Perez, J., and P. Ordonez de Pablos. 2003. 'Knowledge Management and Organizational Competitiveness: A Framework for Human Capital analysis.' *Journal of Knowledge Management* 3 (7): 82–91.

Rumelt, R. P. 1984. 'Towards a Strategic Theory of the Firm.' In *Competitive strategic Management,* edited by R. B. Lamb: 556–70. Englewood Cliffs, NJ: Prentice Hall.

Ruzzier, M., B. Antončič, and M. Konečnik Ruzzier. 2006. 'The Resource-Based Approach to the Internationalisation of SMES: Differences in Resource Bundles Between Internationalised and Non-Internationalised Companies.' *Zagreb International Review of Economics and Business* 9 (2): 95–116

Ruzzier, M., B. Antončič, R. D. Hisrich, and M. Konečnik Ruzzier. 2007. 'Human Capital and SME Internationalization: A Structural Equation Modelling Study.' *Canadian Journal of Administrative Sciences* 24 (1): 15–29.

Sanchez, R. 2005. 'Knowledge Management and Organizational Learning: Fundamental Concepts for Theory and Practice.' Working paper, Lund Institute of Economic Research.

Savage, C. M., and T. Bertels. 1999. 'A Research Agenda for the Knowledge Era: The Tough Questions.' *Knowledge and Process Management* 6 (4): 205–15.

Selznick, P. 1957. *Leadership in Administration.* New York: Harper and Row.

Schroeder, R. G., K. A. Bates, and M. A. Junttila. 2002. 'A Resource-Based View of Manufacturing Strategy and the Relationship to Manufacturing Performance.' *Strategic Management Journal* 23 (2): 105–17.

Sirmon, D. G., M. A. Hitt, and R. D. Ireland. 2007. 'Managing Firm Resources in Dynamic Environments to Create Value: Looking Inside the Black Box.' *Academy of Management Review* 32 (1): 273–92.

Smith K. G., C. J. Collins, and K. D. Clark. 2005. 'Existing Knowledge, Knowledge Creation Capability and the Rate of New Product Introduction in High Technology Firms.' *Academy of Management Journal* 48 (2): 346–57.

Spender, J. C., and R. M. Grant. 1996. 'Knowledge and the Firm: Overview.' *Strategic Management Journal* 17 (1): 5–9.

Stewart, T. A. 2003. *Intellectual Capital: The New Wealth of Organization.* London: Brealey.

Subramaniam, M., and M. A. Youndt. 2005. 'The Influence of Intellectual Capital on the Types of Innovative Capabilities.' *Academy of Management Journal* 48:450–63.

Sveiby, K. E. 2001. 'A Knowledge-Based Theory of the Firm to Guide in Strategy Formulation.' *Journal of Intellectual Capital* 2 (4): 344–58.

Teece, D. J., G. Pisano, and A. Shuen. 1997. 'Dynamic Capabilities and Strategic Management.' *Strategic Management Journal* 18 (7): 509–33.

Tomažič, E. 2003. 'Z informacijami o neotipljivih virih podjetja do večje kakovosti letnih poročil.' *Finance,* 20 October.

Turban, E., and J. E. Aronson. 2001. *Decision Support Systems.* 6th ed. Englewood Cliffs, NJ: Prentice-Hall.

Tymon, W. G., and S. A. Stumpf. 2003. 'Social Capital in the Success of Knowledge Workers.' *Career Development International* 1 (8): 12–20.

Zucker, L., M. Darby, and M. Brewer. 1998. 'Intellectual Capital and the Birth of US Biotechnology Enterprises.' *The American Economic Review* 88 (1): 290–306.

Watts, A., J. Cope, and M. Hulme. 1998. 'Ansoff's Matrix, Pain and Gain Growth Strategies and Adaptive Learning among Small Food Producers.' *International Journal of Entrepreneurial Behaviour and Research* 4 (2): 101–11.

Wernerfelt, B. 1984. 'A Resource Based View of the Firm.' *Strategic Management Journal* 5 (3): 171–80.

Wiklund, J., and D. Shepherd. 2003. 'Knowledge-Based Resources, Entrepreneurial Orientation, and the Performance of Small and Medium-Sized Businesses.' *Strategic Management Journal* 24: (13): 1307–14.

Wong, K. Y. 2005. 'Critical Success Factors for Implementing Knowledge Management in Small and Medium Enterprises.' *Industrial Management and Data Systems* 105 (3): 261–79.

The Effects of Consumer Cosmopolitanism on Purchase Behavior of Foreign vs. Domestic Products

Oliver Parts
Irena Vida

The purpose of this empirical study is to investigate the effects of consumer cosmopolitanism on foreign product purchase behavior in three major categories of consumer products (alcohol products, clothes, furniture). Based on the existing theoretical and empirical knowledge, we develop a conceptual model and identify two additional constructs as antecedents of foreign purchase behavior, i. e., consumer ethnocentrism and consumer knowledge of brand origins. The measurement model is examined using a data set of 261 adult consumers and tested via structural equation modeling. The study results confirm the strong total effect of consumer cosmopolitanism in purchase behavior and indicate a strong direct effect of this phenomenon on the behavioral outcome. The more cosmopolitan consumers have a stronger tendency to buy foreign rather than local products. On the other hand, the direct relationship between cosmopolitanism and consumer knowledge of brand origin was not supported in the study.

Key Words: cosmopolitanism, consumer ethnocentrism, knowledge of brand origins, foreign product purchase behavior, Slovenia
JEL *Classification:* M3, P2

Introduction

In the marketing field, the five decades of country-of-origin research provide evidence that consumers carry diverse perceptions about products based on the (stereotyped) national images of the country where the product/brand is believed to be created/produced, and that these perceptions affect consumer attitudes, purchase intentions and behaviors (Laroche et al. 2005; Pharr 2005). While there is a stream of research that focuses on consumers' choices regarding products from specific foreign

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countries (i. e., country-image studies; for recent reviews, see Dmitrović and Vida 2010; Roth and Diamantopoulos 2009), another stream of research broadly delves into factors that lead consumers to prefer either local (domestic) or foreign products/brands (e. g., Crawford and Lamb 1982; Sharma, Shimp and Shin 1995; Vida, Dmitrovic and Obadia 2008).

This research focuses on the latter stream of consumer behavior research by examining consumer cosmopolitanism as a major sociopsychological construct underlying consumer preference for foreign vs. domestic (local) products/brands. Cosmopolitanism, as originally introduced by Merton (1957), refers to individuals who are oriented towards the outside world (rather than their local community). While different terminology has been used in examining essentially the same phenomenon, the construct has been widely applied in the international business and marketing research (Levy et al. 2007; Riefler and Diamantopoulos 2009), including preference for foreign products (Balabanis and Diamantopoulos 2008; Crawford and Lamb 1982; Suh and Kwon 2002).

However, as the recent comprehensive review on the subject reveals (Riefler and Diamantopoulos 2009), many questions regarding cosmopolitanism effects and measurement issues remain unanswered. In particular, with a few exceptions (Balabanis et al. 2001; Rawwas, Rajendran, and Wuehrer 1996) the direct effects of cosmopolitanism on behavior in favor of foreign products brands have been rarely examined, and its role as a driver of consumer ethnocentrism is largely left unresolved (Suh and Kwon 2002, Vida, Dmitrovic and Obadia 2008).

Despite the voluminous body of research on the effects of product national origin on consumer evaluative processes and behavioral outcomes, the salience of product origin and consumer actual knowledge of the brands' national origins has been questioned in recent years (Liefeld 2004; Pharr 2005; Samiee, Shimp, and Sharma 2005). For instance, Balabanis and Diamantopoulos (2008) recently examined the extent to which consumers attach a national origin to a brand, and concluded that future researchers should adjust their research designs to account for the possibly inaccurate knowledge of a stimulus brand's national origin.

We designed this empirical study based on the gaps identified in the literature on consumer foreign vs. local purchase behavior and the confusion regarding existing conceptualizations of cosmopolitanism and its role in consumption behavior. Hence, the aims of this research are

to examine the direct effects of consumer cosmopolitanism on foreign vs. local product purchase behavior, and to explore its indirect effects (through consumer ethnocentrism and consumer knowledge of brand origins) in three major categories of consumer products.

Literature Review: Consumption of Foreign vs. Domestic Products

In an attempt to understand consumer preference formation for either foreign or local product alternatives available in the marketplace, researchers have resorted to various socio-psychological constructs that help disentangle consumption motivations. The two most commonly applied socio-psychological constructs in the existing empirical work examine how individuals relate to their social in-group (e. g., family, local community, nation and its artifacts) and how they relate to what they consider their out-group (e. g., other cultures, ethnic groups, nations). The concept of consumer cosmopolitanism is a manifestation of positive orientation towards the out-groups (people, artifacts, etc.), and ethnocentrism captures individuals' in-group vs. out-group orientation. Both constructs have been introduced to marketing from the field of sociology.

As originally coined by Merton (1957), the concept of cosmopolitanism relates to a 'world citizen,' i. e., to an individual whose orientation transcends any particular culture or setting. He posited that there are people who view themselves as citizens of the nation rather than the locality; the world rather than the nation; the broader, more heterogeneous rather than the narrower, more homogeneous geographic or cultural group (Cannon and Yaprak 2002; Merton 1957). In the marketing literature, the concept has been advanced by many prominent scholars (Cannon and Yaprak 2002; Thomson and Tambyah 1999; Yoon, Cannon, and Yaprak 1996) who argue that cosmopolitanism is consumer orientation with substantial implications for marketing practice. Diverse terminology has been used in the literature to describe the individuals' positive orientation towards the out-group, including openness to foreign cultures, internationalism, worldmindedness, worldliness or global openness, etc.

While cosmopolitanism has been defined differently across studies, sufficient evidence exists that it can lead to better perceptions of foreign products, including their quality (Rawwas, Rajndran, and Wuehrer 1996), and induce a greater desire in individuals to travel as they at-

tempt to seek new insights into other cultures (Cannon and Yaprak 2002; Thompson and Tambyah 1999).

The other socio-psychological construct commonly used to explain consumer choice behavior for foreign vs. domestic products/brands is the construct of ethnocentrism. This phenomenon was originally conceived as a purely sociological concept that distinguished between in-groups (those groups with which an individual identifies) and out-groups (those regarded as antithetical to the in-groups) (Sumner 1906). Consumer ethnocentrism was introduced into marketing by Shimp and Sharma (1987) when they stated: 'Ethnocentric consumers believe it is wrong to purchase foreign-made products because it will hurt the domestic economy, cause the loss of jobs, and it is plainly unpatriotic.' The tendency of ethnocentric consumers to exhibit preferences for domestic rather than imported products has been confirmed in several studies (Cleveland, Laroche, and Papadopoulus 2009; Dmitrović, Vida and Reardon 2009; Rawwas, Rajendran, and Wuehrer 1996; Sharma, Shimp, and Shin 1995; Vida, Dmitrovic, and Obadia 2008).

In addition to the socio-psychological constructs of cosmopolitanism and ethnocentrism, we examine the issue of consumer actual knowledge of the brands' national origins as a factor underlying consumption motivation for foreign vs. domestic products. Contrary to the conventional wisdom, categorization literature supports the view that most of consumers' learning is unstructured and incidental, resulting in imperfect and biased knowledge (Aboulnasr 2006). It is this notion that in recent years has led to a major criticism of the country-of-origin research stream, i. e., that consumers in reality pay less attention to the product national origin information cue than is generally assumed by researchers. Moreover, the critics claim that consumer knowledge of the actual national origin of products and brands tends to be inaccurate (Balabanis and Diamantopoulos 2008; Liefeld 2004; Pharr 2005). For instance, Samiee, Shimp, and Sharma (2005) examined the saliency of the product origin information cue in the us and concluded that consumers hold merely a superficial knowledge of product origins. They posited that this knowledge is by and large derived from consumers' association of brand names with various languages rather than their actual knowledge of the brands' national origins. Similar conclusions have been reached by Balabanis and Diamantopoulos (2008). For this reason, we acknowledge the importance of consumer knowledge of brand origin in our investigation of the role of cosmopolitanism in consumer purchase behavior.
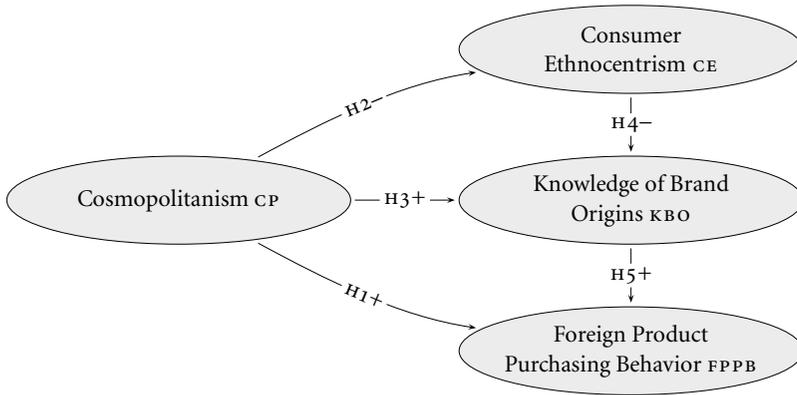
FIGURE 1   Conceptual model for the study

Conceptual Model and Hypotheses

Against this theoretical background and the gaps identified in the literature, we develop a conceptual model of the role of consumer cosmopolitanism in consumption of foreign vs. domestic products (figure 1).

In line with the conceptual framework for the study, we propose five research hypotheses. The first two hypotheses are related to the two psycho-sociological constructs (i.e., consumer cosmopolitanism and ethnocentrism) directly and/or indirectly affecting behavioural outcomes. With a few exceptions, the direct effect of cosmopolitanism or related constructs on behavioral outcomes has been rarely investigated in existing research (Cannon and Yaprak 2002; Lee and Chen 2008; Crawford and Lamb 1982). For example, the direct impact of what was termed worldmindedness on Taiwanese consumers' willingness to buy products from neighboring countries was demonstrated by Lee and Chen (2008). Crawford and Lamb (1982) examined the effect of worldmindedness on willingness to buy foreign products among professional buyers, and found that an individual's attitude towards foreign countries is in fact related to a person's willingness to buy products from these countries. On the other hand, Cannon and Yaprak (2002) concluded in their study that, while consumers are becoming more cosmopolitan, this does not necessarily result in their behavior transcending their local culture. Hence, we posit:

H1 *Cosmopolitanism (cp) has a direct and positive effect on foreign product purchase behavior (fppb).*

Contrary to the above, the role of cosmopolitanism or related con-

structs (e. g., cultural openness, internationalism, global mindedness, worldmindedness) as drivers of consumer ethnocentrism has been widely examined in the literature (Shankarmahesh 2006). However, empirical examinations of cosmopolitanism's antecedent nature have produced only equivocal results. While a theoretically posited negative relationship between cosmopolitanism and ethnocentrism has been demonstrated in several studies (Cannon and Yaprak 2002; Dmitrovic, Vida, and Reardon 2009; Sharma, Shimp, and Shin 1995; Vida and Reardon 2008), there is evidence to the contrary as well. Non significant relationships between these two constructs were identified when examining cultural openness (Vida, Dmitrovic, and Obadia 2008), and internationalism (Balabanis and Diamantopoulus 2004). For instance, Suh and Kwon (2002) found that global openness had a significant negative effect on ethnocentrism in the us sample, but this relationship was insignificant in the Korean sample. Similarly, Strizhakova, Coulter and Price (2008) examined this relationship across developed and emerging markets, and found a moderate negative relationship in the us sample, but no significant relationship in the emerging market samples. Since the role of cosmopolitanism in shaping consumers' beliefs about the legitimacy of purchasing foreign made goods has yielded contradictory results in the literature, the testing of the following hypothesis provides an opportunity for resolving the existing controversy:

H2 *Cosmopolitanism (cp) has a direct and negative effect on consumer ethnocentrism (ce).*

The set of the remaining hypotheses in this study is related to a relatively new concept – consumer knowledge of brand origins – which has been introduced into the conceptual model in response to the criticisms of country-of-origin research about the relative absence of consumer ability to recognize the actual national origin of products (Balabanis and Diamantopoulos 2008; Liefeld 2004; Samiee, Shimp, and Sharma 2005). Brand origin is defined by the place, region or country to which the brand is perceived to belong by its target consumers. While there is a dearth of research investigating the role of consumer brand origin knowledge in relation to the constructs identified in our study, we postulate that consumer knowledge of brand origins will be fuelled by cosmopolitanism (Samiee, Shimp, and Sharma 2005) and consumer ethnocentrism (Alden, Steenkamp, and Batra 2006; Shimp and Sharma 1987), and that a greater overall consumer cognizance of brand national ori-

gins will result in a greater tendency to purchase foreign rather than local products (Riefler and Diamantopoulos 2009). For instance, having examined the relations between consumers' overall origin classification performance and the degree of ethnocentrism, Balabanis and Diamantopoulos (2008) found the classification performance for domestic as well as foreign brands was the lowest for ethnocentric consumers. Hence, we propose the following hypotheses:

H3 *Cosmopolitanism (CP) has a direct and positive effect on consumer knowledge of brand origins (KBO).*

H4 *Consumer ethnocentrism (CE) is negatively related to consumer knowledge of brand origins (KBO).*

H5 *Knowledge of brand origins (KBO) is significantly and positively related to foreign product purchase behavior (FPPB).*

Research Methods

DATA COLLECTION AND SAMPLE CHARACTERISTICS

The model for the study was tested via the store and outdoor intercept survey method using a sample of adult consumers in Slovenia. A quota sampling method based on gender, age and income was applied. The final sample consisted of 261 adult respondents in Slovenia. Women and men were almost equally presented in the sample. The average age of the sample was slightly over 45 years (SD of 17.29). Respondents who claimed to have above-average or below-average household incomes were almost equally presented in the sample (18.0% and 15.9%, respectively).

INSTRUMENT DEVELOPMENT AND MEASURES

The measures were derived from the existing literature and adapted to the cultural context of the focal country following the guidelines established by Craig and Douglas (2000). The questionnaire was pretested on a convenience sample of consumers, after which only minor amendments were necessary.

Cosmopolitanism was measured with Likert-type items selected from the worldmindedness scale used by Rawwas, Rajendran and Wuehrer (1996), who adapted the scale originally developed by Sampson and Smith (1957). The three specific items selected for this study are consistent with the recent specification of the conceptual domain of cosmopolitanism (Riefler and Diamantopoulos 2009) related to (a) general open-mindedness, (b) diversity appreciation and (c) consumption

transcending borders. Similar items have been recently used in Lee and Cheng's (2008) study. To measure *consumer ethnocentrism,* the reduced five item version of CETSCALE (Shimp and Sharma 1987) was used, consistent with recent studies investigating this concept (Evanschitzky et al. 2008; Balabanis and Diamantopoulos 2004). We used a seven-point Likert-type scale, ranging from 1 absolutely disagree to 7 absolutely agree, for measuring both psycho-sociological variables.

The measure of consumer *knowledge of brand origins* (KBO) was developed based on Samiee, Shimp and Sharma's (2005) research on Brand Origin Recognition Accuracy. Respondents were asked to identify the national origin of domestic and foreign brands in three different product categories: alcohol products, clothes and furniture. Participants were presented with two foreign and two domestic brands in each of the product categories; they had to correctly match each brand with the country of origin from the list of six countries identified in our research instrument. If the respondents were unsure about the brand origin, then they were instructed to make an educated guess, and only leave the question blank if they had no idea of the brand or its origin. KBO was evaluated in the alcohol product group with brands like Heineken, Jägermeister, Quercus, and Zlatorog with the following alternative national origins: Italy, Germany, Netherlands, Russia, Slovenia, and Scotland. In the clothes product group, KBO was identified for the brands Elkroj, Kappa, Lisca, and Zara with possible brand origins from among Croatia, Italy, Germany, Slovenia, Spain, and USA. KBO was identified in the furniture product group for Ikea, Klun, Lip Bled, and Scavolini brands with possible origins being France, Italy, Germany, Poland, Slovenia, and Sweden.

Comparing our KBO measure to the similar measure in Samiee, Shimpa and Sharma's study (2005), the latter was clearly much more comprehensive in terms of the types of products and their national origins. Given the limited availability of both domestic and foreign brands in many product categories, this was not attainable in a small open market economy like that of Slovenia. Moreover, similarly to the recent origin classification performance study by Balabanis and Diamantopoulos (2008), knowledge of brand origins was measured collectively for domestic as well as foreign brands.

The foreign (vs. local) product purchasing behavior (FPPB) construct in the model was measured for alcohol products, clothes, and furniture using a 5-point semantic differential scale, whereby one extreme indicated 'I buy only domestic products in this product category.' and the other extreme 'I buy only foreign products in this product category.' (EIER 2009).

TABLE 1 Scale properties, items and reliabilities

(1)	(2)	(3)
Cosmopolitanism – CP (Rawwas et al. 1996)	Likert-scale ranging from 7- absolutely agree to 1 absolutely disagree	
$\rho vc = 0.56$; $\rho r = 0.73$ M = 3.67; SD = 2.09	I prefer to be a citizen of the world rather than of any particular country.	0.666
	My government should allow foreigners to immigrate here.	0.680
	Production location of a product does not affect my purchasing decisions.	0.712
Consumer Ethnocentrism – CE (Shimp and Sharma 1987)	Likert-scale ranging from 7- absolutely agree to 1 absolutely disagree	
$\rho vc = 0.77$; $\rho r = 0.94$ M = 3.01; SD = 2.00	Slovenians should not buy foreign products because this hurts Slovenian business and causes unemployment.	0.876
	Slovenian consumers who purchase products made in other countries are responsible for putting their fellow Slovenians out of work.	0.875
	A real Slovenian should always buy Slovenian-made products.	0.864
	It is not right to purchase foreign products because it puts Slovenians out of jobs.	0.862
	We should buy from foreign countries only those products that we cannot obtain within our own country.	0.840

Continued on the next page

Data Analyses and Results

Data were analyzed via a structural equation modeling (SEM) method using Lisrel 8.8 software. Following Gerbing and Anderson's (1988) recommendations, a measurement model was analyzed first, followed by the evaluation of a structural model in order to assess the hypothesized relationships between constructs. Final model items, scale reliability, average variance extracted and factor loadings are presented in table 1.

Reliability of the scales was established using composite reliability (rho) which ranged from 0.73 to 0.94 – well above the 0.7 recommendation by DeVellis (2003). The validity of each of the scales was tested with confirmatory factor analysis (CFA). The final measurement model included four latent constructs and 13 indicators used to measure them. The fit statistics of the model indicate a very good fit to the data with

TABLE 1 *Continued from the previous page*

(1)	(2)	(3)
Foreign vs Domestic Purchase Behavior – FPPB (adapted from EIER 2009)	Semantic differential scale for typical purchase in specific product category (anchored 5 – only foreign to 1 – only domestic)	
$\rho vc = 0.66$; $\rho r = 0.81$ M = 2.80; SD = 0.90	Clothes	0.823
	Furniture	0.776
	Alcohol products	0.711
Knowledge of Brand Origins – KBO (adapted from Samiee et al. 2005)	Three product categories with two domestic and two foreign brands and six countries of origin for each brand	
$\rho vc = 0.81$; $\rho r = 0.92$	Domestic brands origins	0.898
M = 0.69; SD = 0.21	Foreign brands origins	0.898

NOTES   Column headings are as follows: (1) constructs and coefficients – AVE (ρvc) in CR (ρr), (2) items, (3) factor loading. M – mean value, SD – standard deviation.

RMSEA of 0.046 and SRMR of 0.043 and other indices well over 0.90 (GFI = 0.950, NFI = 0.950, NNFI = 0.980, CFI = 0.980, RFI = 0.940). The convergent validity of scales was tested through examination of the t-values of the Lambda-X matrix ranging from 3.45 to 15.88; all values were well above the 2.00 level specified by Kumar, Stern and Achrol (1992). The average variance extracted (AVE) ranged between 0.56 to 0.81, exceeding 0.50 for all constructs (Fornell and Larcker 1981). Discriminant validity was assessed by setting the individual paths of the Phi matrix to 1 and testing the resultant model against the original (Gerbing and Anderson 1988) using the D statistics (Joreskog and Sorbom 1993). The high D squared statistics indicated that the confirmatory factor model for the scales fits significantly better than the constrained models for each construct, thus showing discriminant validity.

Once the construct reliability, convergent validity and discriminant validity were established, the structural model was run in order to test the hypothesized relationships between constructs. The Chi-Squared statistic was significant, but the rest of the structural model fit measures indicate that the data conformed well to the model (i. e., RMSEA of 0.059; standardized RMR of 0.052 – slightly higher than the recommended value of 0.05; GFI = 0.936, NFI = 0.939, NNFI = 0.961, CFI = 0.970, RFI = 0.921). Hypotheses were tested using t-statistics from the structural model. As seen in table 2, the results of our analyses confirmed four hypotheses out

TABLE 2   Hypotheses testing and results

(1)	(2)	(3)	(4)	(5)	(6)
H1	Cosmopolitanism	FPPB	0.13	3.35	Supported
H2	Cosmopolitanism	CE	−0.38	−3.19	Supported
H3	Cosmopolitanism	KBO	0.01	0.46	Not Supported
H4	CE	KBO	−0.03	−3.95	Supported
H5	KBO	FPPB	1.29	3.65	Supported

NOTES   Column headings are as follows: (1) hypothesis, (2) antecedent, (3) criterion variable, (4) estimate, (5) *t*-value, (6) result.

of five. We found a direct positive effect of cosmopolitanism on FPPB (H1), a strong negative and significant relationship between cosmopolitanism and consumer ethnocentrism (H2), an inverse relation between consumer ethnocentrism and knowledge of brand origin (H4), and a positive and significant relationship between knowledge of brand origin and foreign product purchase behavior (H5). On the other hand, no support was found for the relationship between cosmopolitanism and consumer knowledge of foreign brands (H3).

Discussion and Conclusions

While cosmopolitanism has been widely studied in the management and marketing literatures, previous research has rarely explored the direct effects of cosmopolitanism on behavioral outcomes, as in the case of FPPB in our model (Cleveland, Laroche, and Papadopoulus 2009; Sharma, Shimp, and Shin 1995). Moreover, in examining consumer foreign and domestic purchase behavior, consumer actual knowledge of brands' national origin has seldom been accounted for in existing models, even despite the growing concern that consumer knowledge of the product/brand national origins tends to be inaccurate and superficial at best (Balabanis and Diamantopoulos 2008; Liefeld 2004; Samiee, Shimp, and Sharma 2005). Our results confirm that cosmopolitanism exhibits a direct and positively significant effect on FPPB, suggesting that the segment of consumers characterized as 'world citizen' has a greater tendency to purchase foreign rather than domestic brands in the three product categories investigated, i. e., alcohol, clothes and furniture.

Our empirical study found no support for the direct relationship between cosmopolitanism and consumer knowledge of brand origins (H3), suggesting that the worldly individuals who are open to foreigners do

not necessarily more accurately assess the national origin of brands than less cosmopolitan consumers. This hypothesis was largely exploratory in nature as we were able to identify only one study examining the impact of international experience on brand origin recognition accuracy – BORA (Samiee, Shimp and Sharma 2005). In Samiee, Shimp and Sharma's study, BORA was measured separately for foreign brands and domestic brands.

Despite the conceptual confusion about the nature of cosmopolitanism as an antecedent of consumer ethnocentrism in some previous studies (e. g., Balabanis et al. 2001; Shankarmahesh 2006), our findings are in line with Sharma, Shimp, and Shin's (1995) original model in that consumer positive orientation towards the out-groups directly affects an individual's ethnocentric tendencies, i. e., it reduces consumer prejudice towards imports, and ultimately (through consumer knowledge of brand origins) affects purchase behavior. Moreover, we confirmed that in general, more ethnocentric consumers are less knowledgeable about the overall brand origins. This is consistent with the findings of Balabanis and Diamantopoulos (2008) who concluded that consumers' country of origin classification performance is negatively related to the degree of ethnocentrism. On the other hand, this result is only partially consistent with Samiee, Shimp, and Sharma (2005). These authors found that CE is positively related to BORA for domestic brands but negatively to BORA for foreign brands. Lastly, our empirical results suggest that consumer ability to correctly identify brands' national origin is positively related to their purchase behaviors in favor of foreign products. While largely exploratory, we proposed and found that consumer knowledge of brand origins is a mediating variable between consumer ethnocentrism and purchase behavior in favor of foreign products. This finding suggests that more ethnocentric individuals possess poorer overall knowledge of brand origins than their less ethnocentric counterparts, which ultimately leads to purchase preferences for domestic rather than foreign products in the product categories investigated in this study.

Understanding the direct and indirect effects of consumer cosmopolitanism clearly offers various implications for actionable marketing practice in local as well as geographically and culturally distant international markets. Using cosmopolitanism as a market segmentation variable, marketers can better understand the intensity of cosmopolitan values in their target segment and can ultimately effectively adapt the marketing mix to the local consumer preferences. This is particularly rel-

evant in branding activities and in the ability to develop prudent promotional campaigns. Our findings suggest that cosmopolitanism is a strong predictor of consumer behavioral preferences for foreign rather than local goods, and an equally effective predictor of consumer ethnocentrism.

STUDY LIMITATIONS AND FUTURE RESEARCH

In this research, deliberate efforts have been undertaken to utilize an externally valid consumer sample, solid measures and relevant analytical methods to test the model. However, several limitations still apply, which, in turn, open questions for future research venues. In this study we examined the direct and indirect effects of consumer cosmopolitanism on consumer purchase behavior in favor of *foreign relative to domestic purchase behavior* collectively for three categories of consumables (alcohol, clothes and furniture). Previous studies focusing on the role of socio-psychological constructs have shown that the impact of cosmopolitanism and ethnocentrism varies according to whether the outcome measure is conceptualized as domestic or foreign consumption (Balabanis et al. 2001; Suh and Kwon 2002). Moreover, while some researchers demonstrated that product national origin affects consumer attitudes regardless of the product category (e. g., Ahmed et al. 2004), others asserted that the effects tend to vary by product category (e. g., Balabanis et al. 2001). Hence, future examinations of consumer foreign vs. domestic choice alternatives should attempt to overcome these limitations. Specifically, future studies should include other relevant product categories, examine the cosmopolitanism effects independently for each product category, and use independent measures of purchase behavior for foreign and for domestic products.

Our measure of consumer knowledge of brand origin was delimited to three product categories, with two domestic and two foreign brands and six national origins for each brand. Considering that respondents only matched a limited number of brands to the six countries of origin from our list, future studies will therefore need to improve the measure of KBO and retest the direct relationship between cosmopolitanism and consumer knowledge of brand origins. An examination of the role of KBO in the model, separately for domestic and for foreign brands, would provide valuable insights as well. And lastly, a comparative study of other cultures and countries is recommended so as to ensure the model's external validity. In particular, a comparison between the mature and the

emerging markets would enable a deeper understanding of differences in the cosmopolitanism effects across markets based on their economic development, as suggested in previous work (Dmitrović, Vida, and Reardon 2009; Dmitrović and Vida 2010; Shankarmahesh 2006; Strizhakova, Coulter, and Price 2008).

References

Aboulnasr, K. 2006. 'Country of Origin Effects: The Role of Information Diagnosticity, Information Typicality and Involvement.' *Marketing Management Journal* 16 (1): 1–18.

Ahmed, Z. U., H. P. Johnson, X. Yang, C. F. Fatt, H. S. Teng, and L. C Boon. 2004. 'Does Country of Origin Matter for Low Involvements Products?' *International Marketing Review* 21 (1): 102–20.

Alden, D. L., J. B. E. M. Steenkamp, and R. Batra. 2006. 'Consumer Attitudes Toward Marketplace Globalization: Structure, Antecedents and Consequences.' *International Journal of Research in Marketing* 23 (3): 227–39.

Balabanis, G., and A. Diamantopoulos. 2008. 'Brand Origin Identification by Consumers: A Classification Perspective.' *Journal of International Marketing* 16 (1): 39–71.

———. 2004. 'Domestic Country Bias, Country of Origin Effects, and Consumer Ethnocentrism: A Multidimensional Unfolding Approach.' *Journal of the Academy of Marketing Science* 32 (1): 80–95.

Balabanis, G., A. Diamantopoulos, R. D. Mueller, and T. C. Melewar. 2001. 'The Impact of Nationalism, Patriotism and Internationalism on Consumer Ethnocentric Tendencies.' *Journal of International Business Studies* 32 (1): 157–75.

Cannon, H. M., and A. Yaprak. 2002. 'Will the Real-World Citizen Please Stand Up! The Many Faces of Cosmopolitan Consumer Behavior.' *Journal of International Marketing* 10 (4): 30–52.

Cleveland, M., M. Laroche, and N. Papadopoulos. 2009. 'Cosmopolitanism, Consumer Ethnocentrism, and Materialism: An Eight-Country Study of Antecedents and Outcomes.' *Journal of International Marketing* 17 (1): 116–46.

Craig, C. S., and S. P. Douglas. 2000. *International Marketing Research.* New York: Wiley.

Crawford J. C., and C. W. Lamb. 1982. 'Effect of Worldmindedness among Professional Buyers Upon their Willingness to Buy Foreign Products.' *Psychological Reports* 50 (3): 859–62.

Devellis, R. F. 2003. *Scale Development: Theory and Applications.* Thousand Oaks, CA: Sage.

Dmitrovic, T., I. Vida, and J. Reardon. 2009. 'Purchase Behavior in Favor of Domestic Products in the West Balkans.' *International Business Review* 18 (5): 523–35.

Dmitrovic, T., and I. Vida. 2010. 'Consumer Behaviour Induced by Product Nationality: The Evolution of the Field and its Theoretical Antecedents.' *Transformation in Business and Economics* 9 (1): 145–65.

EIER. 2009. *Elanike Toitumisharjumused Ja Toidukaupade Ostueelistused 1996–2009.* Tallinn: Estonian Institute of Economic Research.

Evanschitzky, H., V. F. Wangenheim, D. Woisetschläger, and M. Blut. 2008. 'Consumer Ethnocentrism in the German Market.' *International Marketing Review* 25 (1): 7–32.

Fornell, C., and D. F. Larcker. 1981. 'Evaluating Structural Equation Models with Unobserved Variables and Measurement Error.' *Journal of Marketing Research* 28 (1): 39–50.

Gerbing, D., and J. Anderson. 1988. 'An Updated Paradigm for Scale Development Incorporating Unidimensionality and its Assessment.' *Journal of Marketing Research* 25 (2): 186–92.

Joreskog, K., and D. Sorbom. 1993. LISREL 8: *Structural Equation Modeling with the* SIMPLIS *Command Language.* Chicago: Scientific Software.

Kumar, N., L. Stern, and R. Achrol. 1992. 'Assessing Reseller Performance from the perspective of the Supplier.' *Journal of Marketing Research* 29 (2): 238–53.

Laroche, M., N. Papadopoulos, L. A. Heslop, and M. Mourali. 2005. 'The Influence of Country Image Structure on Consumer Evaluations of Foreign Products.' *International Marketing Review* 22 (1): 96–115.

Lee, S. T., and F. F. Chen. 2008. 'Country Image Effect on Taiwanese Consumers' Willingness to Buy from Neighboring Countries.' *International Journal of Commerce and Retail Management* 18 (2): 166–83.

Levy, O., S. Beechler, S. Taylor, and N. A. Boyacigiller. 2007. 'What We Talk About When We Talk About "Global Mindset:" Managerial Cognition in Multinational Corporation.' *Journal of International Business Studies* 38 (2): 231–58.

Liefeld, J. P. 2004. 'Consumer Knowledge and Use of Country-of-Origin Information at the Point of Purchase.' *Journal of Consumer Behaviour* 4 (2): 85–96.

Merton, R. K. 1957. 'Patterns of Influence: Local and Cosmopolitan Influential.' In *Social Theory and Social Structure,* edited by R. K. Merton, 387–420. New York: The Free Press

Pharr, J. M. 2005. 'Synthesizing Country-of-Origin Research from the Last Decade: Is the Concept Still Salient in an Era of Global Brands?' *Journal of Marketing Theory and Practice* 13 (4): 34–45.

Rawwas, M. Y. A., K. N. Rajendran, and G. A. Wuehrer. 1996. 'The Influence of Worldmindedness and Nationalism on Consumer Evaluation of Domestic and Foreign Products.' *International Marketing Review* 13 (2): 20–38.

Riefler, P., and A. Diamantopoulos. 2009. 'Consumer Cosmopolitanism: Review and Replication of the cymyc Scale.' *Journal of Business Research* 62 (4): 407–19.

Roth, K, and A. Diamantopoulos. 2009. 'Advancing the Country Image Construct.' *Journal of Business Research* 62 (7): 726–40.

Samiee, S., T. A. Shimp., and S. Sharma. 2005. 'Brand Origin Recognition Accuracy: Its Antecedents and Consumers' Cognitive Limitations.' *Journal of International Business Studies* 36 (4): 379–97.

Sampson, D. L., and H. P. Smith. 1957. 'A Scale to Measure Worldminded Attitudes.' *The Journal of Social Psychology* 45:99–106.

Shankarmahesh, M. N. 2006. 'Consumer Ethnocentrism: An Integrative Review of Its Antecedents and Consequences.' *International Marketing Review* 23 (2): 146–72.

Sharma, S., T. A. Shimp., and J. Shin. 1995. 'Consumer Ethnocentrism: A Test of Antecedents and Moderators.' *Journal of the Academy of Marketing Science* 23 (1): 26–37.

Shimp, T. A., and S. Sharma. 1987. 'Consumer Ethnocentrism: Construction and Validation of the cetscale.' *Journal of Marketing Research* 24 (8): 280–9.

Strizhakova, Y., R. A. Coulter, and L. L. Price. 2008. 'Branded Products as a Passport to Global Citizenship: Perspectives from Developed and Developing Countries.' *Journal of International Marketing* 16 (4): 57–85.

Suh, T., and I.-W. G. Kwon. 2002. 'Globalization and Reluctance Buyers.' *International Marketing Review* 19 (6): 663–80.

Sumner, W. G. 1906. *Folkways.* New York: Ginn.

Thompson, C. J., and S. K. Tambyah. 1999. 'Trying to be Cosmopolitan.' *Journal of Consumer Research* 26 (3): 214–241.

Vida, I., T. Dmitrovic, and C. Obadia. 2008. 'The Role of Ethnic Affiliation in Consumer Ethnocentrism.' *European Journal of Marketing* 42 (3–4): 327–43.

Vida, I., and J. Reardon. 2008. 'Domestic Consumption: Rational, Affective, or Normative Choice?' *Journal of Consumer Marketing* 25 (1): 34–44.

Yoon, S. J., M. H. Cannon, and A. Yaprak. 1996. 'Evaluating the cymic Cosmopolitanism Scale on Korean Consumers.' *Advance in International Marketing* 7:211–32.

The Impact of Capital Structure on Profitability with Special Reference to IT Industry in India

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Firms can use either debt or equity capital to finance their assets. The best choice is a mix of debt and equity. The present study mainly analyses how far the capital structure (cs) affects the Profitability (p) of corporate firms in India. The study tries to establish the hypothesized relationship as to how far the cs affects the business revenue of firms and what the interrelationship is between cs and Profitability. This study is carried out after categorizing the selected firms into three categories based on two attributes, viz. business revenue and asset size. First, firms are grouped into low, medium and high based on business revenue. Second, firms are classified into small, medium and large based on asset size to establish the hypothesized relationship that cs has significant impact on Profitability of Information Technology (it) firms in India. For the study, a sample of 102 it firms was chosen by the Multi-Stage Sampling Technique. The data for a period of 8 years ranging from 1999–2000 to 2006–2007 have been collected and considered for analysis. Regression Analysis (to analyze the unique impact of cs on Profitability), in addition to descriptive statistics such as Mean, Standard Deviation, and Ratios has been used. The study proves that there has been a strong one-to-one relationship between cs variables and Profitability variables, Return on Assets (roa) and Return on Capital Employed (roce) and the cs has significant influence on Profitability, and increase in use of debt fund in cs tends to minimize the net profit of the it firms listed in Bombay Stock Exchange in India.

Key Words: capital structure, profitability, return on assets,
   return on capital employed, debt, equity
JEL *Classification:* G30, G32

Introduction

In a wake of liberalization and globalization of economic policies across the world, investment opportunities have expanded and financing op-

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tions have widened, and above all dependence on capital markets has increased. A new business requires capital and still more capital is needed if the firm is to expand. The required funds can come from many different sources and by different forms. Firms can use either debt or equity capital to finance their assets. The best choice is a mix of debt and equity. One of the most perplexing issues facing financial managers is the relationship between capital structure (cs), which is the mix of debt and equity financing, and stock prices.

The debt is advantageous (relative to equity) if Debt Equity Ratio (der > 1), otherwise it is harmful. The value of the firm is independent of its debt policy and is based on the critical assumption that corporate income taxes do not exist. In reality, corporate income taxes do exist, and interest paid to debt-holders is treated as a deductible expense. Thus, interest payable by firms saves taxes. This makes for debt financing advantages. The value of the firm will increase with debt due to the deductibility of interest charges for tax computation, and the value of the levered firm will be higher than that of the un-levered firm.

The determinants of cs considered by Modigliani and Miller (1958; 1963) in their seminal work on the subject, – whether interest was tax deductible or not – was pioneering. In the case where interest was not tax deductible, firms' owners would be indifferent as to whether they used debt or equity, and where interest was tax deductible, they would maximize the value of their firms by using 100% debt financing. In practice, despite interest being tax deductible, the use of debt varies widely, hence giving rise to the 'cs Puzzle' (Myers 1984). In recent years, there has been an increasing recognition that small enterprises are different from large ones and that these differences affect numerous aspects of small firms including their cs (Ang 1991; 1992). Hence, the higher the debt ratio, the greater the risk, and thus higher the interest rate will be. At the same time, rising interest rates overwhelm the tax advantages of debt. If the firm falls on hard times and if its operating income is insufficient to cover interest charges, then stockholders will have to make up the short fall, and if they can't, the firm may be forced into bankruptcy. Good times may be just around the corner. But too much debt can keep the company wipeout shareholders in the process. Several authors have pointed out that agency problems can be reduced or eliminated through the use of managerial incentive schemes and/or more complicated financial securities such as convertible debt (Barnea, Haugen and Senbet 1985; Brander and Poitevin 1988; Haugen and Senbet 1987).

A pecking order framework is intended to explain variations in cs (Myers 1984). The issue of external equity is seen as being the most expensive and also dangerous in terms of potential loss of control of the enterprise by the original owner-managers. The information advantage of the corporate managers will be minimized by issuing debt. Optimistic managers, who believe the shares of their firms are undervalued, will prefer immediately to issue debt and to avoid equity issue. Only pessimistic managers will want to issue equity, but who will buy it? Equity issues will occur only when debt is costly. If internally generated cash flow exceeds capital investment, the surplus is used to pay down debt rather than repurchasing and retiring equity. As the requirement for external financing will increase, the firm will work down the pecking order, from safe to riskier debt, perhaps to convertible securities or preferred stock and finally to equity as a last resort (Myers and Majluf 1984).

The modern theory of cs began with the paper of Modigliani and Miller (1958). They (mm) pointed out the direction that such theories must take by showing under what conditions the cs is irrelevant. Since then, many economists have followed the path they mapped. Now, some 50 years later, it seems appropriate to take stock of where this research stands and where it is going. Some other recent surveys include Taggart (1977), Masulis (1983), Miller (1988), Ravid (1988) and Allen (1991) and comments on Miller (1977) by Bhattacharya (1979), Modigliani (1982), Ross (1977), and Stiglitz (1974) and Masulis (1980), which are general surveys. Allen (1991) focuses on security design, and Ravid (1988) concentrates on interactions between cs and product market.

Research in this area was initiated by Jensen and Meckling (1976) building on earlier work of Fama and Miller (1972). Empirically, profitability of firms in concentrated industries differs from that of firms in more competitive industries in terms of level and persistence. Firms in concentrated industries have relatively higher profits (Mackay and Philips 2005). In addition to higher levels of profits, there is evidence that firms in concentrated industries behave differently in preserving profit margins when compared to competitive industries. Mark ups are countercyclical in concentrated durable goods industries. For the nondurable goods sector, mark-ups are relatively more pro cyclical in concentrated industries than those in competitive industries (Ian, Hubbard and Bruce 1988). The influence of persistence in profitability on the leverage-profitability relationship has been addressed by Raymar (1991), Sarkar and Zapatero (2003), and Leland (1994) with varying predictions.

In Raymar's (1991) model, firms optimally recapitalize at the end of each period, leading to a positive relationship between leverage and profitability.

Statement of the Problem, Significance and Scope

The present study mainly analyses how far the cs affects the profitability of corporate firms in India. Asset size and business revenue would appear to be the important factors in determining the profitability of corporate firms. In India, few studies have analyzed the relationship between asset size and business revenues on the impact of cs and Profitability.

This study is carried out after categorizing the selected firms into three categories based on two attributes. First, firms are grouped into low, medium and high based on business revenue (total income). Second, firms are classified into small, medium and large based on asset size to establish the hypothesized relationship that cs has significant impact on Profitability of it firms in India.

Though many research studies have been undertaken in the field of cs, only very few studies have been undertaken to analyze the association between cs and Profitability. Therefore, this study is a maiden attempt to analyze the

- profitability of the firms.
- significant relationship among different sized firms in terms of cs and Profitability.

The study constitutes an attempt to provide an empirical support to the hypothesized relationship between cs and Profitability. Is there any significant difference in the impact of cs on Profitability of it firms in India? How far does the cs affect the business revenue of firms, and what is the interrelationship between cs and Profitability?

Objectives and Hypotheses of the Study

The present study is intended

- to study the factors influencing cs of select firms based on asset size and business revenue.
- to analyze the interrelationship between cs and Profitability based on asset size and business revenue.
- H_0^1 *There is no significant relationship between selected* cs *variables and Return on Asset (*roa*) of Low Income* it *firms, Medium Income* it *firms, and High Income* it *firms.*

H_0^2 *There is no significant relationship between selected* CS *variables and* ROA *of Small Size* IT *firms, Medium Size* IT *firms, and Large Size* IT *firms.*

H_0^3 *There is no significant relationship between selected* CS *variables and Return on Capital Employed (*ROCE*) of Low Income* IT *firms, Medium Income* IT *firms, and High Income* IT *firms.*

H_0^4 *There is no significant relationship between selected* CS *variables and* ROCE *of Small Size* IT *firms, Medium Size* IT *firms, and Large Size* IT *firms.*

H_0^5 *There is no significant relationship between selected* CS *variables and* ROA *of Overall* IT *firms.*

H_0^6 *There is no significant relationship between selected* CS *variables and* ROCE *of Overall* IT *firms.*

Review of Literature

The value of corporate debt and capital structure (CS) are interlinked variables. Debt values (and therefore yield spreads) cannot be determined without knowing the firm's CS, which affects the potential for default and bankruptcy, but CS cannot be optimized without knowing the effort of leverage on debt value. Both theoretical and empirical CS studies have generated many results that attempt to explain the determinants of CS. Modigliani and Miller (1958) state that interest tax shields create strong incentives for firms to increase leverage. But also the size of non-debt corporate tax shields, like tax deductions for depreciation and investment tax credits, may affect leverage. Titman and Wessels (1988) extend the theories that have different empirical implications; measures of short-term, long term, and convertible debt rather than an aggregate measure of total debt. Barton and Gordon (1988) suggest that a managerial choice perspective may help to explain CS choice at the firm level of analysis.

Sheel (1994) showed that all leverage determinants studied, excepting firm size, are significant in explaining leverage variations in debt behaviour. Vogt (1994) analyzed a set of simultaneous equations for external financing and investment spending that tests the pecking order hypothesis (Myers 1984) against a partial stock adjustment model (Jalilvand and Harris 1984 and Taggart 1977). Consistent with a partial adjustment model, firms appear to adjust slowly to long-run financial targets. However, additional financing needs follow a pecking order. And sup-

port work by Fazzari, Hubbard and Petersen (1988). Rajan and Zingales (1995) found that factors identified by previous studies as correlated in the cross-section with firm leverage in the us are similarly correlated in other countries as well. Shyam Sunder and Myers (1999) argued that mere reversion of leverage ratios can be observed even if the pecking order theory is true. Gleason, Mathur and Mathur (2000) accepted that variables other than cs also influence corporate performance. A negative relationship between cs and performance suggests that agency issues may lead to use of a higher than appropriate level of debt in the cs, thereby leading to a lower performance.

Graham (2000) estimated the tax advantage to debt. Stein (2001) found that a firm has the option to increase future debt levels; tax advantages to debt increase significantly. Booth et al. (2001) state that debt ratios in developing countries seem to be affected in the same way and by the same type of variables that are significant in developed countries. However, there are systematic differences in the way these ratios are affected by country factors, such as GDP growth rates, inflation rates, and development of capital markets. Um (2001) stated that the static trade-off theory of cs is obtained, where the net tax advantage of debt financing balances leverage related costs such as bankruptcy, and suggests that a high profit level gives rise to a higher debt capacity and accompanying tax shield. Hence it is expected that a positive relationship should exist between profitability and financial leverage. Antoniou, Guney and Paudyal (2002) found that cs decisions of firms are not only affected by its own characteristics but also by its surrounding environments for different reasons, such as the deterioration or the improvement in the state of economy, the existence of a stock market and/or the size of the bank sector.

Berger, A. N. (2002) findings are consistent with the agency cost hypothesis-higher leverage, or a lower equity capital ratio is associated with higher profit efficiency, all else being equal. The relationship between performance and leverage may be reversed when leverage is very high due to the agency cost of outside debt. Profit efficiency is responsible to ownership structure of the firm consistent with agency theory and their argument that profit efficiency embeds agency costs. Hung (2002) found that high gearing reflects more of low equity base than high level of debts, which indicates that capital gearing is positively related with asset but negatively with profit margins. Pandey's (2002) findings vindicated the saucer-shaped relationship between cs and Profitability because of

the interplay of agency costs, costs of external financing and interest tax-shield, and proved that the size and tangibility have a positive influence and growth, risk and ownership have a negative influence on CS.

Bhaduri (2002) stated that the optimal CS choice can be influenced by factors such as growth, cash flow, size and product and industry characteristics, and confirmed the existence of restructuring costs in attaining an optimal CS. Voulgaris, Asteriou and Mirigianakis (2002) found that the growth of asset utilization, gross as well as net profitability, and total assets have a significant effect on the CS. Ronny and Clarirette (2003) supported the pecking order theory and rejected the trade-off theory of CS. Further, the small role played by the Mauritian capital market as a source of long-term finance is evident from the results with respect to a number of explanatory variables including age, growth, risk and profitability. The strong and positive results for the size variable are consistent with the findings of other studies and with the trade-off theory. Sarkar and Zapatero (2003) suggested that the speed of reversion differs by competitive environment, and the time-series applications support the notion that the profitability is decreasing with the speed of reversion in profitability.

Strebulaev (2003) argued that even though a positive relation between profitability and the optimal leverage ratio can be expected, there is a negative relation between profitability and the actual leverage ratio. Because of transaction costs, firms do not rebalance their leverage ratios constantly; instead, they allow them to move within a range surrounding the optimal leverage ratios. Mesquita and Lara (2003) stated that the choice between the ideal proportion of debt and equity can affect the value of the company, as much as the return rates can. The results indicate that the return rates present a positive correlation with short-term debt and equity, and an inverse correlation with long-term debt. Azhagaiah and Premgeetha (2004) suggested that the rapid ability to acquire and dispose of debt provides the desired financial flexibility of firms with a goal for growth. The non-debt tax shield and growth rate are statistically significant, which means that these variables are the major determinants of the CS of Pharmaceutical Companies in India.

Hennessy and Whited (2005) argued that the dynamic tax considerations can also cause a negative relation between profitability and leverage ratios. Therefore, these firms are more likely to face internal fund-debt financing decisions. On the other hand, less profitable firms, due to lack of internal funds, are more likely to face the debt-equity financing de-

cisions, and show that debt financing is relatively less attractive in the debt-equity financing decision because of different tax rates. Therefore, a negative relation between profitability and leverage ratio can be induced when firms facing internal fund-debt and debt-equity decisions are mixed together. Pandey (2004) predicted that there will be a nonlinear relationship between cs and profitability. Firms at a lower level of profitability would employ more internal funds, as external funds are expensive and on debt tax shield (such as depreciation) may be more than enough to take advantage of tax benefits. Firms have more profit to shield from taxes as well, as they are able to generate more output by employing asset effectively.

Chen (2004) suggested that some of the insights from the modern finance theory of cs are transferable to China in that certain firm-specific factors that are relevant for explaining cs in a developed economy are also relevant in China. The significant institutional differences of financial constraints in the banking sector in China are the factors influencing firms' leverage decision. Chen and Zhao (2004) suggested that dynamic tax considerations are unlikely to be the main reason for the negative relation between profitability and leverage either. Deesomsak (2004) suggested that the cs decision of firms is influenced by the environment in which they operate, and finds a significant but diverse impact on firms' cs decision. Loof (2004) found the ideas that the more unique a firm's asset, is the thinner the market is for such assets. Hence one may expect that uniqueness be negatively related to leverage.

Voulgoaris, Asteriou and Mirigianakis (2004) found that the profitability is one of the major determinants of cs for both smes and lses size groups. However, efficient assets management and assets growth are found essential for the debt structure of lses as opposed to efficiency of current assets (cas), size, sales growth and high fixed assets, which were found to affect substantially the credibility of smes. Joshua (2005) revealed a significantly positive relationship between the ratio of short term debt to total assets and roe. Song (2005) indicated that most of the determinants of cs suggested by cs theories appear to be relevant for Swedish firms. But one also finds significant differences in the determinants of long and short term forms of debt.

Harrington (2005) supported the theories of cs, which indicates that profitability is an important determinant of leverage. The results suggest that manufacturing firms in concentrated industries have a slower rate of mean reversion in profitability when compared to firms operating in a

more competitive environment. A slower rate of mean reversion in profitability leads to a greater response of leverage to profitability. Huang and Song (2006) found that, as in other countries, leverage in Chinese firms increases with firm size and fixed assets, and decreases with profitability, non-debt tax shield, growth opportunity, managerial shareholdings correlate with industries, and found that the ownership or institutional ownership has no significant impact on cs. Tang (2007) found that fixed assets, growth opportunities, and the joint effect of these two variables are the significant long-term debt determinants of the lodging industry, and suggests that fixed assets and growth opportunities affect each other's relationship with long-term debt usage. Raheman, Zulfiqar and Mustafa (2007) indicated that the cs of the non-financial firms listed on Islamabad Stock Exchange has a significant effect on the profitability of these firms. Dragota and Semenescu (2008) proved that the pecking order theory seemed to be more appropriate for the Romanian capital market, but the signalling theory was not entirely rejected.

Though many research studies have been undertaken in the field of cs and Profitability, very few studies have been undertaken to find the impact of cs on Profitability. Therefore, to fill this gap in the literature and shed light, the present study attempts to analyze the impact of cs on Profitability with special reference to the selected IT firms in India.

Methodology

SOURCES OF DATA

Secondary data were used for the study. The required data were collected from CMIE (Centre for Monitoring Indian Economy) Prowess Package. The public Ltd firms with Low Income, Medium Income and High Income groups based on the level of income from business, i. e., firms with Income < Rs.25 crore as Low, Income between Rs.25 crore and Rs.100 crore as Medium, and firms with business Income > Rs.100 crore is categorized as High income group. Firms with Total Assets (TAS) worth below Rs.25 crore are termed as 'Small Size Firms,' firms with TAS worth Rs.25 crore and above, but below Rs.100 crore are considered as 'Medium Size Firms,' and firms with TAS worth Rs.100 crore and above are classified as 'Large Size Firms.'

SAMPLING DESIGN

As on 31 March 2007, the total number of firms listed in Bombay Stock Exchange (BSE) was 4916, out of which 835 firms were listed under

IT Sector; 736 were Software firms, and firms doing other than software business were 99. Out of 736 software firms, only 727 firms were listed continuously, which were considered for selection. Considering the availability of data and firms listed continuously for all the 8 years (1999–2000 to 2006–2007), 116 firms were selected as a sample (out of 116 firms removing the outliers of 14 firms i. e., the firms with extreme values are removed). Finally a sample of 102 IT firms (116 − 14) was chosen by the Multi-Stage Sampling Technique.

Tools Used for Analysis

The Statistical Techniques used for analysis are Pearson's Coefficient of Correlation (to analyze the relationship between CS and Profitability), Regression Analysis (OLS Model to analyze the unique impact of CS on Profitability) in addition to descriptive statistics such as Mean, Standard Deviation, and Ratio.

Two dependent variables, Return on Assets (ROA) and Return on Capital Employed (ROCE) are considered as profitability variables (business revenue) for the study. The independent variables of Total Debt to Total Assets (TD_TA) and Debt-Equity Ratio (DER) have been used as proxy for CS. The controlled variables, Expenses Ratios (EXP_INC) and Current Ratios (CA) are also used.

Independent and Dependent variables of the selected sample firms for the period of study:

1. Dependent Variables (Profitability Variable)
   - Return on Assets (ROA)
   - Return on Capital Employed (ROCE)

2. Independent Variables (Capital Structure Variables)
   - Total Debt to Total Asset (TD_TA)
   - Expense to Income Ratio (EXP_INC)
   - Debt Equity Ratio (DER)
   - Current Ratio (CR)

3. Controlled Variable
   - Expense Income Ratio (EXP_INC)

Correlation analysis is carried out to find out the existence of multi-co linearity among independent variables in order to decide what variables can be used in regression model, or how the regression model with all independent variables can be used.

Multiple Regression Equation Model

$$Y_e = a + b_1\text{EXP\_INC} + b_2\text{TD\_DA} + b_3\text{CR} + b_4\text{DER} + e,$$

where Y_e = Profitability variables (ROA & ROCE), EXP_INC = Expenses – Income, TD_TA = Total Debt – Total Asset, CR = Current Ratio, a = Intercept, $b_1 \ldots b_4$ = Estimated Coefficient, and e = Residual Error.

Period of the Study

The data for a period of 8 years ranging from 1999–2000 to 2006–2007 have been collected and considered for analysis. Not all the IT firms were continuously listed, and the availability of data for the years together for the IT firms is 8 years.

Limitations and Scope for Further Study

- Analysis of the study is based on finance data collected from the CMIE Prowess Package. The quality of the study depends purely upon the accuracy, reliability and quality of secondary data.
- A detailed trend covering a lengthy period could not be done due to lack of resources.
- For the availability of data and analysis, the size of sample is also restricted to 102, out of 116 software firms. The analysis is based on business revenue (low income below Rs.25 crore, medium income between Rs.25 to Rs.100 crore and high income – above Rs.100 crore); based on assets size (small size below Rs.25 crore, medium size between Rs.25 to Rs.100 crore and large size above Rs.100 crore) to make the sample distribution somewhat normal, removing firms with unrealistic value (outliers); 102 firms were ultimately selected.
- Today, no firm is involved exclusively in hardware or software. IT hardware firms being switched over to software and also outsourcing (mutual funds and stock market) lose their identity as hardware. So it is difficult to classify the firms exclusively for software and exclusively for hardware.
- Due to the influence of some extraneous variables the intercept is very high in a few regression model analyses. Hence, for future studies, it is better to include those independent variables to find the true impact of those variables on the financial decision in respect of CS and Profitability.

TABLE 1   Results of Regression Analysis for Return on Assets (ROA) of low Income, medium income, and high income IT Firms

Variable	Coefficient for Low Income Firms	Coefficient for Medium Income Firms	Coefficient for High Income Firms
Intercept	16.7369***	101.2607***	126.4997***
EXP_INC	−0.1037***	−0.8993***	−1.1508***
TD_TA	−0.0258	−0.2309***	0.0010
CR	−0.0241	−0.2829***	−0.0610
DER	−0.0536	−1.5052***	−11.6766***
R^2	0.2270	0.7728	0.5792
Adjusted R^2	0.2183	0.7669	0.5734
F Statistic	26.07***	131.78***	100.15***
P Value (F Statistic)	0.000	0.0000	0.0000

NOTES   *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level

The study is based only on IT firms. Therefore, the inferences and results will be of much use for further analysis by covering firms in other sectors also.

- Studies could be carried out covering other firms, and varying inferences could be ascertained.
- Studies could be carried out to find out whether there is any significant relationship between sizes of corporate firms other than IT firms in respect of CS and Profitability.
- Studies could also be carried out in order to find out whether there is any significant relationship between fixed assets, assets structure, investment, and volatility, advertising expenditure, the probability of bankruptcy, and uniqueness of the product, earnings volatility of corporate firms etc., in respect of CS and Profitability.

Industry Analysis and Major Findings

From the analysis of data pertaining to CS and Profitability, the major findings are presented in table 1.

The use of debt fund in CS and ROA of low income IT firms ($\beta = -0.1037$, $t = -10.00$, $p < 0.01$); ($R^2 = 0.227$, $F = 26.07$, $p < 0.01$); (22.7 per cent of the variation in ROA) is not significant (see table 1). Hence, H_0^1 'There is no significant relationship between selected CS variables and ROA of low income IT firms' is accepted. However, in respect of medium income IT firms 'There is a significant relationship between CS variables

and ROA.' Profitability has a significant but inverse relationship with CS (R^2 = 0.7728, F = 131.78, p < 0.01). Hence, H_0^1 in respect of medium income IT firms is rejected.

The use of debt fund in CS has a significant negative impact on profitability generated through use of assets in the case of High income IT firms (R^2 = 0.5792, t = 100.15, p < 0.01); coefficient of expenses ratio (EXP_INC) β = −1.1508, t = −18.71, p < 0.01; and DER (β = −11.6766, t = −3.01, p < 0.01) is statistically significant. So, H_0^1 in respect of High income IT firms is rejected.

In respect of the relationship between CS and Profitability of the small size IT firms, the correlation of EXP_INC with ROA, and that of TD_TA with ROA is negatively significant; and that of TD_TA with ROA. Among the individual β coefficients, only the coefficient of expense ratio (β = −0.2018, t = −10.44, p < 0.01) and coefficient of TD_TA (β = −0.1940, t = −4.05, p < 0.01); (R^2 = 0.3426, F = 30.62, p < 0.01) is negatively significant (see table 2). Hence, H_0^2: 'There is no significant relationship between selected CS variables and RAO of Small Size IT firms' is rejected.

Profitability of medium size IT firms is inversely affected by the use of debt fund in CS, the β coefficients with negative sign, (−0.0978) for EXP_INC (t = −6.37, p < 0.01), (β = −0.0574) for TD_TA (t = −2.50, p < 0.01), (β = −0.2043) for CR (t = −3.03, p < 0.01) and (β = −2.2249) for DER (t = −2.31, p < 0.01) are significant. Hence, H_0^2: in respect of Medium Size IT firms is rejected. The increase in use of debt fund in CS tends to reduce the net profit scaled by TAS for large size IT firms. The ROA is negatively significant, correlated with DER; TD_TA; DER; EXP_INC (β = −0.9763, t = −16.66, p < 0.01); DER (β = −8.7959, t = −2.38, p < 0.01). Hence, H_0^2 in respect of Large Size IT firms also is rejected.

The relationship between CS and Profitability for all selected IT firms [ROA with EXP_INC, TD_TA; CR is negatively significant. Profitability measured as a net profit relative to TAS tends to decline with increase in TD proportionate to TAS when there has been an increase in ER, and CR. The β coefficients, (−0.1789) for EXP_INC (β = −0.1789, t = −13.83, p < 0.01); (β = −0.0954) for TD_TA (t = −4.68, p < 0.01), and β = −0.1542, t = −2.80, p < 0.01 for CR are negatively significant (see table 2). Hence, H_0^5: 'There is no significant relationship between selected CS variables and RAO of Overall IT firms' is rejected.

There is no significant relationship between selected CS variables and ROCE of low income IT firms. EXP_INC (β = −0.0797, t = −9.56, p <

TABLE 2   Results of Regression Analysis for Return on Asset (ROA) of small size, medium size, large size and overall IT Firms

Variable	Coefficient for Small Size Firms	Coefficient for Medium Size Firms	Coefficient for Large Size Firms	Coefficient for Overall Firms
Intercept	28.4528***	24.4195***	110.3241***	34.7189***
EXP_INC	−0.2018***	−0.0978***	−0.9763***	−0.1789***
TD_TA	−0.1940***	−0.0571**	−0.0272	−0.0954***
CR	0.0308	−0.2043***	0.2050	−0.1542***
DER	−0.0417	−2.2249**	−8.7959**	−0.2660
R^2	0.3426	0.1853	0.5783	0.2282
Adjusted R^2	0.3315	0.1744	0.5720	0.2244
F Statistic	30.62***	17.00***	91.55***	59.94***
P Value (F Statistic)	0.0000	0.0000	0.0000	0.0000

NOTES   *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level

0.01); DER ($\beta = 0.1149$, $t = 1$, $p < 0.01$). Profitability by capital employed is inversely and significantly influenced by expenditure and independent of the CS of low income IT firms (see table 3). Hence, H_0^3 'There is no significant relationship between selected CS variables and ROCE of low income IT firms' is accepted. The fit of regression is good ($F = 24.12$ at 1% level), however the R^2 value is very low (0.2137), which gives support for accepting the H_0^3.

However, there is a significant relationship between CS variables and ROCE for medium income IT firms ($R^2 = 0.5650$, $F = 50.34$, $p < 0.01$). The negative sign for TD_TA and DER indicates that the proportion of debt in CS plays a vital role in net earnings and increase in use of debt fund in CS, which tends to significantly reduce the net earnings of this group of firms. Hence, H_0^3 in respect of medium income IT firms is rejected. There is a significant relationship between use of debt fund in CS and ROCE of High income IT firms ($R^2 = 0.1588$, $F = 13.74$, $p < 0.01$). Hence, H_0^3 in respect of High income IT firms is also rejected.

The profitability of small size IT firms is inversely affected by the use of debt fund in CS. ROCE is significant with R^2 value of 0.3641 and with F value of 33.63 ($p < 0.01$); (EXP_INC) ($\beta = -0.1747$, $t = -8.92$, $p < 0.01$); and there is an increase in TD proportionate to TAS ($\beta = -0.3761$, $t = -7.75$, $p < 0.01$). The profitability measured by ROCE is negatively signif-

TABLE 3 Results of regression analysis for return on capital employed (ROCE) of low income, medium income, and high income IT Firms

Variable	Coefficient for Low Income Firms	Coefficient for Medium Income Firms	Coefficient for High Income Firms
Intercept	12.4991***	78.9195***	53.4934***
EXP_INC	−0.0797***	−0.5890***	−0.3290***
TD_TA	−0.0192	−0.4669***	−0.1745***
CR	−0.0133	−0.4984***	−0.7391***
DER	0.1149	−3.2573***	5.0630
R^2	0.2137	0.5650	0.1588
Adjusted R^2	0.2048	0.5538	0.1473
F Statistic	24.12***	50.34***	13.74***
P Value (F Statistic)	0.0000	0.0000	0.0000

NOTES *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level

TABLE 4 Correlation matrix analysis results for all selected IT firms

Variables	ROA	ROCE	EXP_INC	TD_TA	CR	DER
ROA	1.0000					
ROCE	0.7282***	1.0000				
EXP_INC	−0.4461***	−0.3763***	1.0000			
TD_TA	−0.1646***	−0.1886***	0.0536	1.0000		
CR	−0.1177***	−0.1349***	0.1041***	−0.0906***	1.0000	
DER	−0.0461	−0.0259	−0.0189	0.0803**	−0.0248	1.0000

NOTES **Significant at 5% level; ***Significant at 1% level

icant, affected by the use of debt fund in CS for small size IT firms (see table 5). Hence, H_0^4: There is no significant relationship between selected CS variables and ROCE of Small Size IT firms is rejected.

The increase in use of debt fund in CS tends to reduce the net earnings significantly for medium size IT firms. The results of regression on ROCE with expense, liquidity and CS ratios for medium size IT firms (EXP_INC) ($\beta = -0.0663$, $t = -4.69$, $p < 0.01$); CR ($\beta = -0.2103$, $t = -3.38$, $p < 0.01$); and DER ($\beta = -2.8458$, $t = -3.20$, $p < 0.01$) is negatively significant at 1 per cent level, and that of TD_TA ($\beta = -0.0492$, $t = -2.33$, $p < 0.01$). Hence, H_0^4 in respect of Medium Size IT firms is rejected.

The use of debt fund in CS of large size IT firms is less profitable.

TABLE 5   Results of regression analysis for return on capital employed (ROCE) of small size, medium size, large size, and overall IT Firms

Variable	Coefficient for Small Size Firms	Coefficient for Medium Size Firms	Coefficient for Large Size Firms	Coefficient for Overall Firms
Intercept	28.2070***	21.0961***	64.1875***	26.5529***
EXP_INC	−0.1747***	−0.0663***	−0.4916***	−0.1240***
TD_TA	−0.3761***	−0.0492**	−0.1636***	−0.0979***
CR	−0.0243	−0.2103***	−0.5859***	−0.1700***
DER	0.1762	−2.8458***	5.8751*	−0.1059
R^2	0.3641	0.1535	0.3173	0.1833
Adjusted R^2	0.3532	0.1422	0.3070	0.1792
F Statistic	33.63***	13.56***	31.02***	45.49***
P Value (F Statistic)	0.0000	0.0000	0.0000	0.0000

NOTES   *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level

The results of regression for ROCE with selected explanatory variables for large size IT firms ($R^2 = 0.3173$, $F = 31.02$, $p < 0.01$) are negatively significant. The large size IT firms with use of more debt fund in CS are less profitable during the study period. Therefore, H_0^4 in respect of Large Size IT firms is rejected.

The net profit against capital employed tends to decline with the increase in TE, TD, CAS, and CLS, and the β coefficients for all explanatory variables, except for DER are negatively significant. ROCE with EXP_INC ($r = −0.3763$, $p < 0.01$), TD_TA, CR, and ROA. The β coefficients, (−0.1240) for EXP_INC, $t = −11.11$, $p < 0.01$); ($\beta = −0.0979$) for TD_TA ($t = −5.56$, $p < 0.01$), and $\beta = −0.1700$, $t = −3.57$, $p < 0.01$ for CR are negatively significant (see table 4). It is inferred that CS has a significant impact on profitability of IT firms in India. Hence, H_0^6: There is no significant relationship between selected CS variables and ROCE of Overall IT firms, is rejected.

Concluding Remarks

Two variables, viz., Return on Assets (ROA) and Return on Capital Employed (ROCE) are considered as profitability control variables for the study. The Total Debt to Total Assets (TD_TA) and Debt-Equity Ratio (DER) have been used as proxy for CS. For empirical evaluation of the

effect of cs on Profitability, the statistical techniques, viz., Pearson's co-efficient of correlation and regression analysis in addition to descriptive statistics such as mean, standard deviation have been used. Analysis is carried out after categorizing the selected firms into three categories based on two attributes, viz., asset size; and business revenue. First, the selected firms are segmented into three groups as low, medium and high based on business revenue (total income). Second, the firms are categorized into small, medium and large based on asset size. Appropriate statistical tools are applied across all groups of firms. The selected firms are segmented into three groups based on the size of the assets used in the business. The profitability and portion of debt in cs as well as the relationship between profitability and cs and impact of cs on profitability are analyzed across size classes.

Based on the business revenue, the study proves that low income IT firms with low expenses are highly profitable, but profitability of these groups of firms is independent of the level of debt fund in their cs. Therefore, profitability by capital employed is inversely and significantly influenced by expenditure and is independent of the cs of low income IT firms. The medium income IT firms have performed well by generating substantial income with less debt. The cs of IT firms with medium income from business has a significant impact on profitability. The proportion of debt in cs plays a vital role in net earnings, and the increase in use of debt fund in cs tend to significantly reduce the net earnings of this group of firms. IT firms belonging to the high business revenue group have shown better performance in managing cs but most of the revenue has been expended. Hence the use of debt fund in cs has a significant negative impact on profitability generated through application of assets in the case of High income IT firms. On the whole, it is inferred that the increase in TD proportionate to TA tends to decrease the net earnings relative to capital employed when there has been an increase in total expenses and increase in use of CAS for IT firms belonging to the high business revenue group.

Based on the size of business, it is inferred that the small size IT firms have not performed well in generating revenue. Profitability is inversely affected by the increase in total expenses and increase in TD proportionate to TAS. cs has a significant unique impact on profitability when there has been a remarkable negative influence of total expenses on profitability for small size IT firms. On the whole, it is found from the regression results that profitability measured by ROCE is significantly negatively af-

fected by use of debt fund in cs for small size it firms. In respect of it firms belonging to the medium size group, the study proves that the net earnings have stood at 10 per cent to their tas and capital employed, and debt in cs is lesser for medium size it firms. Therefore, the profitability of medium size it firms is inversely affected by the use of debt fund in cs, and the increase in the use of debt fund in cs tends to decrease the net income significantly. The increase in the use of debt fund in cs tends to reduce the net earnings significantly for medium size it firms. As far as the large size it firms are concerned, the study reveals that the large size it firms have never relied on debt fund in their cs. They have yielded better net profit by use of less debt fund. Further, the increase in the use of debt fund in cs tends to reduce the net profit scaled by tas for large size it firms in India, and they, by use of more debt fund in cs, are less profitable during the study period.

The relationship between cs and Profitability, as well as the unique impact of cs on Profitability across the classes by income and assets, reveals that the profitability of selected it firms listed in bse decreases significantly with decrease in either spending out of business revenue (exp_inc) or decrease in total debt proportionate to tas or decrease in cr. cs has a significant impact on profitability of it firms in India. Hence, it is concluded that there has been a strong one-to-one relationship between cs variables and Profitability variables (roa and roce), and the cs has a significant influence on Profitability, and increase in the use of debt fund in cs tends to reduce the net profit of the it firms listed in Bombay Stock Exchange in India.

References

Allen, D. E. 1991. 'The Determinants of the Capital Structure of Listed Australian Companies: The Financial Manager's Perspective.' *Australian Journal of Management* 16 (2): 103–28.

Ang, J. S. 1991. 'Small Business Uniqueness and the Theory of Financial Management.' *Journal of Small Business Finance* 1 (1): 1–13.

———. 1992. 'On the Theory of Finance for Privately Held Firms.' *The Journal of Small Business Finance* 1 (3): 185–203.

Antoniou, A., Y. Guney, and K. Paudyal. 2002. 'Determinants of Corporate Capital Structure: Evidence from European Countries.' Working Paper 1-17, University of Durham, Durham.

Azhagaiah, R., and J. Premgeetha. 2004. 'A Study on Capital Structure in Select Companies.' *Management Insight* 7 (1): 17–27.

Barnea, A., R. A. Haugen, and L. W. Senbet. 1985. *Agency Problems and Financial Contracting.* Englewood Cliffs, nj: Prentice Hall.

Barton, S. L., and P. J. Gordon. 1988. 'Corporate Strategy and Capital Structure.' *Strategic Management Journal* 9 (6): 623–32.

Berger, A. N. 2002. 'Capital Structure and Firm Performance: A New Approach to Testing Agency Theory and an Application to the Banking Industry.' Working Paper, Board of Governors of the Federal Reserve System, Washington.

Bhaduri, S. N. 2002. 'Determinants of Capital Structure Choice: A Study of the Indian Corporate Sector.' *Applied Financial Economics* 12 (9): 655–65.

Bhattacharya, S. 1979. 'Imperfect Information, Dividend Policy, and the "Bird in the Hand" Fallacy.' *Bell Journal of Economics* 10 (1): 259–70.

Booth, L., V. Aivazian, A. Demirgue-Kunt, and V. Maksimovic. 2001. 'Capital Structure in Developing Countries.' *The Journal of Finance* 56 (1): 87–130.

Brander, J. A., and M. Poitevin. 1988. 'Managérial Compensation and the Agency Costs of Debt Finance.' Cahiers de recherche 8827, Centre interuniversitaire de recherche en économie quantitative, Montreal.

Chen, J. J. 2004. 'Determinants of Capital Structure of Chinese-Listed Companies.' *Journal of Business Research* 57 (12): 1341–51.

Chen, L., and X. S. Zhao. 2004. 'Profitability Means Reversion of Leverage Ratios and Capital Structure Choice.' Working Paper Series, Michigan State University, East Lansing, MI.

Deesomsak, R. 2004. 'The Determinants of Capital Structure: Evidence from the Asia-Pacific Region.' *Journal of Multinational Financial Management* 14 (4–5): 387–405.

Dragota, I. M., and A. I. Semenescu. 2008. 'A Dynamic Analysis of Capital Structure Determinants: Empirical Results for Romanian Capital Market.' Working Paper 65–80, Academy of Economic Studies, Bucharest.

Fama, E. F., and M. H. Miller. 1972. *The Theory of Finance.* New York: Holt Rinehart and Winston.

Fazzari, S., G. Hubbard, and B. Petersen. 1988. 'Financing Constraints and Corporate Investments.' *Brookings Papers on Economic Activity* 1:141–206.

Gleason, K. C., L. K. Mathur, and I. Mathur. 2000. 'The Interrelationship between Culture, Capital Structure, and Performance: Evidence from European Retailers.' *Journal of Business Research* 50 (2): 185–91.

Graham, J. 2000. 'How Big is the Tax Advantage to Debt?' *Journal of Finance* 55 (5): 1901–41.

Harrington, C. 2005. 'The Effect of Competitive Structure on the Relationship between Leverage and Profitability.' Working Paper, Central Connecticut State University, New Britain, CT.

Haugen, R. A., and L. W. Senbet. 1987. 'On the Resolution of Agency Prob-

lems by Complex Financial Instruments: A Reply.' *The Journal of Finance* 42 (4): 1091–5.

Hennessy, C. A., and T. M. Whited. 2005. 'Debt Dynamics.' *Journal of Finance* 60 (3): 1129–65.

Huang, G., and F. M. Song. 2006. 'The Determinants of Capital Structure: Evidence from China.' *China Economic Review* 17 (1): 14–36.

Hung, C. Y. 2002. 'Capital Structure and Profitability.' *Journal of Property Investment and Finance* 20 (6): 434–53.

Ian, D., R. G. Hubbard, and C. P. Bruce 1988. 'Market Structure and Cyclical Fluctuations in US Manufacturing.' *The Review of Economics and Statistics* 70 (1): 55–66.

Jalilvand, A., and R. S. Harris. 1984. 'Corporate Behaviour in Adjusting to Capital Structure and Dividend Targets: An Econometric Study.' *Journal of Finance* 39 (1): 127–45.

Jensen, M., and W. Meckling. 1976. 'Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure.' *Journal of Financial Economics* 3 (3): 305–60.

Joshua, A. 2005. 'The Effect on Capital Structure and Profitability: An Empirical Analysis of Listed Firms in Ghana.' *The Journal of Risk Finance Incorporating Balance Sheet* 6 (5): 438–48.

Leland, H. E. 1994. 'Corporate Debt Value, Bond Covenants, and Optimal Capital Structure.' *Journal of Finance* 49 (4): 1213–52.

Loof, H. 2004. 'Capital Structure and Technical Change.' *Structural Change and Economic Dynamics* 15 (4): 449–68.

Mackay, P., and G. M. Philips. 2005. 'How Does Industry Affect Firm Financial Structure?' *The Review of Financial Studies* 18 (4): 1433–66.

Masulis, M. S. 1980. 'The Effect of Capital Structure Changes on Security Prices: A Study of Exchange Offers.' *Journal of Financial Economics* 8 (2): 139–78.

Masulis, R. W. 1983. 'The Impact of Capital Structure Change on Firm Value.' *Journal of Finance* 38 (1): 107–26.

Mesquita, J. M. C., and J. E. Lara. 2003. 'Capital Structure and Profitability: The Brazilian Case.' *The Journal of Finance* 57 (3): 1383–420.

Miller, M. H. 1977. 'Debt and Taxes.' *Journal of Finance* 32 (2): 261–75.

———. 1988. 'Margins and the Future of the Markets.' *Proceedings,* May: 73–8.

Modigliani, F. 1982. 'Debt, Dividend Policy, Taxes, Inflation and Market Valuation.' *Journal of Finance* 37 (2): 255–73.

Modigliani, F., and M. H. Miller. 1958. 'The Cost of Capital, Corporate Finance, and the Theory of Investment.' *American Economic Review* 48 (3): 261–97.

Modigliani, F., and M. H. Miller. 1963. 'Corporate Income Taxes and the

Cost of Capital: A Correction.' *American Economic Review* 53 (3): 433–42.

Myers, S. 1984. 'The Search for Optimal Capital Structure.' *Midland Corporate Finance Journal* 1 (1): 6–16.

Myers, S. C., and N. S. Majluf. 1984. 'Corporate Financing and Investment Decisions when Firms Have Information Investors Do Not Have.' *Journal of Financial Economics* 13 (1–2): 187–221.

Pandey, I. M. 2002. 'Capital Structure and Market Power Interaction: Evidence from Malaysia.' *Capital Market Review* 10 (1): 23–40.

———. 2004. 'Capital Structure, Profitability and Market Structure: Evidence from Malaysia.' *Asia Pacific Journal of Economics and Business* 8 (2): 78–91.

Raheman, A., B. Zulfiqar, and Mustafa. 2007. 'Capital Structure and Profitability: A Case of Islamabad Stock Exchange.' *International Review of Business Research Papers* 3 (5): 347–61.

Rajan, R. G., and L. Zingales. 1995. 'What Do We Know about Capital Structure: Some Evidence from International Data.' *Journal of Finance* 50 (5): 1421–460.

Ravid, S. A. 1988. 'On the Interactions between Production and Financial Decisions.' *Financial Management* 17 (3): 87–99.

Raymar, S. 1991. 'A Model of Capital Structure when Earnings are Mean-Reverting.' *Journal of Financial and Quantitative Analysis* 26 (3): 327–44.

Ronny, M., and A. Clarirette. 2003. 'Evidence on the Determinants of Capital Structure of Non Financial Corporate in Mauritius.' *Journal of African Business* 4(2): 129–54.

Ross, S. A. 1977. 'The Determination of Financial Structure: The Incentive-Signalling Approach.' *Bell Journal of Economics* 8 (1): 23–40.

Sarkar, S., and F. Zapatero. 2003. 'The Trade-Off Model with Mean Reverting Earnings: Theory and Empirical Tests.' *The Economic Journal* 113 (490): 834–60.

Sheel, A. 1994. 'Determinants of Capital Structure Choice and Empirics on Leverage Behaviour: A Comparative Analysis of Hotel and Manufacturing Firms.' *Journal of Hospitality and Tourism Research* 17 (3): 1–16.

Shyam Sunder, L., and S. C. Myers. 1999. 'Testing Static Trade-Off against Pecking Order Models of Capital Structure.' *Journal of Financial Economics* 51 (2): 219–44.

Song, H. C. 2005. 'Capital Structure Determinants: An Empirical Study of Swedish Companies.' Working Paper 25, The Royal Institute of Technology, Centre of Excellence for Science and Innovation Studies, Stockholm.

Stein, R. G. 2001. 'An EBIT-Based Model of Dynamic Capital Structure.' *Journal of Business* 74 (4): 483-512.

Stiglitz, J. E. 1974. 'On the Irrelevance of Corporate Financial Policy.' *American Economic Review* 64 (6): 851–66.

Strebulaev, I. A. 2003. 'Capital Structure in Developing Countries.' *Journal of Finance* 56 (1): 87–130.

Taggart, R. A. 1977. 'A Model of Corporate Financing Decisions.' *Journal of Finance* 32 (5): 1467–84.

Tang, C. H. 2007. 'Revisit to the Determinants of Capital Structure: A Comparison between Lodging Firms and Software Firms.' *International Journal of Hospitality Management* 26 (1): 175–87.

Titman, S., and R. Wessels. 1988. 'The Determinants of Capital Structure Choice.' *The Journal of Finance* 43 (1): 1–19.

Um, T. 2001. 'Determinants of Capital Structure and Prediction of Bankruptcy in Korea.' PhD diss., Cornell University, Ithaca, NY.

Vogt, S. C. 1994. 'The Role of Internal Financial Sources in Firm Financing and Investment Decisions.' *Review of Financial Economics* 4 (1): 1–24.

Voulgaris, F., D. Asteriou, and G. A. Mirgianakis. 2002. 'Capital Structure, Asset Utilization, Profitability, and Growth in the Greek Manufacturing Sector.' *Applied Economics* 34 (11): 1379–88.

———. 2004. 'Size and Determinants of Capital Structure in the Greek Manufacturing Sector.' *International Review of Applied Economics* 18 (2): 247–62.

Vertical Integration in the Taiwan Aquaculture Industry

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The study aims to improve the distribution channels in the Taiwan aquaculture industry through a better vertical integration. This study is derived from a need to improve the distribution performance of agricultural-based industries in response to increasing food demands in Asia and elsewhere. Based on a four-by-eight matrix derived from both a value chain and a service profit chain, thirty different strategies are developed. This development is based on key success factors and strategies for vertical integration interviewed and cited in the literatures. The findings are identified by applying the Gray Relational Analysis (GRA). For this study, the key success factors for aquaculture wholesale markets include the communication, integration and cohesion of opinion within the wholesale market; government support; and mutual trust between members of the vertical integration scheme. The suitable vertical integration strategies are an improved safety and hygiene inspection of aquaculture products, accuracy of aquaculture product categorization, and precision in product weighing.

Key Words: aquaculture industry, grey relational analysis (GRA), channels integration
JEL *Classification:* M30, R41

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Introduction

Improving the performance of agricultural-based industries has gained more attention from practitioners and researchers alike for the past decade. This is due to continuous economic expansion and population growth in Asia, especially China and India (McKay 2007). Based on his viewpoint, the operational performance needs to be constantly improved across all agricultural products, including crops, livestock, and fishery. Timmer (2010) argued that, although many Asian countries such as Thailand and Vietnam, have significantly increased their exports of agricultural goods around the world, there was a need for operational improvements to ensure an effective and efficient farm-to-table chain (i. e., farmer-to-consumer integration). This improvement has taken place in many shapes and forms such as crop yield, contract farming, organic farming, traceability, Good Agricultural Practice, processing, and more importantly distributions.

In fact, the urbanization (i. e., more than 300 million in China and 170 million in other Asian countries such as Indonesia, the Philippines, Vietnam, Thailand, and Malaysia will be living in the cities by 2020) has led to a call for a comprehensive review and assessment in how agricultural foods should be distributed to consumers, including wholesalers, retail outlets, supermarkets, and restaurants (Lem et al., 2004; Timmer 2010). The food distribution should result in less cost and higher quality to customers. Not only is there a need to deal with the trend in urbanization, but one must recognize the ongoing change in a demographic factor that is taking place in many regions, especially in East and Southeast Asia (with the exception of Indonesia, Malaysia, and the Philippines).

According to Manasserian (2005) and McKay (2007), the median age in the Asia-Pacific region would increase from 29 to 36+ years old in 2020 while the proportion of the aging population will be greatly increased. These increases are expected to impact the region's food consumption patterns and behaviors. Meat consumption would probably decline while the demand for fresh fish, fruits, and vegetables would gradually increase. Several initiatives have been made previously in many countries to increase the flows of fresh produce to consumers as fast and cheaply as possible. They are: e. g., the use of technology to improve schedules, route planning, and distribution channels, and the application of a cool chain to increase a product's shelf life. Moreover, the vertical integration concept has been revisited and re-examined repeatedly during the past ten

Aquaculturist	Aquaculturist	Aquaculturist
Wholesaler	Wholesaler	Wholesaler
Processor	Processor	Processor
Wholesaler	Wholesaler	Wholesaler
Retailer	Retailer	Retailer
Pure market exchange	*Vertical cooperation*	*Vertical integration*
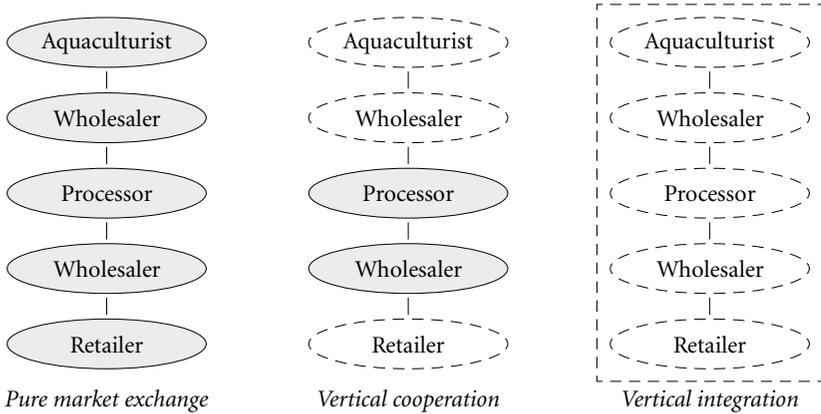
FIGURE 1   Vertical integration (adapted from Lem et al. 2004)

years as a way to respond to the higher demand for food around the word, including local and regional demands among Asia countries (Lem et al., 2004; McKay 2007; Timmer 2010).

The nature of agricultural-based industries in Asian countries has pointed to the need to reexamine how effective and efficient the vertical integration has been in practice. Many firms in these industries are considered to be Small and Medium Enterprises or SMEs. They are required to work and cooperate closely together as individual firms simply cannot meet the overwhelming demands. Vertical integration indicates how companies, especially SMEs, are integrated in a supply chain (Lem et al., 2004). These companies are united through a common ownership or partnership arrangement. Each member of the supply chain typically produces a different product or service. But when combined, their products and services aim to satisfy a common need of consumers. It is widely practised in processed foods (e. g., starch and sugar) and fishery-related products. Beside the vertical marketing channels as considered, the aquaculture product flow can follow various market channels from the aquaculturalist to the final consumer. Therefore, these market channels were divided into three main stages: the producer stage, the wholesaler stage including processing, and the retailer stage (Lem et al. 2004; see figure 1).

Background to the Problem

One-third of the total quantity and value of seafood products sold in Taiwan originates from fish farms. Traditionally, the fish farming distribution channel consists of – from upstream to downstream – the farmers,

local sales representatives, wholesale markets, retailers and consumers. The demand for healthy and safe food in Taiwan has increased in recent years. The up-, mid- and downstream operations of the local fish farming industry have striven to meet this increased demand. Further, increased vertical integration and coordination between production and sales have simplified distribution channels, which is favourable for maintaining the freshness and nutritional value of aquaculture products.

Wholesale markets provide facilities and management so that suppliers and salesmen can conduct their business in a highly specialized fashion. Large scale trading and wide dispersion achieves orderly transportation and sales, regulation of supply and demand and promotion of fair trade practices. The aquaculture wholesale markets, located midstream of production and sales channels, provide functions of price formation, concentration and distribution of aquaculture products, and serve as a bridge between supply and sales. These institutions handle most production and are operated by managers with extensive experience in sales and handling of seafood products; thus, they are well-suited to lead the process of vertical channel integration. Therefore, this study starts from the management level of the aquaculture product wholesale markets to investigate applicable strategies for vertical channel integration. The aims of this study are to determine the key success factors necessary for aquaculture industry integration, and to develop viable strategies for channel integration based on the characteristics of the fish farming industry and vertical integration.

Literature Review

To investigate the major success factors and strategies, a literature review for this study focuses on several aspects of vertical channel integration, including systems, channel integration, introduction of key success factors, structure of strategic analysis, value chain and service profit chain.

DEFINITION OF THE VERTICAL INTEGRATION SYSTEM

'Vertical Integration' suggests that firms internalize trade by establishing their own systems and complete the intermediate input and production of finished products to replace trading behaviour in the open market (Coase 1937). This so-called vertical integration combines technically different processes such as production, distribution, sales and other economic practices under the jurisdiction of a single organization. Thus, a company integrates upward with suppliers which control sources of

supply as well as downward with wholesalers or retailers which control where the goods are sold (Porter 1985). Vertical integration allows products and services to integrate up-, mid- and downstream of operation procedures toward the sources of raw material as well as delivery and distribution networks (Williamson 1979; Hill and Jones 1998; Waterson 1984; Glenn et al. 2000; Dawson 2003).

<small>CHANNEL INTEGRATION AND ITS KEY SUCCESS FACTORS</small>

A 'marketing channel,' also known as a 'distribution channel,' consists of a group of interconnected organizations tasked with enabling products or services to be used or consumed by consumers or industry users (Kotler and Armstrong 1994; Stern, El-Ansary, and Conghlan 1996). From a management perspective, the marketing channel is defined as a contractual relationship between organizations to accomplish distribution tasks through managed operations. These joint organizations may include manufacturers, distributors, retailers and many other firms involved in the marketing channel before goods are finally delivered to industry users or consumers (Kotler and Armstrong 1994; Berman 1996; Rosenbloom 1999). To survive and succeed in an industry, a firm must excel in three to six specialized aspects of that industry, and the key success factors that determine whether it is successful must be achieved in order to succeed. The so-called 'special parts' are key areas where a firm must perform effectively to succeed. To maintain growth, a firm must make efforts in these few key management areas; otherwise, the expected goal will not be achieved (Daniel 1961). In order to succeed, an enterprise must have certain key advantages or assets and perform relatively well so that a competitive advantage is realized (Aaker 1984; Ellram and Hendrick 1995; Lester 1998). The competitiveness of technology or assets owned by an enterprise can be measured by analyzing the advantages of the enterprise and the coordination between key success factors. If the advantages of the enterprise reflect well on the KSF of the enterprise, then it has a competitive advantage (Wu 1988; Simchi-Levi, Kaminski, and Simchi-Levi 2003).

<small>VALUE CHAIN AND SERVICE PROFIT CHAIN</small>

Porter (1985) proposed the idea of a 'value chain,' indicating an enterprise that performs a series of 'value-creating activities' such as valuable products, labour to upstream customers such as raw materials suppliers and end buyers of products or labour. It describes the accumulation of

customer value in each operation. The value chain is the presentation of total value mainly consisting of value operation activities and profit. Value is the price a customer pays for the product or labour purchased. Total value reflects the price and sales of products or labour, and the value operation activity is the activity that contributes to the value of final products or labour. Profit is the difference between total value and the cost paid for the execution of value operation activities. Porter divided the value chain operation activities of an enterprise into two categories, major activities and supporting activities, based on the technical or strategic characteristics.

Heskett et al. (1994) suggested that the service profit chain is constructed through a series of value exchanges. Service quality in an organization affects employee satisfaction, and employee satisfaction improves productivity, retention and loyalty. As a result, able workers are more willing to stay, and the costs of recruiting, hiring and training new employees are minimized. Therefore, to improve customer satisfaction, the satisfaction of employees must be surveyed and improved as much as possible. As the profits and growth of an enterprise are affected mainly by customer loyalty, and customer loyalty is directly influenced by customer satisfaction, both of which are in direct proportion. This study indicated that the service quality of a firm is closely related to employee satisfaction, and employee satisfaction greatly influences customer satisfaction and loyalty. The Heskett study further revealed that the most important factors affecting employee satisfaction are: work, training, promotion opportunities, respect, teamwork and whether the firm is genuinely concerned about the welfare of employees. Thus, enterprises devoting more effort to these factors can maintain a good employer-employee relationship. The purpose of this study is to identify vertical channel integration strategies in the Taiwan fish farming industry by using a four-by-eight matrix representing the major activities of the value chain and the service profit chain.

GREY RELATIONAL ANALYSIS

Deng (1982) pioneered grey system theory in 1982. Grey system theory (GST) is concerned with solving problems that involve uncertainty or systems with incomplete information. Using system relational analysis, model construction, forecasting, or decision analysis, grey system theory can effectively resolve various problems that involve uncertainty, multiple variables or discrete data.

GST has received attention from scholars of all academic circles and many practitioners. Especially, successful applications of GST in several scientific fields have won the affirmation and attention of international academic spheres. At present, many scholars are occupied in research and applications of grey systems in many countries, regions and international organizations, such as in England, USA, Germany, Japan, Australia, Canada, Austria, Russia, Taiwan, Hong Kong, the United Nations, Turkey, South Africa, and so on (Liu, Forrest, and Vallee 2009).

Grey relational analysis (GRA) was originated by GST. This method has become an effective method for solving problems with high uncertainty. GRA has been developed to study problems of small samples with poor information, with successful applications in industry, energy, transportation, meteorology, geology, hydrology science, medicine, military science, business, agriculture, and so on (Salmeron 2010). For the advantages of this method, Song and Shepperd (2011) stated that GRA provides an alternative approach to identify the correlations among factors without traditional statistical assumption (e. g. data distribution, errors distribution, and sufficient data).

The calculation process for GRA is expressed as follows (Deng 1982).

Let X be a factor set of grey relation, $X = \{x_0, x_1, \ldots, x_m\}$, where $x_0 \in X$ denotes the referential sequence; $x_1 \in X$ represents the comparative sequence, and $i = 1, \ldots, m$. Both x_0 and x_1 include n elements and can be expressed as follows.

$$x_0 = (x_0(1), x_0(2), \ldots, x_0(k), \ldots, x_0(n)) \tag{1}$$

$$x_i = (x_i(1), x_i(2), \ldots, x_i(k), \ldots, x_i(n)) \tag{2}$$

Where $i = 1, \ldots, m$; $k = 1, \ldots, n$; $n \in N$, and $x_0(k)$ and $x_i(k)$ are the numbers of referential sequences and comparative sequences at point k, respectively. In practical applications, the referential sequence can be an ideal objective and the comparative sequences are alternatives. The best alternative corresponds to the largest degree of grey relation. If the grey relational coefficient (GRC) of the referential sequences and comparative sequences at point k is $\gamma(x_0(k), x_i(k))$, then the degree of grey relation for x_0 and x_i will be $\gamma(x_0, x_1)$ when the following four prerequisites satisfy:

1. Normal interval:
   $0 < \gamma(x_0, x_i) \leq 1$,
   $\gamma(x_0, x_i) = 1 \Leftrightarrow x_0 = x_1$,
   $\gamma(x_0, x_i) = 0 \Leftrightarrow x_0, x_1 \in \emptyset$.

2. Dual symmetry:
   $x, y \in X$,
   $r(x, y) = r(y, x) \Leftrightarrow X = \{x, y\}$.
3. Wholeness:
   $x_i, x_j \in X$,
   $\gamma(x_i, x_j \neq \gamma(x_j, x_i)$.
4. Approachability:
   With $|x_o(k) - x_i(k)|$ getting larger, $\gamma(x_o(k), x_i(k))$ becomes smaller.

The essential condition and quantitative model for grey relation are produced based on the above four prerequisites. The GRC of the referential sequences and comparative sequences at point k is expressed as follows:

$$\gamma(x_o(k), x_i(k)) =$$
$$= \frac{\displaystyle\min_{i \in I} \min_{k} |x_o(k) - x_i(k)| + \zeta \max_{i \in I} \max_{k} |x_o(k) - x_i(k)|}{|x_o(k) - x_i(k)| + \zeta \max_{i \in I} \max_{k} |x_o(k) - x_i(k)|}, \qquad (3)$$

where ζ is a distinguished coefficient with a value between zero and one. The ζ can be adjusted to suit practical requirements and it is normally set at 0.5.

The grey relational grade (GRG) stands for the degree of grey relation between the referential sequences and comparative sequences is defined as a GRC mean and can be expressed as follows:

$$\gamma(x_o, x_i) = \frac{1}{n} \sum_{i=1}^{n} \gamma(x_o(k), x_i(k)). \qquad (4)$$

A larger GRG corresponds to a stronger degree of grey relation between the comparative and referential sequences.

Research Method

Given the research purpose and results of the literature review, the design of this study included three parts: the research process, the research objective and questionnaire design.

THE RESEARCH PROCESS

First, experts and specialists were interviewed at several large and representative aquaculture wholesale markets throughout Taiwan to clarify distribution, delivery and sales in the industry. After data collection and

a literature review, the major activities in the value chain and service profit chain were reviewed to develop a questionnaire for the aquaculture wholesale managers. After the questionnaires were retrieved, grey relational analysis was utilized to elucidate the key success factors and strategies identified by industry managers.

RESEARCH SURVEY

In principle, questionnaires were sent to the fish markets where seafood is bought and sold. The investigation focused on management level personnel in these markets. The questionnaires regarding vertical integration in the fish farming industry were delivered to fifty fish markets throughout Taiwan (except those on the outer islands). Ten copies were sent to big wholesale markets in Taiwan and five copies were sent to small wholesale markets. Three hundred questionnaires were distributed, of which 100 copies were sent to these big markets and 200 to small markets.

QUESTIONNAIRE DESIGN FRAMEWORK

This study made a value chain categorization on the operation process in the wholesale markets of aquaculture products: (1) Major activity: 1. Logistics: product inspection and weighing, categorization and classification, product cutting and processing, ice making. 2. Production: product preservation, auction (manual and computerized). 3. Logistics management: product storage, freezing and refrigeration, auction ground cleaning, sewage treatment. 4. Marketing and sales: advertising, selection of sales channels, space leasing. (2) Support activity: 1. Purchasing: fish cage purchasing, polymer cases. 2. Technology development: auction equipment improvement and auction system upgrade. 3. Human resource management: recruiting, employment and training of administrative, auction and marketing personnel. 4. Corporate infrastructure: general administration management, planning, finance, accounting, official business and quality control. This study emphasized business activities related to up-, middle- and downstream integration, which are the major operations of aquaculture product wholesale markets, as well as the major activity in the value chain. Human resources, which is the only relevant supporting activity, was investigated as well.

The service profit chain consists of a series of value exchanges and includes eight aspects: 1. internal service quality, 2. employee satisfaction, 3. employee loyalty, 4. employee productivity, 5. external service values,

	Logistic Incoming	Production	Logistic shipping	After sales service
Revenue and Profit	29	30	31	32
Customer Loyalty	25	26	27	28
Customer Satisfaction	21	22	23	24
Outsider Service Value	17	18	19	20
Employee Productivity	13	14	15	16
Employee Loyalty	9	10	11	12
Employee Satisfaction	5	6	7	8
Inside Service Quality	1	2	3	4

FIGURE 2   The four-by-eight matrix representing the major activities of value chains and service profit chains

6. customer satisfaction, 7. customer loyalty, and 8. income and profit growth. The principal process of the service profit chain is the following: high quality service and policies provided by an organization to employees (internal service quality) elevate employee satisfaction; employee satisfaction leads to loyal and productive employees; 'external service value' is created by satisfied, loyal and productive employees who deliver products or services to customers. Customer satisfaction depends greatly on the service received by customers, and customer loyalty comes from satisfaction. Loyalty promotes earnings and growth in corporate profit. Through the service profit chain, this study investigated how wholesale markets can improve these eight aspects of operations.

After categorizing the major business operations of aquaculture product wholesalers, four major activities were identified: logistic incoming, production, logistic shipping, marketing and after sales service. The service profit chain consists of a series of value exchanges and includes eight aspects. As figure 2 shows, this study employed a four-by-eight matrix representing the major activities of value chains and service profit chains.

The four employee-related aspects included in the matrix were internal service quality, employee satisfaction, productivity and loyalty. The four major activities in the value chain proposed by Porter were used to create a four-by-four matrix with cells numbered from 1 to 16. The four aspects related to customers outside the organization, 'external service values, customer satisfaction, customer loyalty and income and profit,' and the four major activities of the value chain were used to create another square matrix with cells numbered from 17 to 32.

Relevant domestic and international literatures regarding vertical integration were reviewed in addition to interviews with managers of aquaculture wholesale markets in Taipei, Taichung, Changhua, Puhsin and Chiayi. As table 1 shows, the literature review and interviews yielded thirty strategies for improvement of vertical channel integration in each cell. How these strategies were derived will be elaborated with the aspect of 'inbound logistics' as an example: In 'inbound logistics,' this study proposed 2 variables, processing and checking and acceptance. This aspect was converted for these 2 variables to develop a vertical integration strategy for the fish farming industry. The 'processing' variable proposed by Azzam and Wellman (1992) in a study of the pork industry is favourable to vertical integration of inbound logistics; this study developed a 'product cutting (level 1 processing)' strategy. Glenn et al. (2000) proposed the 'checking and acceptance' variable in their study of the dairy industry. Categorization, classification, hygiene and safety inspection and weighing accuracy were identified as favourable to vertical integration of logistic incoming. Three strategies developed in this study were 'accuracy of product categorization and classification,' 'enhanced product hygiene and safety inspection' and 'product weighing accuracy.' Four strategies have been developed for inbound logistics, one from variable 'processing' and three from variable 'acceptance,' and all helped improve the operations of cells 17, 21, 25 and 29; the six strategies developed from 'logistic shipping' helped improve the operations of cells 19, 23, 27 and 31; the four strategies developed from 'marketing and after service' helped improve the operations of cells 20, 24, 28 and 32; finally, the twelve strategies developed from 'internal supporting activities of a firm,' which are mainly related to employee training, welfare and internal service quality, helped improve the operations of cells 1 through 16. From this four-by-eight matrix, strategies that helped improve the operations of each cell were used as descriptions in the questionnaire, and the questionnaire was used to gather management level input regarding strategies for these wholesale markets.

Results

Research results are discussed from perspectives of key success factors and vertical integration strategies. Three hundred questionnaires were distributed, and 164 were retrieved, of which eight were invalid and 156 were valid. The retrieval rate was 55%. The survey period extended from 13 to 27 April, 2006. Most (66%) survey subjects were lower ranking man-

TABLE 1 The strategies for vertical channel integration

Inbound logistics				
Processing	Azzam and Wellman (1992)	1	Product cutting (level 1 processing)	17, 21, 25, 29
Checking and acceptance	Glenn et al. (2000)	2	Accuracy of product categorization and classification	
		3	Enhanced hygiene and safety inspection	
		4	Product weighing accuracy	
Processing				
Auction	Expert opinion of aquaculture product wholesale markets (2006)	5	Fair and open product auction	18, 22, 26, 30
Package	Azzam and Wellman (1992)	6	Small package treatment	
Processing		7	Product process treatment (level 2 processing)	
Product preservation	Dawson (2003)	8	Enhanced product preservation level	
Logistic shipping				
Distribution accuracy	Stern et al. (1996)	9	Distributing products to accurate locations	19, 23, 27, 31
Reliability		10	Product preservation in distribution process	
Speed		11	Speedy distribution	
On schedule		12	Product distribution on schedule	
Customized service		13	Distributing small packages	
		14	Customized distribution service	
Marketing and after sales service				
Service drawbacks and amendments	Tso (2002)	15	Service drawbacks and amendments (For example: Product decomposed and shortage)	20, 24, 28, 31

Collaboration Marketing		16 Collaboration Marketing promotion	
Emergency treatment ability		17 Management capability of emergency distribution	
Knowing customer's need	Van de ven (1976)	18 Precisely and speedily understanding the market demand	
Reservation	Expert opinion of aquaculture product wholesale markets (2006)	19 Promoting reservation trade	
Development of systematic information interaction	Sharma (1995)	20 Current information of product amount	
		21 Supply chain information of purchasing from buyers to sellers	
		22 Obtaining the collaborate information technology supported by university and software corporation	
Human resource			
Employee training	Heskett et al. (1994)	23 Training employees about auction knowledge and techniques	13–16
		24 Training employees about the knowledge and techniques of product categorization and classification	
Employee welfares		25 Enhanced employees' welfare and salary	1–12
		26 Sharing the profit of corporation with employees	
Employees internal service quality	Rust et al. (1996)	27 Integration and cohesion of opinion within the organization	
		28 Focus on promotion fairness of employees	
		29 Respecting employees	
		30 Providing job security for employees	

agers, and many (41%) interviewees had 15 or more years of working experience.

RELIABILITY AND VALIDITY ANALYSIS

Reliability is the accuracy or precision of a measurement instrument, and the measure consists of stability and consistency. In addition to the literature review, this study compiled comments from managers of aquaculture product wholesale markets and from individual fish farmers. Therefore, the findings of this study are considered reliable. In validity analysis, this study adopts the Cronbach alpha coefficient to determine internal consistency; the validity of the key success factors for vertical integration of the fish farming industry channel was 0.931. Considering the reliability of the vertical channel integration strategies for each aspect, the alpha coefficient was 0.840 for logistic incoming, 0.783 for production, 0.843 for logistic shipping, 0.830 for marketing and after sales service, and 0.947 for human resources. As suggested by Guielford (1965), if the Cronbach alpha coefficient is greater than 0.7, the reliability is high. According to the above calculations, all alpha coefficients were higher than 0.7, indicating high reliability in this questionnaire.

GREY RELATIONAL ANALYSIS

Grey relational analysis was adopted in this study, and option 5 – 'agreed strongly' – in the reference sequence was chosen as the basis for measuring the relationship between success factors and strategies for vertical channel integration. The grey relational method was used to determine the relationship (sequence weight) of each factor. A higher grey relation indicates greater importance, indicating that management level personnel in the fish markets agreed with and valued this particular 'key success factor for vertical channel integration' and 'vertical channel integration strategy.' Tables 2 and 3 present the results of this analysis in order of magnitude.

GRAY RELATIONAL ANALYSIS OF THE KEY SUCCESS FACTORS FOR VERTICAL CHANNEL INTEGRATION

Each question was analyzed using the grey relational method (the maximum of gray relation is 1 and the minimum is 0. After arranging the calculated values in descending order, the greater grey relations were higher in the gray relation sequence, indicating that managers of fish markets

TABLE 2 Key successful factor analyses with grey relational analyses of channel vertical integration

(1)	(2)	(3)	(4)
Internal communication of organization	Communication, integration and cohesion of opinion within the wholesale market	0.6854	1
Government support	Government support and cooperation	0.6827	2
Trust	Mutual trust between members of the vertical integration scheme	0.6618	3
Fairness	Fairness of profit and risk distribution between members of the vertical integration scheme	0.6372	4
Mutual assist in difficulty	Mutual assist in difficulty between members of the vertical integration scheme	0.6310	5
Classification of clear target	Mutual consent of providing healthy and safety food between members of the vertical integration scheme	0.6292	6
Organizing committee of vertical integration	The committee organized by members of the vertical integration scheme promotes vertical integration	0.6235	7
Outside pressure	Influenced and pushed by outside pressure	0.6164	8
Understanding the demand of partners	Understanding the demand of partners in vertical integration	0.6111	9
Relationship commitment	Mutual commitment of relationship	0.6042	10
Expectation of mutual relationship	Expectation of mutual relationship between members of the vertical integration scheme	0.5964	11
Developing systematical information interaction	Mutual cooperation of information system	0.5576	13
Flexibility	Keeping mutual relationship with flexibility	0.5448	14
Inventory management	Stable product supply between members of the vertical integration scheme	0.5430	15

NOTES Column headings are as follows: (1) dimensions, (2) question items, (3) grey relational degree, (4) grey relational rank.

placed more importance on the question and considered it a key success factor for vertical integration of fish farming industry channels.

After calculation, the grey relations were displayed in number lines grouping approximate values together. The lines and grouping are displayed in figure 3. The right-hand-side of lines grouping indicating the grey relations as close to 1 which showed that these factors are more im-

TABLE 3　Grey relational analyses for vertical channel integration strategies

(1)	(2)	(3)
Enhanced hygiene and safety inspection	0.8246	1
Accuracy of product categorization and classification	0.7997	2
Product weighing accuracy	0.7971	3
Enhanced product preservation level	0.7723	4
Providing job security for employees	0.7700	5
Respecting employees	0.7630	6
Product preservation in distribution process	0.7581	7
Comm., int. and cohesion of opinion within the wholesale market	0.7489	8
Speedy distribution	0.7469	9
Fair and open product auction	0.7445	10
Focus on promotion fairness of employees	0.7272	11
Enhanced employees' welfare and salary	0.7218	12
Sharing the profit of corporation with employees	0.7175	13
Product distribution on schedule	0.7015	14
Training employees about the knowledge and techniques of product categorization and classification	0.6991	15
Training employees about auction knowledge and techniques	0.6850	16
Collaboration Marketing promotion	0.6849	17
Current information of product amount	0.6826	18
Distributing products to accurate locations	0.6797	19
Promoting reservation trade	0.6724	20
Precise and speedy understanding of the market demand	0.6710	21
Small package treatment	0.6591	22
Product cutting (level 1 processing)	0.6577	23
Service drawbacks and amendments (For example: Product decomposed and shortage)	0.6512	24
Obtaining the collaborate information technology supported by university and software corporation	0.6493	25
Distributing small packages	0.6415	26
Customized distribution service	0.6327	27
Product process treatment (level 2 processing)	0.6067	28
Supply chain information on purchasing from buyers to sellers	0.6063	29
Management capability of emergency distribution	0.6008	30

NOTES　Column headings are as follows: (1) strategies, (2) grey relational degree, (3) grey relational rank.
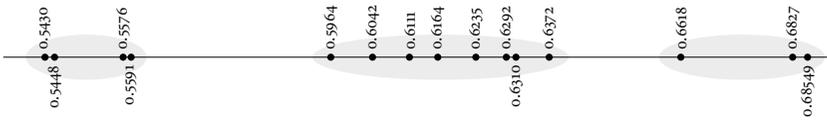
FIGURE 3 Key successful factor analyses with number lines of grey relational degree

portant. The left-hand-side indicating the grey relations as close to 0, which showed that these factors are not so important. This study divided the fifteen aspects of measurement into three groups. From right to left, the grey relation values are 0.6854, 0.6827 and 0.6618 represent 'internal communications of an organization,' 'government support' and 'mutual trust,' respectively.

The sequence of grey relations revealed that the first group, which includes 'internal communication of an organization,' 'government support' and 'mutual trust' are the vertical channel integration success factors most valued by managers of fish markets. This finding indicates that the fish markets must reach a mutual understanding within their organization before participating in the vertical integration system for fish farming industry channels, so that internal management and employees have the same objective in upcoming external integration actions. Due to the limited resources within the fish farming industry, resource input and government support are required for successful establishment and maintenance of a vertical channel integration system. To achieve vertical channel integration, one additional success factor is crucial in the first group: trust. The mutual trust between partners in a channel can only be established under the premise that the members are not opportunistic and will not compromise the benefits of other channel partners to attain short-term profits. Only then can a long-lasting relationship and efficient vertical integration be achieved.

GREY RELATIONAL ANALYSIS FOR VERTICAL CHANNEL
INTEGRATION STRATEGIES

After calculation, the grey relations were displayed in number lines grouping approximate values together. Figure 4 depicts the lines and grouping.

Thirty strategies were divided into six groups. For example, from right to left, the grey relations were 0.8246, 0.7997 and 0.7971, representing 'enhanced product hygiene and safety inspection,' 'product categorization and classification accuracy' and 'product weighing accuracy' as the first
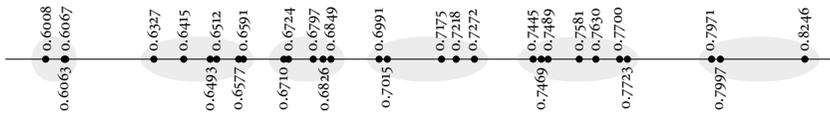
FIGURE 4   Channel vertical integration strategies with number lines of grey relational degree

group. Looking at the sequencing of grey relations, the first group, which includes 'enhanced product hygiene and safety inspection,' 'product categorization and classification accuracy' and 'product weighing accuracy,' were vertical channel integration strategies that fish market managers considered most feasible for achieving vertical channel integration. The three strategies in the first group are all aspects of 'inbound logistics,' indicating that fish market managers considered them important. Categorization and classification of products, hygiene and safety inspections and accuracy of weighing are all front-end tasks in the value chain of aquaculture product wholesale markets. Subsequent operations of vertical channel integration, 'production, logistic shipping, marketing and after sales service' run smoothly if front-end application strategies of the value chain are intensified and most of the efforts are directed towards stabilizing the most important factor of 'fish farming product quality.'

Discussion

This study conducted an interview with the Fish Marketing Organization of Taiwan in cooperation with related fish farmer associations, SMEs, and interviewees with wholesalers firms were conducted to evaluate the suitability of the key factors. The results found that the key factors are driving the improvement needs and the important strategic areas to satisfy with the market demands. First of all, the safety/hygiene as well as the product understanding/ group were the overwhelming factors that had influenced the need to improve the operational performance at the Taiwan Fish Markets. Thus, weight and pricing accuracy also received a considerable amount of attention as the business and transaction were continuous during the operating hours. Some of the key strategic areas to be under consideration included better scheduling and more available pricing information.

To facilitate vertical channel integration, this study investigated the key success factors and feasible strategies for vertical integration. Management level of aquaculture product wholesale markets was selected as the

survey subject. The analytical results indicated that the success factors considered crucial by management-level officers of aquaculture product wholesale markets are: communications, integration and cohesion of opinions within the wholesale markets, the full support from government, and mutual trust between members of the vertical channel. To facilitate vertical integration of the aquaculture industry channel, mutual consent should first be established within an organization so that internal management and employees work cooperatively to achieve external integration. Due to the limited resources available to the fish farming industry, resource input and governmental support are required for successful establishment and maintenance of vertical channel integration systems. To achieve vertical channel integration, one additional key success factor is required in the first group, and that is trust. The mutual trust between each of the partners in a channel can only be established under the premise that the members are not opportunistic and will not compromise the benefits of other channel partners for short-term profits. A long-lasting relationship can then be achieved, and vertical integration of the channel will be realized.

For effective strategies of vertical integration of the fish farming industry, the lines grouping were developed for the grey relations, and approximate values were grouped after calculation by the grey relational method. Thirty strategies for vertical integration of the fish farming industry developed in this study were divided into six groups. The first group consists of strategies that managers of aquaculture product wholesale markets considered most crucial and helpful for vertical integration of the fish farming industry. All strategies in the first group focus on 'inbound logistics' and are the front-end tasks in the value chain of aquaculture product wholesale markets. Consumers can have access to healthy and fresh farming products only if the 'aquaculture product quality' starts at the front end of the value chain and continues at the middle and rear ends of the chain.

From the management points of view, the key success factors from this study can be taking into account for the policy making of Taiwan aquaculture product wholesale markets. The policy makers can be considered as the key success factors for aquaculture wholesale markets, which include the effective communication, government support, and mutual trust between members of the vertical integration scheme. From the results of this empirical study, the policy makers can be more precise, for the suitable vertical integration strategies are an improved safety and hy-

giene inspection of aquaculture products, accuracy of aquaculture product categorization, and precision in product weighing. In addition to the Taiwan aquaculture industry analyzed in this study, the authors hope that the results of this study can serve as a reference for promoting vertical integration in other industries or in other countries.

Conclusion

The study focuses on applying the vertical integration concept to help improve the operational performance in the Taiwan aquaculture industry. This study is derived from the ongoing trends in urbanization and the aging population that have changed food consumption patterns and behaviour, especially higher demands for fresh fish, fruit, and vegetable. Based on a four-by-eight matrix derived from both a value chain and a service profit chain, thirty different strategies are developed. The findings are identified by applying the Grey Relational Analysis (GRA). For this study, the success factors for wholesale aquaculture markets include the communication, integration and cohesion of opinion within the wholesale market; government support; and mutual trust between members of the vertical integration scheme. The suitable vertical integration strategies are an improved safety and hygiene inspection of aquaculture products, accuracy of aquaculture product categorization, and precision in product weighing. Finally, an initial comparison is also made with the report published by Thailand's Fish Marketing Organization, which indicates similar findings.

References

Aaker, D. A. 1984. *Strategic Market Management.* New York: Wiley.

Azzam, A. M., and A. C. Wellman. 1992. *Packer Integration into Hog Production: Current Status and Possible Impacts on Hog Prices and Quantities.* Lincoln, NE: University of Nebraska Press.

Berman, B. 1996. *Marketing Channels.* New York: Wiley.

Coase, R. H. 1937. 'The Nature of the Firm.' *Economical* 4 (16): 386–405.

Daniel, R. D. 1961. 'Management Information Crisis.' *Harvard Business Review* 39 (5): 111–21.

Dawson, R. 2003. 'Vertical Integration in Commercial Fisheries.' PhD diss., Faculty of Virginia Polytechnic Institute and State University.

Deng, J. 1982. 'The Control Problem of Grey System.' *Systems and Control Letters* 5:288–94.

Ellram, L. M., and T. E. Hendrick. 1995. 'Partnering Characteristics: A Dyadic Perspective.' *Journal of Business Logistics* 16 (1): 41–64.

Glenn. S., R. L. Kilmer, and T. J. Stevens. 2000. 'Florida Dairy Market Cooperatives Transfer Cost Associated with Non-Uniform Delivery Schedules.' *Journal of Food Distribution Research* 31 (2): 1–7.

Guielford, J. P. 1965. *Fundamental Statistics in Psychology and Education.* New York: Mc Graw-Hill.

Heskett, J. L., T. O. Jones, G. W. Loveman, W. E. Sasser, Jr., and L. A. Schlesinger. 1994. 'Putting the Service-Profit Chain to Work.' *Harvard Business Review* 72 (2): 164–74.

Hill, W. L., and G. R. Jones. 1998. *Strategic Management Theory: An Integrated Approach.* 4th Ed. Boston, MA: Houghton Mifflin Company.

Kotler, P., and G. Armstrong. 1994. *Principles of Marketing.* Englewood Cliffs, NJ: Prentice Hall.

Lem, A., U. Tietze, E. Ruckes, and R. van Anrooy. 2004. 'Fish marketing and credit in Vietnam.' FAO Fisheries Technical Paper 468, Food and Agricultural Organization of the United Nations.

Lester, D. H. 1998. 'Critical Success Factors for New Product Development.' *Research Technology Management* 41 (1): 36–43.

Liu S., J. Forrest, and R. Vallee. 2009. 'Emergence and Development of Grey Systems Theory.' *Kybernetes* 38 (7–8): 1246–56.

Manasserian, T. 2005. 'New Realities in Global Markets and Thailand's Economy Today.' Http://webh01.ua.ac.be/cas/PDF/CAS48.pdf.

McKay, J. 2007. 'Food industrial and economic development in the Asia Pacific.' *Asia Pacific Journal of Clinical Nutrition* 16 (1): 80–84.

Porter, M. E. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance.* New York: Free Press.

Rosenbloom, B. 1999. *Marketing Channels: A Management View.* Orlando, FL: Dryden.

Rust, R. T., G. L. Stewart, H. Miller, and D. Pielack. 1996. 'The Satisfaction and Retention of Frontline Employees.' *International Journal of Service Industry Management* 7 (5): 62–80.

Salmeron, J. L. 2010. 'Modelling grey uncertainty with Fuzzy Grey Cognitive Maps.' *Expert Systems with Applications* 37 (12): 7581–8.

Sharma, D. G. 1995. 'The Customer Satisfaction/Logistics Interface.' *Journal of Business Logistics* 16 (2): 1–21.

Simchi-Levi, D., P. Kaminski, and E. Simchi-Levi. 2003. *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies.* 2nd Ed. New York: McGraw-Hill Irwin.

Song, Q., and M. Shepperd. 2011. 'Predicting Software Project Effort: A Grey Relational Analysis Based Method.' *Expert Systems with Applications* 38 (6): 7302–16.

Stern, L. W., A. I. El-Ansary, and A. T. Coughlan. 1996. *Marketing Channels.* Englewood Hills, NJ: Prentice Hall.

Timmer, C. 2010. 'The changing role of rice in Asia's food security.' ADB Sustainable Development Working Paper Series, Asian Development Bank, Manila.

Tso, J.-C. 2002. 'The Research on Business Hotel Service and Room Guest Consuming Behavior: A Case Study of The Landis Taichung Hotel.' Master's thesis, Chaoyang University of Technology.

Van de ven, A. H. 1976. 'On the Nature, Formation and Maintenance of Relations among Organizations.' *Academy of Management* 1 (4): 24–35.

Waterson, M. 1984. *Economic Theory of the Industry.* New York: Cambridge University.

Williamson, O. E. 1979. 'Transaction Costs Economics: The Governance of Contractual Relations.' *Journal of Economic Behavior and Organizations* 4:57–62.

Wu, S.-H. 1988. *The Industrial Policy and Enterprise's Tactics.* Taipei: Chung Hua Institute for Economic Research.

**Determinante znanstvenega sodelovanja:
primer malih in mikro podjetij**
Mireia Fernández-Ardèvol in Josep Lladós Masllorens

Članek obravnava odločilne dejavnike znanstvenega sodelovanja v malih in mikro podjetjih. Predstavljen je analitični okvir, ki temelji na konceptu resursov v podjetju, določene pa so tudi organizacijske karakteristike, ki jih delimo na notranje, zunanje in strukturne dejavnike. Vsak dejavnik je lahko povezan z vsaj enim od razlogov, da podjetje sodeluje z univerzami in javnimi raziskovalnimi središči. Vsak razlog pa je lahko tudi kazalnik organizacijskih potreb ali organizacijskih sposobnosti podjetja. Teoretični model potrdimo z logistično regresijo, ki pokaže nagnjenost k znanstvenemu sodelovanju. Vzorec vključuje 285 malih in mikro podjetij s sedežem v Barceloni. Rezultati kažejo, da imajo ključno vlogo absorpcijske sposobnosti novih in malih podjetij.

Ključne besede: znanstveno sodelovanje, determinante, absorpcijska sposobnost, mala in mikro podjetja
Klasifikacija L26, O32
Managing Global Transitions 9 (4): 319–333

Viri znanja in konkurenčne prednosti
Doris Gomezelj Omerzel in Rune Ellemose Gulev

V prispevku so obravnavane nekatere definicije znanja kot potencialnega vira konkurenčne prednosti. Narejen je pregled literature, v kateri je znanje obravnavano kot premoženje podjetja. Skladno s teorijo virov, ki povezuje konkurenčno prednost podjetja z viri podjetja in zmožnostmi, ki so specifične v nekem podjetju ter jih druga podjetja ne morejo posnemati, so osnova za konkurenčno prednost podjetja predvsem taki specifično pomembni viri (Barney, 1991, Grant, 1991, Peteraf, 1993). Podjetja, ki imajo dostop do podobnih virov in so sposobna te vire izrabljati, lahko dosežejo konkurenčno prednost. Med različnimi strateškimi viri in zmogljivostmi, ki pomagajo podjetju ustvarjati konkurenčno prednost, ima pogosto ključno vlogo znanje. Znanje namreč lahko razumemo kot vir sam po sebi, poleg tega pa še kot tisti dejavnik, ki omogoča učinkovito izrabo drugih virov – še posebej v kompleksnih in dinamičnih okoljih.

Ključne besede: znanje, konkurenčnost, uspešnost organizacije, teorija o znanju

Učinki svetovljanstva porabnikov na nakupno vedenje domačih oz. tujih izdelkov
Oliver Parts in Irena Vida

Namen pričujoče empirične študije je proučiti učinke svetovljanstva porabnikov na nakupno vedenje domačih oz. tujih izdelkov v treh blagovnih skupinah potrošnih izdelkov: alkoholne pijače, oblačila in pohištvo. Na osnovi obstoječih teoretičnih izhodišč in empiričnih izsledkov razvijemo konceptualni model in identificiramo dva dodatna konstrukta kot dejavnika nakupa tujih izdelkov, tj., etnocentrizem porabnikov in porabnikovo poznavanje izvora blagovnih znamk. Merski model preverjamo z modeliranjem s strukturnimi enačbami in sicer na osnovi podatkov pridobljenih z anketiranjem 261 odraslih porabnikov v Sloveniji. Rezultati potrjujejo močan celoten učinek svetovljanstva porabnikov na vedenjske spremenljivke in kažejo, da imajo bolj svetovljanski porabniki močnejšo tendenco za nakup tujih izdelkov v primerjavi z domačimi. Z vzorčnimi podatki nismo uspeli potrditi neposreden povezave med svetovljanstvom in poznavanjem izvora blagovnih znamk.

Vpliv strukture kapitala na donosnost: primer industrije informacijske tehnologije v Indiji
Ramachandran Azhagaiah in Candasamy Gavoury

Podjetja se lahko financirajo z dolžniškim ali lastniškim kapitalom. Najboljša možnost je kombinacija obojega. Članek analizira vpliv strukture kapitala na donosnost podjetij v Indiji. Ob tem poskušamo ugotoviti, kako struktura kapitala vpliva na poslovne prihodke podjetij ter kako sta povezani struktura kapitala in donosnost. Izbrana podjetja smo glede na poslovne prihodke razvrstili v tri kategorije: podjetja z nizkimi, srednje visokimi in visokimi poslovnimi prihodki. Glede na velikost premoženja pa smo jih razvrstili na mala, srednje velika in velika podjetja. Na podlagi tega smo postavili hipotezo, da struktura kapitala pomembno vpliva na donosnost indijskih podjetij informacijske tehnologije. Vzorec 102 podjetij informacijske tehnologije je bil naključno

izbran z večstopenjsko tehniko vzorčenja. Analizirani podatki so bili zbrani med leti 1999–2000 in 2006–2007. Poleg opisne statistike, na primer srednja vrednost, standardni odklon, analiza bilance, je bila uporabljena tudi regresijska analiza (s katero smo analizirali vpliv strukture kapitala na donosnost). Študija dokazuje močno soodvisnost med spremenljivkami strukture kapitala in spremenljivkami donosnosti, med donosom na aktivo (roa) in donosom vloženega kapitala (roce). Prav tako se je pokazalo, da struktura kapitala pomembno vpliva na donosnost, večja poraba dolžniškega kapitala pa zmanjšuje čisti dobiček indijskih podjetij informacijske tehnologije.

Ključne besede: struktura kapitala, donosnost, donos na aktivo, donos vloženega kapitala, dolžniški kapital, lastniški kapital
Klasifikacija jel: g30, g32
Managing Global Transitions 9 (4): 371–392

Vertikalne integracije v tajvanski ribogojni industriji
Tzong-Ru Lee, Yi-Hsu, Cheng-Jen Lin, Kongkiti Phusavat in Nirote Sinnarong

Namen študije je izboljšati distribucijske kanale v tajvanski ribogojni industriji s pomočjo boljše vertikalne integracije. Raziskavo je spodbudila potreba po izboljšanju distribucijskih zmogljivosti kmetijskih panog kot odgovor na vedno večje potrebe hrane v Aziji in drugod. Razvili so trideset različnih strategij. Ta razvoj temelji na ključnih dejavnikih uspeha in na strategiji za vertikalno integracijo. Ugotovitve, ki so jih dobili, kažejo, da med ključne dejavnike uspeha za ribogojstvo na veleprodajnih trgih spadajo komunikacija, povezanost in usklajenost mnenj na veleprodajnem trgu, podpora države in medsebojno zaupanje med člani sistema vertikalne integracije. Ustrezne strategije vertikalne integracije so boljši nadzor varnosti in higiene ribogojnih proizvodov, točna kategorizacija ribogojnih proizvodov in natančnosti pri tehtanju izdelka.

Ključne besede: ribogojna industrija, Gray Relational Analysis (gra), integracijski kanali
Klasifikacija jel: m30, r41
Managing Global Transitions 9 (4): 393–414

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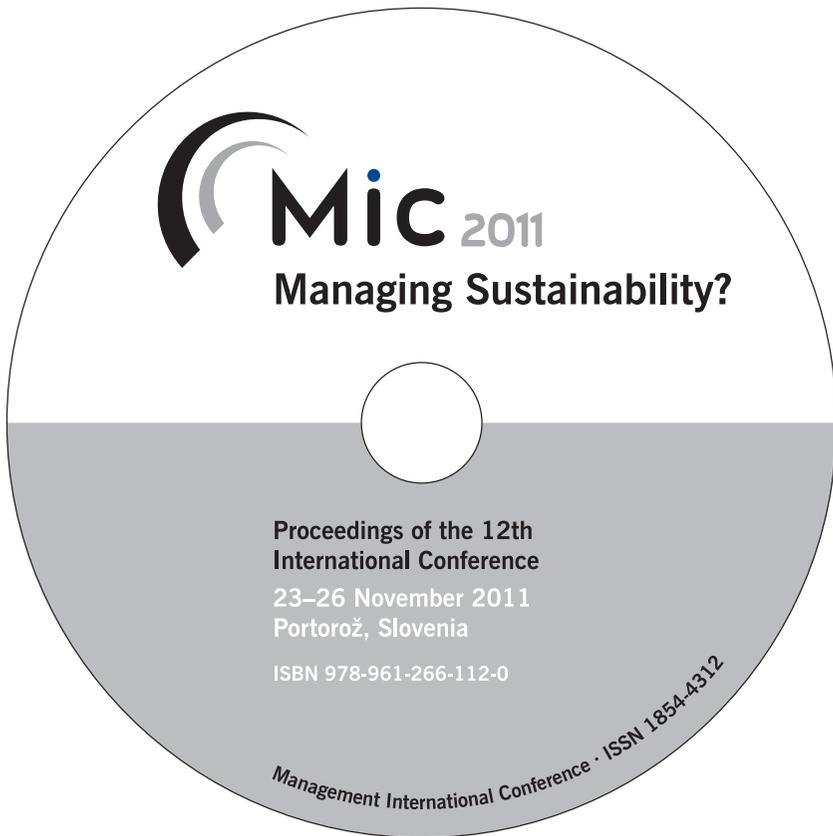
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Jackson, R. 1979. 'Running Down the Up-Escalator: Regional Inequality in Papua New Guinea.' *Australian Geographer* 14 (5): 175–84.

Lynd, R., and H. Lynd. 1929. *Middletown: A study in American Culture.* New York: Harcourt, Brace and World.

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