Managing Global Transitions

International Research Journal

EDITOR
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The Editor's Corner

The journal continues focusing on transition research and emphasizing openness to different research areas, topics, and methods, as well as the international and interdisciplinary research nature of scholarly articles published in the journal. The current issue covers the topics of networking, urban dynamism, organizational practices, corporate risk management, and credit concession efficiency.

This issue (Vol. 7, No. 3) begins with a paper written by Baoshan Ge, Robert D. Hisrich, and Baobao Dong, who investigate networking, resource acquisition, and the performance of small and medium-sized enterprises in China. In the second paper, Danes Brzica presents a study on urban dynamism within the Vienna-Bratislava metropolitan area. In the third paper, Rune Ellemose Gulev investigates whether organizational practices as observed through differing organizational cultures systematically replicate or reject national values; the study is conducted on the basis of comparisions of data from four countries. In the fourth paper, Aleš S. Berk, Jožko Peterlin, and Mitja Čok study corporate risk management in Slovenian firms. In the last – fifth paper, Carlos Arriaga and Luis Miranda examine risk and efficiency in credit concession by using data from Portugal.

Boštjan Antončič
Editor

Networking, Resource Acquisition, and the Performance of Small and Medium-Sized Enterprises: An Empirical Study of Three Major Cities in China

Baoshan Ge
Robert D. Hisrich
Baobao Dong

Previously, resource-based view (RBV) research has focused on the characteristics of resources, paying less attention to the relationship between resource acquisition and the acquisition method. In addition, entrepreneurship research has focused a lot on the firm's entrepreneurial network to explain performance. This network is critical not only to resource acquisition but also to overall firm performance. The results of a study of small and medium-sized firms in three major Chinese cities support these notions. The results differ when dividing the sample into two groups (young vs. old).

Key Words: resource acquisition, networking, performance, SMES, entrepreneurship
JEL *Classification:* M20

Executive Summary

Resource-based view (RBV) research argues that firms with valuable, rare, non-substitutable, and inimitable resources have the potential of achieving unique competitive advantages, thus winning superior performance (Barney 1991; 1995; Wernerfelt 1995). However, to date not enough attention has been given to the positive effects that a strong, diverse network can have on resource acquisition methods employed by a firm and the firm's resulting performance. This paper provides insights into our

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understanding of methods for acquiring the necessary resources, particularly through networks. Specifically, the research focuses on the relationship between resources and performance by addressing the following questions: (1) Do the range and intensity of a firm's network influence the resources acquisition? (2) Do the capability and outcome of resource acquisition impact subsequent performance of small and medium-sized enterprises (SMES)?

The hypotheses are based on theoretical constructs developed in literature on social networks and entrepreneurial performance. The network is viewed as a tool useful for the process of resource acquisition and particularly for investigating the change of venture performance based on resource acquisition. To test the hypotheses, surveys and interviews were conducted with SMES in three major Chinese cities: Changchun, Tianjin, and Shanghai. The selection criteria for the SMES that became part of our data set included the availability of the founding entrepreneur and/or founding executive for an interview, the age of the firm, and its sector. The resulting data set consists of information from 83 SMES in Changchun, 44 in Shanghai, and 50 in Tianjin. Using data gathered from these three areas and using different analysis techniques, evidence was provided that resource acquisition influences the development and performance of businesses. In addition, the effects that the intensity, range, and closeness of a network have on identifying and acquiring resources were analyzed.

The empirical results provide evidence that resource acquisition and performance of a firm are positively correlated. Previous research has shown that a social network can benefit a firm's ability to find new resources, which result in high growth and superior performance (Black and Boal 1994). Thus, as suggested in prior studies, a network impacts the performance (Young 1998; Cromie and Birley 1992; Watson 2006). Furthermore, as firms develop, the social network will change, impacting the amount of resources acquired and thus the venture's performance. Taken in concert, the overall results show that it is preferable for a firm to develop a strong network to acquire the resources needed for growth and performance. The positive correlation between the social network and enterprise performance is taken to a new level by identifying the key role that a network plays in acquiring resources.

This research also has practical implications, since it gives firms the impetus to enhance and reinforce relationships with other firms and organizations. These broadened and strengthened networks then assist the

firms in acquiring tangible and intangible resources to upgrade capabilities in all aspects. In addition, the government should construct policies that strengthen networking connections among enterprises.

Introduction

According to resource-based views (RBVs) of strategy, firms with valuable, rare, and inimitable resources (including non-substitutability) have the potential for achieving superior performance (Barney 1991; 1995). Resources are inputs into a firm's production process (Barney 1991) that are either knowledge-based or property-based (Miller and Shamsie 1996). Property-based resources typically refer to tangible input resources, whereas knowledge-based resources are the ways in which firms combine and transform these tangible inputs (Galunic and Rodan 1998). Knowledge-based resources may be particularly important for providing sustainable competitive advantage, because they are inherently difficult to imitate, thus facilitating sustainable differentiation (McEvily and Chakravarthy 2002). They also play an essential role in the firm's ability to be entrepreneurial (Galunic and Eisenhardt 1994) and to improve performance (McGrath et al. 1996). From the standpoint of resource acquisition, the initial resources involve different dimensions including capital (Bygrave 1992), human resources (Cooper 1981; Dollinger 1995), and physical resources (Dollinger 1995).

In RBV theory, resource acquisition is a crucial point since resources with value, rareness, inimitableness and non-substitutability can create sustainable competitive advantages and have a great impact on performance (Foss 1996). Resource acquisition is divided into two dimensions: resource acquisition capability and resource acquisition outcome (Zhang, Wong, and Soh 2005). Resource acquisition capability is the ability to acquire both tangible and intangible useful resources through firms or individuals. Resource acquisition outcome focuses on the usability of the resources acquired and on whether these resources can bring current or long-term competitive advantages.

RBV research also postulates that both the employees' personal networks and the organization's networks are the core resources of the firms. From the view of transaction cost theory, Jones, Hesterly, and Borgatti (1997) think a network will thrive because of the environmental uncertainty and intense competition. When uncertainty of product demand, proprietorship of human resources, complexity of tasks, and transaction frequency among groups increase, the network will reveal more advan-

tages for the firm when compared to the capability of the individual firm. In the context of this paper, the network provides a special structure for connecting to the outside to get useful information, resources, and social support that allows the firm to identify and make use of various opportunities.

Because of its complexity, researchers divide the network into several dimensions when studying the relationship between the network and other variables. According to Burt (1992), and Zhao and Aram (1995), the network breaks into two dimensions: the range of the network and the intensity of the network. Range, defined as the degree of diversity contained in a network, refers to differences among contacts within a focal actor's network. In addition to the dimension of breadth (range), entrepreneurial networks can also be characterized by a dimension of depth (intensity). Intensity refers to the extent of the interacting organizations' resources committed to the relationship, in terms of the frequency of contact and amount of resource exchanged.

Many researches have focused on the effect of the network on resource acquisition (Leung et al. 2006; Zhang, Wong, and Soh 2005). However, little has been done to test the influence of intensity and range of network on resource acquisition. In this study, the consecutive connections between network and resource acquisition, as well as resource acquisition and venture performance are evaluated.

Theory and Hypotheses

NETWORK AND RESOURCES ACQUISITION

The setup of a network needs time and energy, and the network at different stages influences resource acquisition of the firm differently. In the initial stages, the individual network of the entrepreneur is crucial to the development of the firm, although this individual network is defined within a restricted range (Aldrich 1989). However, in the mature stages, the organizational network is essential for the firm precisely for its range and intensity. This paper uses the range and intensity of a network to analyze its impact on the capability and outcome of resources acquisition.

Networking Intensity and Resources Acquisition

Granovetter (1973) argues that the network is the combination of time, feeling, familiarity (mutual trust), and reciprocal services. A distinct correlation exists between the length, mutual feelings, benefits of reciprocal services, and closeness of a network to the overall networking intensity.

Ahuja (2000) believes the closer the relationship among members, the faster the speed of sharing resources is, so firms can acquire resources needed to improve the capability and effectiveness of that process. Gulati (1995) and Uzzi (1996) think that the more familiar the contacts are, the more trustworthy the members become, which can reduce unethical behaviors and encourage resource exchange amongst group members. Using networks allows firms to locate valuable resources and improve acquisition capability. Tsai and Ghoshal (1998) believe that if the relationship among members is closer, group members will have a common vision, which can facilitate the exchange and combination of resources. So the firms not only receive rare resources but also use the resources acquired from other groups properly to enhance acquisition capability and outcomes. The two hypotheses are:

HYPOTHESIS 1A *Network intensity is positively related to resource acquisition capability* (H1a).

HYPOTHESIS 1B *Network intensity is positively related to resource acquisition outcome* (H1b).

Networking Range and Resources Acquisition

The characteristics and categories of the resources acquired via the network rest with the variety of networking members. Since range means the variety and number of connections (Burt 1982; 1992), the broader the external network is, the easier it is to have access to resources. Then the firm can obtain the resources according to demand (Burt 1992), which illustrates strong resource acquisition capability. In addition, the network has the benefit of reducing the uncertainty of innovation (Dess and Starr 1992), enhancing communication and exchange of resources (Larson 1991), and speeding up the transfer of knowledge and technology. Therefore the network can facilitate the firm's ability to obtain intangible resources quickly. Elfring and Hulsink (2003) posit that the core strategy of the firm is to get resources needed at the lowest cost and that a social network plays an important role in capturing resources. That is to say, close and sparse networks can both provide entrepreneurs with resources, but the amount provided by the former is greater than that provided by the latter. The closeness and tightness of a network can stabilize nascent ventures. Because of the large range of the network, the amount and quality of the resources can be improved, which can enhance and advance the efficiency of resource acquisition to obtain sustainable competitive advantages. The two hypotheses are:

HYPOTHESIS 1C *Network range is positively related to resource acquisition capability* (H1c).

HYPOTHESIS 1D *Network range is positively related to resource acquisition outcome* (H1d).

RESOURCES ACQUISITION AND PERFORMANCE

Resources are widely used to explain performance according to RBV (Barney 1996; Brush, Greene and Hart 2001). These theories can contribute to the understanding of the importance of a firm's internal resources and how to acquire resources needed for the improvement of venture performance.

Some research has studied the relationship between resource acquisition and performance, as the amount of needed resources compared with performance. Romanelli (1991) thinks that two factors in resource acquisition impact the survival and growth of the firms: resource availability and organizational strategy. Stevenson and Lundström (2001) define entrepreneurship as the ability to discover opportunity and organize resources into a venture that consequently creates new value in the market. Therefore, obtaining the necessary resources is essential for the setup and growth of a new venture and its future performance. Resource acquisition capability and outcome have a noticeable effect on venture performance. Premaratne (2002) believes that resource acquisition for a new venture is positively related to the performance and the enhancement of influence under environmental uncertainty. Heirman and Clarysse (2004) studied the relationship between resources and the formation of resource advantages. Resources have particular value for new ventures and these differences can affect their performance. Capital and human resources interact to form competitive advantages, which can bring superior profit for firms.

In addition, some research has studied the relationship between acquisition strategies of technical resources and performance. For example, Zahra and Bogner (2000) believe that acquiring resources from outside can have an effect on performance, while Annika (2000) believes that the more ways of acquiring technical resources exist, the better the performance will be. The two hypotheses are:

HYPOTHESIS 2A *Resource acquisition capability is positively related to venture performance* (H2a).

HYPOTHESIS 2B *Resource acquisition outcome is positively related to venture performance* (H2b).

Hypotheses Testing

SAMPLE AND DATA COLLECTION

This study focused on small and medium-sized enterprises in the economic zones of the regionally diverse cities of Changchun, Shanghai, and Tianjin as the primary research sources. The firms in the sample meet the following three criteria: first, the firms must be independent start-ups in which the founding entrepreneurs maintain significant control; second, the firms must be operating in high-tech industries and service industries; and third, the firms must be less than eight years old at the time of study so that the entrepreneurs could recall the initial resource acquisition processes accurately (Wong et al. 1993). Since many of the questionnaire items involve the circumstances and details during the start-up phase of the firm as well as details of firm strategies, it was necessary that the firms' executive officers complete the questionnaire themselves (Bowman and Ambrosini 1997; Phillips 1981). Specifically, a respondent had to be either the entrepreneur or a member of the firm's start-up team, who was privy to the details and circumstances of the firm during its inception. An important step in the data collection process was gaining direct access to the firm's original entrepreneur(s) or executive officer(s). This allowed us to conduct personal interviews in addition to the standard paper survey, which collected the basic information regarding the firm and its history. The personal interview also helped improve the reliability level of the survey answers.

After verifying the role of the entrepreneur or original executive in the firm, the potential respondent was contacted and solicited to fill out the research questionnaire and take part in the telephone interview. The personal phone interviews were then conducted after the paper surveys had been returned by the respondents. All together 227 firms were surveyed with 102 participants from Changchun, 49 from Shanghai, and 76 from Tianjin. Two months later 187 responses were returned: 90 from Changchun, 47 from Shanghai and 50 from Tianjin. After careful analysis, 177 responses were usable, of which 83 came from Changchun, 44 from Shanghai, and 50 from Tianjin.

VARIABLES MEASURES

Given the exploratory nature of this study, construct operationalization and measurement were achieved in two ways: (1) for those variables employed in previous studies, the measures were adopted as long as they could provide acceptable measurement quality with only minor modifi-

cations in wording needed to increase their applicability to the Chinese context; (2) for variables that were not used in previous studies, operational measures were developed based on previous conceptual studies and assessed content validity via interviews with five hi-tech entrepreneurs and three scholars. Our measurement criteria came from the following variables:

Networking Intensity. Prior social network studies have employed several different measures of the 'strength of ties' (Marsden and Campbell 1984). A three-item, evenly weighted scale based on the three most widely used measures was constructed: (1) duration of the relationship, ranked by answering the question 'How many years have you known each other prior to this resource acquisition?' with $x = 1$ for less than one year $x = 2$ for 1–2 years, $x = 3$ for 2–3 years, $x = 4$ for 3–5 years and $x = 5$ for longer than 5 years; (2) intimacy level, measured by a 5-point Likert scale answer to the question 'To what extent do you agree that you kept a close relationship with each other prior to this resource acquisition?' (Bian 1997), with $x = 1$ for 'strongly disagree' and $x = 5$ for 'strongly agree;' and (3) meeting frequency, measured by a 5-point Likert scale answer to the question 'To what extent do you agree that you met each other every week prior to this resource acquisition?' (Bian 1997), with $x = 1$ for 'strongly disagree' and $x = 5$ for 'strongly agree.' NI1, NI2, and NI3 were used to stand for the three networking intensity measures.

Networking Range. The connecting scope (examples: competitors, consumers, suppliers, universities, government, and agencies) of the firms was used to measure the breadth of the networking range. NR1, NR2, NR3, NR4, NR5, and NR6 were used to stand for the six measures.

Resource Acquisition Capability. To measure this variable, three questions were used: (1) 'To what extent do you agree that you can get tangible resources from the network?' (2) 'To what extent do you agree that you can get intangible resources from the network?' and (3) 'To what extent do you agree that you can get resources from the network?' with the responses ranging from 'strongly disagree' ($x = 1$) to 'strongly agree' ($x = 5$). RAC1, RAC2, and RAC3 were used to stand for the three measures.

Resource Acquisition Outcome. Three questions gauged the significance of this criterion: (1) 'To what extent do you agree that you have obtained resources from the network?' (2) 'To what extent do you agree that the resources you have gotten from the network have brought competitive advantages to your firm?' and (3) 'To what extent do you agree that the resources you have gotten from the network are available for other firms?'

The responses ranged from 'strongly disagree' ($x = 1$) to 'strongly agree' ($x = 5$) (Zhang, Wong, and Soh 2005). RAO1, RAO2, and RAO3 were used to stand for the three variables.

Performance. Gupta and Govindarajian's (1984) multi-item, multi-dimensional performance method was employed in this study. The first performance measure focused on financial results including the following: (1) profitability (net profit to sales ratio, return on investment); (2) growth (growth rate in revenue, sales growth rate, rate of new employee growth); (3) liquidity (net cash flow); and (4) market performance (market share, rate of new product/service development, developing new markets). Furthermore, two items adapted from Khandwalla (1977) created the second measure to gauge their direct and indirect impact on non-financial performance: 'employee job satisfaction and commitment to a firm's objectives' and 'public image and goodwill of a firm.' To develop the third measure based on firm longevity and survival, insights from Jovanovic (1982) were used that link firm growth as measured by net profit to survival, which in turn is particularly important to policy makers because of the widespread belief that growing businesses will create new jobs. However, Delmar, Davidsson and Gartner's (2003) belief that the best indicator of firm growth comes from the rate of sales growth was also considered. Thus, the third measure of firm performance used the rate of growth in total income (sales plus other income). Palepu, Healy, and Bernard (2000) assert that a certain level of return on investment should be maintained by firms to ensure their routine operation and shareholder satisfaction. This theory is the basis of the fourth criteria for measuring performance: return on investment. The respondents were asked to indicate how important and satisfactory they perceived each item to be on a five-point Likert-type scale, which has also been widely employed in previous studies. Furthermore, in order to complement the subjective measures, the respondent was given the option to provide actual quantitative data related to each performance measure. PER1, PER2, PER3, and PER4 were used to stand for the four measures.

Results and Discussion

RESULTS

In order to test the hypotheses mentioned above, SPSS 13.0 (Statistical Package for the Social Sciences) and AMOS 6.0 (Analysis of Moment Structure) were used to analyze the data collected. A descriptive analysis

TABLE 1   Descriptive statistics and correlation matrix

Variables	1	2	3	4	5
1. Network intensity	1				
2. Network range	0.184*	1			
3. Resource acquisition capability	0.192	−0.008	1		
4. Resource acquisition outcome	0.190	−0.184**	0.150	1	
5. Performance	0.183*	0.071*	0.259**	0.120	1
Mean	3.422	2.985	2.448	3.541	3.116
Std. dev.	0.446	0.679	0.346	0.478	0.721

NOTES   ** Significant at the level 0.05. * Significant at 0.1 level (2-tailed).

was completed before testing the model, and the results are summarized in table 1.

The overall response rate to the questionnaires was 82.4 percent with 187 out of 227 questionnaires returned. After excluding ten incomplete responses (7 from Changchun and 3 from Shanghai), 177 usable questionnaires provided the data for analysis. The reason why the response rate was so high is that the respondents were continuously called and e-mailed to remind them about the questionnaires. The participants were motivated by their interest in the survey results and were eager to cooperate. The response rate was extremely good. Several two-sample t-tests were performed to investigate sample biases such as non-response bias and respondent bias with no biases found.

Reliability and Validity Assessment

A coefficient alpha test examined the internal consistency of the scales of network (0.729), resources acquisition (0.848), and firm performance (0.795). All scales were well above the 0.7 cut-off, as suggested by Nunnally (1978). Hair et al. (1998) state that validity is the extent to which the concept one wishes to measure is actually being measured by a particular scale or index and is concerned with how well the concept is defined by the measure(s). Four strategies for determining a measure's validity are provided as follows: (1) face validity; (2) content validity, which relies on the internal logic of the measure; (3) criterion validity; and (4) construct validity, which is less subjective and more empirical. All three constructs (network, resource acquisition, firm performance) were considered to have both face and content validities. To assess discriminant validity of a network, Brüderl and Preisendörfer (1998) used the principal compo-

TABLE 2   Results of reliability analysis and factor loadings

Variables	Items	Factor loading	Cronbach's alpha
Network intensity	1. NI1	0.917	0.735
	2. NI2	0.727	
	3. NI3	0.743	
Network range	4. NR1	0.850	0.720
	5. NR2	0.679	
	6. NR3	0.785	
	7. NR4	0.637	
	8. NR5	0.581	
	9. NR6	0.649	
Resource acquisition capability	10. RAC1	0.735	0.783
	11. RAC2	0.724	
	12. RAC3	0.932	
Resource acquisition outcome	13. RAO1	0.823	0.777
	14. RAO2	0.707	
	15. RAO3	0.920	
Performance	16. PER1	0.833	0.706
	17. PER2	0.642	
	18. PER3	0.597	
	19. PER4	0.638	

nent factor method with varimax rotation to identify how the items of these two scales were loaded. The items were clearly loaded on the two separate constructs as anticipated, indicating that the network had discriminant validity. Furthermore, five items of resource acquisition and twelve items of firm performance scale were also analyzed, and all three construct scales were proved to have discriminant validity. Several sample bias tests were conducted through two sample *t*-tests, followed by reliability tests of inter-items of the scales and validity assessment of construct scales (see table 2) prior to testing the proposed hypotheses. Finally, a path analysis was used to construct the relationship among the variables (figure 1).

The results showed that the Model (network-resource acquisition-performance model) met all the requirements for goodness of fit (see table 3). The results show that hypotheses 1a, 1b, 1c, 1d, 2a, 2b are supported when all samples enter the analysis.
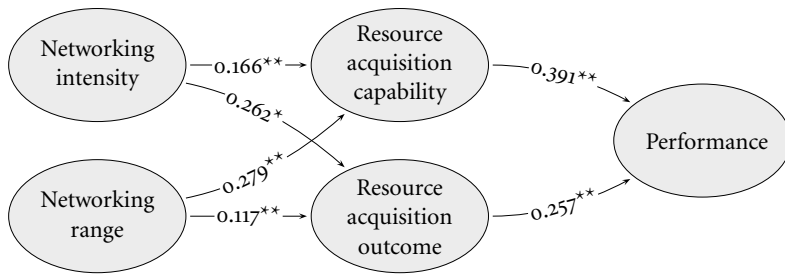
FIGURE 1 Path diagram for relationships of variables ($n = 177$, $\chi^2 = 126.300$, degrees of freedom = 115, probability level = 0.121, CFI = 0.979, GFI = 0.936, RMSEA = 0.033; ** significant at the 0.01 level (2-tailed), * significant at the 0.05 level (2-tailed))

TABLE 3   Results of fit measures for the model

Indexes*	CMIN	DF	CMIN/DF	GFI	CFI	NFI	IFI	RMSEA
Value ($n = 177$)	126.300	115	1.10	0.936	0.979	0.981.	0.989	0.033
Value ($n = 81$)	37.220	16	2.33	0.917	0.943	0.897	0.933	0.072
Value ($n = 96$)	42.710	23	1.86	0.944	0.959	0.973	0.901	0.054

NOTES   * The following cutoff criteria were used: (1) for 'acceptable' model fit: RMSEA < 0.08; GFI > 0.90; CFI > 0.90; NFI > 0.90; IFI > 0.90; and (2) for 'good' model fit: RMSEA < 0.06; GFI > 0.95; CFI > 0.95; NFI > 0.95; IFI > 0.95. These criteria are generally accepted (Hu and Bentler 1999; Kline 1998).

Although the total sample supports the six hypotheses, since network building is a time-dependent dynamic process, firms' networking contacts can change with time, and in different stages the role of the network changes (Batjargal 2006). In order to account for this, time was measured by the number of years the current firm had been established. Two groups were formed, split approximately on the median: (1) Y was less than 3.5 years ($n = 81$) and (2) O was 3.5+ years ($n = 96$). Measurement loadings were specified invariant across groups. The results are shown in figures 2 and 3 and table 3.

According to the results shown in figures 2 and 3, for the young group the network range has no significant relation with resource acquisition capability ($\beta = 0.043, p > 0.1$), and the same with resource acquisition outcome and performance ($\beta = 0.107, p > 0.1$). Therefore, for young groups, H1c and H2b are not supported. But H1a, H1b, H1d, and H2a are all supported. For the Old group, the results show that hypotheses 1a, 1b, 1c, 1d, 2a, and 2b are all supported though the relation between
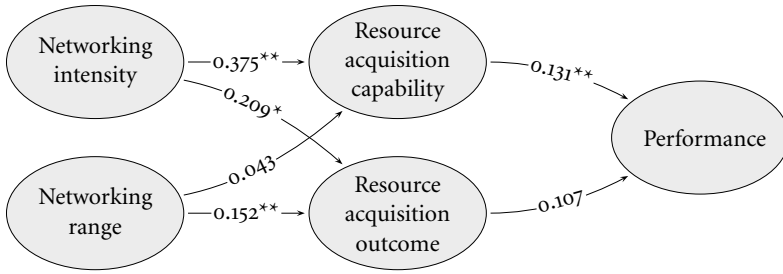
FIGURE 2 Two-group structural model: young group (n = 81, χ^2 = 37.220, degrees of freedom = 16, probability level = 0.047, CFI = 0.943, GFI = 0.917, RMSEA = 0.072; ** significant at the 0.01 level (2-tailed), * significant at the 0.05 level (2-tailed))
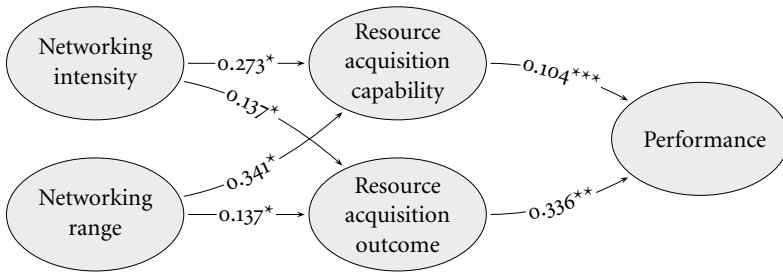
FIGURE 3 Two-group structural model: old group (n = 96, χ^2 = 42.700, degrees of freedom = 23, probability level = 0.148, CFI = 0.959, GFI = 0.944, RMSEA = 0.054; *** significant at the 0.01 level (2-tailed), ** significant at the 0.05 level (2-tailed), * significant at the 0.1 level (2-tailed))

networking range and resource acquisition outcome is slightly low (β = 0.029).

DISCUSSION

Hypothesis 1a is supported by the positive relation between network intensity and resource acquisition capability. Firms should build close networking connections with other groups. Within the network, a firm can improve its resource acquisition capability by using close network contacts for more resources. Capability, as a unique intangible resource, can gain other benefits for the firms.

Hypothesis 1b is supported by the positive relation between network intensity and resource acquisition outcome. This means the more frequent the network connections, the closer the connections, and the bet-

ter the relationships, the more resources the firms can get, and the better the outcomes.

In the analysis, Hypothesis 1c is supported by the positive relationship between network range and resource acquisition capability for both the total group and the Old group. But for the Young group, this hypothesis is not supported, which means that firms younger than three and a half years old have a hard time forming trust alliances within the dynamic and complex market (Guthrie 1998), and for these new firms, they lack a good, established reputation, so other firms are probably not willing to take a chance on them, which results in low capability. But when a firm has broader contacts, it can more easily identify and acquire resources needed. Conversely, if the firm has few contacts, which are loosely connected, it will be hard to identify and obtain special resources that develop and increase a firm's competitive advantage.

Hypothesis 1d is supported by the positive relation between network range and resource acquisition outcome. The broader the network is, the more resources the firm can come into contact with, and the more easily the firm can acquire necessary resources. The outcome of acquisition, to an extent, is contingent on the networking range.

Hypotheses 2a and 2b are supported in terms of a positive relationship between resource acquisition capability and firm performance as well as between resource acquisition outcome and firm performance according to the total group and Old group samples, respectively. But for the Young group, there is no significant relationship between resource acquisition outcome and firm performance. This means that for firms younger than three and a half years, when they acquire the necessary resources, lack a special capability to integrate these resources to form competitive advantage and enhance performance. The Old group, however, can easily allocate the resources acquired because of their market experience (Wang and Bao 2007), which can bring them better performance. So the firms with strong capability and better acquisition outcomes will get key resources. After combining, matching, and integrating the acquired resources, the firm will own sustainable competitive advantages, and consequently will bring in higher profitability (Brush and Chaganti 1998; Brush, Greene and Hart 2001).

After analyzing the hypotheses it is apparent that firms should strengthen the building of their networks and also develop and extend the intensity, range, and closeness of contacts. Only by following this method can firms acquire crucial resources, increase resource acquisition capa-

bility, and improve resource acquisition outcome, which can successfully contribute to the performance.

Conclusion and Implication

This paper empirically studies the relationships among network range and intensity, resource acquisition, and firm performance and analyzes the six hypotheses theoretically. Survey data from three Chinese cities were used to test the hypotheses. The results show that all hypotheses are supported in empirical investigation. Namely: a network influences resource acquisition, which in turn has a definitive impact on the firm's performance.

Theoretically, this paper studied the relationship between a network and a firm's resource acquisition capability and outcome and tested the positive connection. The analysis was then taken a step further to study the relationship between resource acquisition capability and outcome and firm performance, based on the previous literature. Previous studies only focused on the relationship between resource acquisition and performance and the strategies of resource acquisition. However, these studies seldom illuminate the relationship from the standpoint of capability and outcome.

In practice, this paper provides useful and valuable suggestions for small and medium-sized enterprises and the government. Firms should enhance and reinforce their relationship with other firms and organizations, in order to acquire tangible and intangible resources to upgrade capabilities in all aspects. As for government, policies should be enacted to support this network creation process.

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Urban Dynamism within the Vienna-Bratislava Metropolitan Area: Improving Regional Competitiveness and the Constructed Regional Advantage Concept

Danes Brzica

The paper focuses on the Bratislava metropolitan area (BMA) and its strategic positioning within the broader cross-border metropolitan area (VBMA). It provides a review of the internal/external urban dynamism of BMA and other processes ongoing within VBMA. We introduce the constructed regional advantage (CRA) concept and indicate factors which contribute to the higher socio-economic dynamics of Bratislava and VBMA. Our focus is on two inter-related areas: industrial sector development and urban dynamics. The idea is that only a sufficient level of urban dynamics allows VBMA to generate an adequate complexity of activities, which can promote regional competitiveness. The CRA concept is used here for better understanding of existing developmental factors in territorial cooperation. It allows one to look at various knowledge bases existing in VBMA and to show that regional similarities/complementarities can contribute to dynamic changes within this area.

Key Words: constructed regional advantage, urban dynamism, regional development, competitiveness, innovation, trans-metropolitan region
JEL *Classification:* R11, O18

Introduction

Global competition has stimulated more intense cross-border cooperation in Europe. An example is the cross-border metropolitan area emerging around Bratislava and Vienna – Vienna-Bratislava Metropolitan Area (VBMA). This area, representing a territory of 30 000 km², consists of three Austrian states (the Vienna Metropolitan Area – VMA) and two Slovak regions of Bratislava and Trnava (the Bratislava Metropolitan Area – BMA). The Vienna Metropolitan Area itself has three times more inhabitants (3.4 million) than has BMA (1.1 million).

The paper focuses on urban dynamism of the Bratislava metropolitan area and its strategic positioning within this broader cross-border

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metropolitan area. Unlike the well-known Austrian capital, Vienna, Bratislava has become a dynamic capital within the region only since the Slovak Republic's independence in 1993. Its economic capacities, cultural traditions and international cooperation have helped it to regain its traditional status of a multicultural city. The European Union (EU) membership has further intensified relations with Austria and other EU countries.

The paper provides a brief review of the external and internal urban dynamism of Bratislava as well as other processes ongoing within VBMA. Analyzed are some aspects affecting improvement of Bratislava's competitiveness within this cross-border metropolitan area. Given its position and economic importance, the Bratislava region has not only a predominant political position, but also the highest economic capacity in Slovakia. However, its socio-economic level of development shows substantial disparities especially when comparing urban and rural districts.

We try to introduce the constructed regional advantage (CRA) concept and indicate some factors, besides proximity of the two capitals, which contribute to higher dynamics of the area. Especially, we focus on two inter-related, areas: (a) industrial sector development, and (b) urban dynamics. The idea is that only a sufficient level of urban dynamics of both capitals allows VBMA to generate adequate complexity of activities, which promote regional competitiveness. The CRA concept is used here for better understanding of existing developmental factors in territorial cooperation. It allows looking at various knowledge bases existing in VBMA and to show that regional similarities/complementarities can contribute to dynamic changes within this trans-metropolitan area.

The structure of paper is as follows. Part one explains the concept of constructing regional advantage. Part two covers the strategic positioning of Bratislava within VBMA and the internal urban dynamism of BMA. In the third part are presented various aspects related to the external urban dynamism of BMA and VBMA's development. The final part provides the conclusion.

Constructed Regional Advantage Concept

Improvement of governance structures can increase the potential of a region to involve the whole scale of regional stakeholders in designing its future. This process is in line with the CRA concept, developed in Asheim et al. (2006), which allows for better use of regional advantages and may explain the formation of regional capabilities for implementa-

tion of regional development policies and local projects. The constructed regional advantage concept provides key recommendations – among them are the importance of territorial competence bases (including people/business climate and regional knowledge infrastructure); small and medium-sized enterprises and entrepreneurial policies (especially technology-based entrepreneurship) and governance dimensions of upgrading and building regional innovation systems as creative knowledge environments. The concept requires identification of the basic building blocks for developing this approach by using several dimensions: (1) related variety, (2) differentiated knowledge bases, and (3) distributed knowledge networks. These elements provide the foundation for formulating trans-sectoral platform policies for potential applications across a wide range of industries (Asheim et al. 2006). The core of change is formed by the elements of the regional advantage of each region. This regional development approach is based on the idea that any region can become innovative and specialized. The dynamics of structural transformation then depends on how dense is the institutional environment and how networking functions in the region.

Asheim et al. (2006) also show that the value of the CRA concept is that it changes the region's existing policy and product mix. Successful regions are also able to establish strategies that substantially change the reality. The variety of available CRA policies determines how rapidly the country's regional advantage emerges. Following the CRA concept helps to mobilize regional potential because it widens the scope of public participation in searching high-productivity activities and makes structural changes easier. It is therefore a proper tool for increasing regional competitiveness. This concept allows more attention to be given to the role of the public sector and policy support, preferably in public-private partnerships, by acknowledging the importance of institutional and economic complementarities in knowledge economies. Institutional specificities form the context within which different organizational forms and mechanisms for learning, knowledge accumulation and use evolve. Instead of market failure, the rationale for policy intervention is the reduction of interaction or connectivity deficits, which lies at the core of a networked regional innovation systems approach (Asheim et al. 2006).

The idea behind CRA is that the regional effects arise from individual regional strategies and specialization. Regional success is thus reached by focusing on strategies specific to the region. This CRA policy platform represents interaction of (1) stakeholders – in our case all main
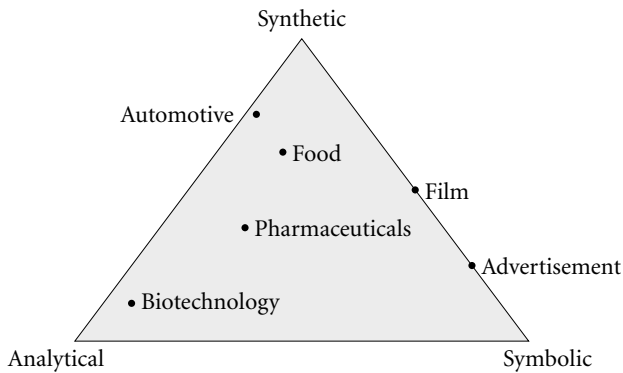
FIGURE 1   Three types of knowledge bases – CRA concept (adapted from Asheim 2006)

actors operating within VBMA and some relevant actors from the national government, (2) technologies, and (3) support instruments. This approach takes the state, firms and civil society actors as the actors forming together regional partnerships increasing regional competitiveness, exerting certain control over the region and better balancing the existing competition-cohesion trade-off. Using the concept, regional strategies are designed and applied to improve regional capabilities contributing thus indirectly to competition-cohesion balance. Although specifics apply to individual regions, certain practices are common to successful regions and make them different from the less successful ones.

The CRA concept makes distinction between various types of knowledge bases. There are three main types of them: analytical, synthetic and symbolic knowledge bases. In the Austrian part of VBMA synthetic and analytical knowledge bases (in automobile and biotechnology sectors) dominate, whereas in the Slovak part synthetic knowledge base (automobile sector) represents the main type of knowledge base. Nevertheless, practically all three types of knowledge bases are presented in VBMA. Figure 1 provides a simple scheme of the knowledge base types with its individual elements – synthetic, symbolic and analytical knowledge bases – and with the position of some sectors.

Enhancing regional productive capabilities is an integral part of economic development. The broader is the knowledge base that the regions are able to build and maintain, the higher is their innovative capacity. This idea is also explained in Asheim et al. (2006), where the authors state that innovative capabilities in different regions can change substantially. Regional performance relates to underlying regional assets, social capi-

tal and policies. Factor endowments of a region substantially determine specialization patterns, but that does not mean that regional strategies are not important. While the effects of regional changes are given by a region's overall productive capacity and social capital, economic policies and institutions also matter. Regional strategies on the other hand also play a positive role in shaping regional production structures. Poor policy can weaken an emerging knowledge base, but the question is whether regional policy can play a substantial role if regional assets are weak. Successful innovative regions have always tried to increase their regional advantages and diversify into new innovative activities that stimulate regional growth. High-performing regions have gradually changed their production profiles so that they are now oriented towards highly innovative products. European regions, like vma and bma, have, if supported by a cra-related policy concept and given their skills and capital endowments, a good potential to make substantial progress. Regional assets are similar among European regions, but weaker regions often fail to stimulate regional development based on shared vision. Only continuing regional transformation and the process of diversification of regional activities can help. In addition, the regional effort to acquire technology from abroad is also contributing to higher competitiveness.

vbma has a potential to be more innovative, dynamic and integrated by applying the cra concept. However, so far there has been only a limited attempt in this way because the concept itself is relatively new and so it can take time for it to be applied within the area. To see the current situation in bma, we can look at the dynamics of this area starting with the intra-metropolitan dynamism of Bratislava first and then moving to inter-metropolitan (Bratislava-Vienna) dynamism.

Intra-Metropolitan Urban Dynamism

GENERAL DEVELOPMENT

Bratislava developed its social capital due to its traditionally open cultural environment with the multi-lingual community before 1948. Unfortunately, there was an 'isolationism' era applied by the communist regime until 1989. Since that time, Bratislava has gradually become a catalyst for culture, innovation, production and international operations. Important social elements, like trust and social cohesion, which make it possible to create an environment characterized by intensive interactions among various actors, to generate innovative ideas and to share common

values and knowledge, helped the capital to increase its competitiveness. In addition, Bratislava has a favorable location within Slovakia and the whole Bratislava region has some comparative advantage compared with other Slovak regions.

The internal urban dynamism and competitiveness of the region depend, in theory, on several factors, like, e. g., production capacities and quality of facilities, quality and availability of labor force or market size. The potential and efficiency with which are capacities used determine performance of the region. Bratislava has the highest economic potential within the country, and the Bratislava region is the only Slovak region where the level of gross domestic product (GDP) exceeds the average value of the European Union's GDP (OPBK 2007). Also other main statistical indicators of the social and economic situation of regions at NUTS II level show that the Bratislava region is in a much better position compared to other Slovak regions. Bratislava itself has relatively high productivity, low unemployment and lower social exclusion than the rest of the country, which makes cooperation within VBMA easier.

Already the Strategy for Bratislava County from 2003 focused on two main goals: (1) enhancing of the creation of firms to create jobs, and (2) efficient use of local resources. Among specific goals were at that time, e. g., modernization of the economy through the new technologies and existing regional capacities or improvement of socio-economic conditions in rural areas. Nowadays, Slovak regional policies and development strategies are based on existing European programming schemes. The development of BMA is based on several main strategic documents, which also follow the objectives outlined in the Lisbon strategy (e. g., National strategic reference framework 2007–2013 (NSRR 2006) or the Operational program Bratislava County (OPBK 2007). However, various periods, similar goals and different forms of funding and priorities in the documents complicate reaching such strategic regional objectives. Development strategy – Single Programming Document NUTS II (JPD2) (2004–2006) focused on support of sustainable development of the target area to make efficient use of local potential. The strategy identified less developed areas and addressed them in the context of existing regional disparities. In its document, passed by the regional parliament in 2007, the Bratislava region set a strategic framework for development of the region. The focus of the framework was on:

- improvement of conditions for growth and development of economic activities;

- support of use of innovative technologies in prospective industries (an attempt to avoid the old technology lock-in effect);
- more efficient use of internal regional sources (here is the direct link to the CRA concept);
- improvement of environmental quality.

Despite the fact that some conceptual link to CRA concept exists, the defining regional development strategy for the programming period 2007–2013 is based on traditional policy approaches. The first, structural, approach focuses on aspects of structural convergence and it defines the types of activities which need support in the programming period. The second, regional, approach focuses on territorial allocation of these types of activities. The results of a socio-economic analysis show that to further balance development and competitiveness within the Bratislava region requires focusing on priorities like development of regional transport, information technologies as well as support of R&D and innovation (OPBK 2007).

Currently, the regional dynamics is mostly generated by operations of automobile-oriented foreign multinationals and hence the synthetic knowledge base, using CRA typology, is the predominant knowledge base in BMA. Policy options in the orientation of Slovak industrial production have been and remain to be quite limited despite the fact that the factors behind this development are changing. Slow transition of the region to a knowledge-based economy can potentially lead to a decrease in competitiveness of important industries in the region due to the growth of relative unit labor costs and the threat of corporate relocations. Unfortunately, within BMA there is no embedded complex system of intensive firm-to-firm or firm-to-university cooperation, which would create new opportunities for dynamic development. Table 1 shows existing differences in production structures between Bratislava and other Slovak regions. Unfortunately, national inter-regional cooperation is still rather weak, which is a feature typical of many countries with a center (usually capital city) – periphery divide.

The table also confirms that Bratislava represents the region with the highest level of services, a trend continuing since 2000. Western Slovakia region – the one closest to Bratislava – permanently reports the highest gross value added due for the industrial sector, due to the high presence of the automobile industry. Total figures for Slovakia, however, show very stable shares of the industrial sector during the period 2000–2006.

Despite some improvement of the situation in Bratislava, provision

TABLE 1 Industrial structure of creation of gross value added in regions (in %, current prices)

Region	2000				2002			
	AGR	IND + BUI	SERV	Total	AGR	IND + BUI	SERV	Total
Bratislava	1.1	28.9	70.0	100.0	1.0	28.0	71.0	100.0
Western Slovakia	7.4	42.5	50.0	100.0	7.6	48.3	44.1	100.0
Central Slovakia	4.5	34.7	60.8	100.0	4.5	34.1	61.4	100.0
Eastern Slovakia	3.9	30.0	66.0	100.0	4.1	29.9	66.1	100.0
Total	4.5	34.8	60.7	100.0	4.6	36.2	59.3	100.0
Region	2004				2006			
	AGR	IND + BUI	SERV	Total	AGR	IND + BUI	SERV	Total
Bratislava	0.9	27.5	71.6	100.0	0.9	27.0	72.1	100.0
Western Slovakia	7.7	48.5	43.8	100.0	7.8	48.6	43.6	100.0
Central Slovakia	4.4	33.7	61.9	100.0	4.1	28.3	67.5	100.0
Eastern Slovakia	3.7	29.6	66.7	100.0	3.5	29.3	67.2	100.0
Total	4.5	35.9	59.6	100.0	4.4	34.6	61.1	100.0

NOTES Total figures are rounded to 100 in cases where the rounding procedure of individual categories leads to a total figure higher or lower than 100%. Source: OP BK (2007).

of flexible, accessible and efficient public services, as a precondition for progress in other areas, has to be further improved. Support of research and development (R&D) and innovation in the CRA is concept crucial for the regional development. For restructuring of the BMA's industrial base it is also important to have applied R&D and innovation transfer to small and medium-sized enterprises (SMEs). 'Innovation strategy 2007–2013' therefore supports certain priorities – electronic, engineering and chemical sectors and horizontal activities (information and communication technologies – ICT – and nanotechnologies) (OPBK 2007). Horizontal activities are crucial for further development of industrial sectors. Table 2 shows, for illustration, some science, research and innovation indicators for Slovakia, Bratislava region, EU-15, and EU-25. It is no surprise that in most indicators average figures for Slovakia are lower than those for EU-15 or EU-25. Also not surprising is the fact that Bratislava has higher average values than are the figures for Slovakia for most indicators from the table (except for HTI).

Bratislava has relatively fewer structural problems in the area of R&D and innovation. The region also has good preconditions for further development of its related variety and other socio-economic capabilities.

TABLE 2   Comparison of main science, research and innovation indicators (in %, except PAT)

	HRST	HTI	HTS	GOVERD	BERD	PAT
BA	54.9	6.49	4.76	0.57	0.39	31.88
SK	33.6	9.72	2.53	0.16	0.25	7.68
EU-15	44.4	6.87	3.52	0.24	1.24	160.65
EU-25	43.1	6.81	3.38	0.24	1.20	136.11

NOTES   BA – Bratislava region, SK – Slovak Republic, HRST – human resources in science and technology (% of total workforce), HTI – medium and high tech industry (% of total industry), HTS – high tech services (% of total employment), GOVERD – governmental expenditures on research and development (% in total gov. exp.), BERD – business expenditures on R&D (% of expenditures on GDP), PAT – number of patents at European Patent Office (EPO) per 1 mil. population. HRST is defined according to the Canberra Manual as a person fulfilling at least one of the following conditions: (a) successfully completed a tertiary level education, or not formally qualified as above, but employed in a S&T occupation where the above qualifications are normally required (see http://europa.eu.int/estatref/info/sdds/en/hrst/hrst_uni_stocks.pdf). Source: Eurostat, data from 2006 or the latest available year.

Some half of the Slovak R&D capacity is concentrated in the Bratislava region (nearly half of all R&D organizations in Slovakia) and the main part of the regional R&D base is located there (OPBK 2007). Regional development focuses on stimulation of innovative capacities and development of knowledge-based firms, as technological firms can substantially improve regional economic performance. For BMA, as the most developed Slovak region, is difficult to expect extensive state support, which usually goes to the regions with the highest unemployment. Public investments for solving the most urgent developmental tasks were primarily oriented towards backward and structurally affected areas of Western, Central and Eastern Slovakia, which has had a negative impact on the Bratislava region.

The National strategic reference framework, guaranteeing progress in reaching strategic goals of Slovakia until 2013, is at the national level based on a hierarchical set of strategic, specific, and operational priorities. This set of priorities is applied also within the objective 'Regional competitiveness and employment.' The Operation program Bratislava County, for programming period 2007–2013, estimates the financial allocation for Objective Regional competitiveness and employment at 100 mil. EUR. Funding from this objective should be combined with the European Regional Development Funds and the European Structural

TABLE 3   Allocation of financial resources for public works

Region NUTS II	2005		2006		2007	
	SKK mil.	%	SKK mil.	%	SKK mil.	%
Bratislava region	898.5	9.4	3340.5	18.9	216.5	2.0
Western Slovakia (Trnavský, Nitra and Trencin regions)	2761.8	29.0	1653.6	9.4	1021.5	9.1
Central Slovakia (Banska Bystrica and Zilina regions)	3739.2	39.3	8582.0	48.6	4924.8	43.9
Eastern Slovakia (Kosice and Presov regions)	2120.7	22.3	4089.0	23.1	5047.0	45.0
Slovakia	9520.2	100.0	17665.1	100.0	11209.8	100.0

NOTE   Source: OPBK 2007.

Funds. However, the financial volume seems insufficient for financing of existing regional needs. Bratislava Metropolitan Area, except Bratislava, is predominantly rural, which means there are substantial disparities in socio-economic level between urban and rural districts. Operational priorities are therefore designed to allow balanced regional development.

The constructed regional advantage concept in its policy platform stresses the role of infrastructure broadly conceived. Financing of public works, as it enhances infrastructural capacities, is therefore important. The review of financial sources allocated for public works related to the National development plan and Community support program in individual Slovak regions (only co-financed by structural funds and Cohesion fund) shows that, in 2005, 4.5% of all allocations of such financial resources went to Bratislava region. In 2006, the percentage was 6.7%, but this percentage declined to only 1.1% in 2007 (compared with, e. g. Western Slovakia, where this share was 33.2% in 2007). A similar situation in financial allocation holds for all types of financial resources for public works. The detailed review is presented in table 3.

Automobile firms, representing the main synthetic knowledge base industry in the region, but also new technology based SMEs create qualified jobs and help to maintain human resources in the region. Despite the fact that innovation infrastructure in BMA is, compared with the developed European regions, relatively weaker, it is becoming important for the emergence of incubators and technology centers. Developing phys-

ical infrastructure remains among the key measures that support new innovative firms. Parks and incubators in the region also enhance commercialization of r&d knowledge. Location of automobile production plant (vw) as well as logistics and transport infrastructure are important factors attracting investors to bma. The Euro-Valley Industrial and Technology Park in bma and the new business incubator at the Slovak technical university in Bratislava represent another way to attract innovative firms. Such projects contribute to the development of the regional innovation system, but dynamic development requires adequate changes in legislative, planning and investment activities. State policy in university education and r&d is also important in this respect.

The specific set of initial socio-economic conditions and institutional changes caused by eu membership (such as the Lisbon strategy or cra policy concept) may assist bma to build and enhance its economic capabilities and social capital. The disturbing effect of income inequality on social capital requires policies aimed at reducing income inequality. The government should also eliminate potential social tension and build trust in public institutions through public debates and consultation with stakeholders.

SUPPORT INSTRUMENTS: CASE STUDY OF BMA'S MAIN BUSINESS FACILITY INFRASTRUCTURE

Over the past decade, transport links within vbma have improved, but there is still potential for further progress. Some modernization of the rail and road network, such as direct highway connection between Bratislava and Vienna opened in 2007, has further improved the situation, but some gaps persist. To allow more dynamics in business activity in Bratislava, there are various projects for upgrading transport infrastructure (e. g., modernization of the Bratislava railway station with expected costs 11.3 bn skk) or the main public transport system (mhd Metro Bratislava, 17.4 bn skk). Transport-related infrastructure remains among priorities. Another important initiative is to increase networking activities. The constructed regional advantage concept applies the idea that any region has to keep and intensify regional advantages, be they based on innovative or traditional sectors. Some of the foreign firms, especially in biotechnology and automotive sectors that are located in Vienna have their regional headquarters in Bratislava. The higher presence of foreign firms in bma and Bratislava requires more business center capacities. Business infrastructure, like, e. g., office space in business

TABLE 4   Existing and new business centre projects in Bratislava

(1)	(2)	(3)	(4)	(5)	(6)
Existing	ABC	Bratislava	70,000	1000	Opened 2005
	MT I	Bratislava	19,600 OS	325	Opened 2003
	MT II	Bratislava	21,000	n. a.	Opened 2003
	BBC I	Bratislava	20,640 I + II	207 I + II	Opened 1998
	BBC II	Bratislava	20,640 I + II	207 I + II	Opened 1998
	BBC III	Bratislava	19,860 III + IV	450	Opened 1998
	BBC IV	Bratislava	19,860 III + IV	III + IV	Opened 1999
	T 115	Bratislava	32,100 OS	450 III + IV 650	
Running	CBC I	Bratislava	67,000 I + II	650 I + II	Opened 2006
	CBC II	Bratislava	67,000 I + II	650 I + II	Opened 2007
	LP	Bratislava	24,400 OS	500	Opened 2008
	ABC II	Bratislava	71,240 OS	1720	
	AT	Bratislava	29,130 OS	n. a.	
	BCA	Bratislava	4,280	n. a.	
Planned	CBC III	Bratislava	109,000 III + IV + V	n. a.	
	CBC IV	Bratislava	109,000 III + IV + V	n. a.	
	CBC V	Bratislava	109,000 III + IV + V	n. a.	
	LP II	Bratislava	90,000	n. a.	
	LP III	Bratislava	II + II + IV OS	n. a.	
	LP IV	Bratislava	90,000 II + II + IV OS 90,000 II + II + IV OS	n. a.	

NOTES   Column headings are as follows: (1) business centre projects, (2) name, (3) location, (4) capacity (total space, space sq. m.), (5) parking capacity (units), (6) comments. OS – office space, ABC – Apollo Business Centre, MT – Millenium Tower, BBC – Bratislava Business Centre, T 115 – Tower 115, CBC – City Business Centre, LP – Lakeside Park, AT – Aupark Tower, BCA – Business Centre Aruba.

centers, is therefore extremely important. Many new projects have been prepared and developed and some of them have already been completed since the 1990s.

The following tables (table 4, 5 and 6) demonstrate the scope and size of these projects. The rapid increase of office space capacities has led to some positive effects. The current worldwide crisis, however, negatively affects further progress of this investment trend as conditions for developers imposed by banks become tougher. Bratislava can expect that successful completion of such projects will allow for making faster progress towards a highly competitive urban-type regional economy. As the CRA

TABLE 5   Other administrative projects to be completed in 2008 and 2009

(1)	(2)	(3)	(4)	(5)
Galvani Business Center III	Lindner (Immorent)	BA II	16500	2Q2008
AB Strabag	Strabag	BA II	30000	2Q2008
AB Airport	Linstow AS	BA II	3100	3Q2008
Centropark	East–West Business Park	BA V	15000	4Q2008
Logibox	ICT Istroconti	BA II	4400	3Q2008
IP Centrum Elektrarenska	IP Development	BA III	4000	3Q2008
PO Aircraft	Aircraft Diagnostik	BA II	8100	2008
Centrala Slovenskej sporitelne	Slovenska Sporitelna	BA III	51000	2008
Centrala TNT, Vajnory	TNT Express Worldwide	BA III	2200	2008
AB Petrzalka	IDO Hutny projekt	BA V	6326	2008
Digital park – Phase II	Penta Investments	BA V	35000	1Q2009
Westend Square	J&T	BA IV	17000	3Q2008
River Park	J&T	BA I	28500	2Q2008
AB Microtech	Microtech	BA V	5500	2Q2009
Galvani Business Center IV	Lindner (Immorent)	BA II	20000	4Q2009
Business Center Vajnory	HTI	BA III	5000	2009
Bajkal	Unicredit Leasing RE	BA II	3000	2009
Emporia Towers	Quinlan Private Golub	BA V	22000	2009
OD Dunaj	Orco	BA I	5000	2009

NOTES   Column headings are as follows: (1) project, (2) developer, (3) city/district, (4) rental area, (5) completed. Compiled from Trend data.

concept indicates, such facilities as support instrument can also enhance the concentration of excellent actors (e. g., scientists). Such development can promote some elements from the CRA concept-related variety and distributed knowledge network. One current example of a success is the regional center of Dell Company located in Bratislava's city center. Table 4 provides an overview of business center projects, which are completed or in preparation stage.

There are also some other administrative projects which can attract more business actors to Bratislava. Table 5 presents a list of other important administrative projects with completion date scheduled for the period 2008–2009.

Despite the fact that investments in real-estate development are predominantly private sector initiatives, these projects have support from

the city council and therefore in most cases investors receive administrative support during acquisition of building sites and in other procedures.

External Urban Dynamism in the Trans-Metropolitan Context

Vienna and Bratislava have good preconditions for more intensive cooperation. Such cooperation can also be beneficial for their respective regions. Nevertheless, limits to cooperation still exist due to historical reasons and underdeveloped transport infrastructure. Despite the short distance between Vienna and Bratislava (only 60 km), cooperation within VBMA is complicated by existing regional heterogeneity. Developing cross-border cooperation thus means that both VMA and BMA need to integrate gradually their socio-economic structures. Certain differences remain, but disparities in income and employment across VBMA narrowed in the past decade. The external urban dynamism of BMA is also positively affected by various dimensions of European integration (including the trans-European transport network), institutional harmonization and by decentralization of administrative structures. These processes together with foreign competition pressures stimulate more intense cooperation. As this cross-border metropolitan area lacks the critical amount of cross-border institutions, setting up of such institutions can help to reduce conflicts and stimulate integration. Some steps in this direction dates back to the period 2000–2006, when the joint Austria–Slovakia INTERREG III–PHARE CBC Program (2000–2006) reinforced the cross-border contacts, promoted strategic cooperation at trans-national level on spatial planning themes and stimulated exchange of experiences between regions. INTERREG III had established five main priorities: cross-border economic cooperation, accessibility, cross-border organizational structures and networks, human resources, and sustainable spatial and environmental development. However, the effects from knowledge capital and networks formed as part of the past projects within this initiative had been rather temporal.

Austria has also introduced numerous own initiatives in the area of regional development and industrial/technology policy. One example is a strategic development plan for Vienna focusing on innovation and attraction of foreign direct investment. Since 2001 the Vienna Science, Research and Technology Fund has also started to finance research with high potential commercial value, and the Vienna Business Promotion Fund has become the main supporter of entrepreneurship (OECD 2003). As a result, industrial clusters are slowly emerging in this area, but these

are mostly in traditional industries. However, intensity of clustering in various parts of VBMA differs, and especially among local Bratislava firms is rather low. In the business sector, cross-border cooperation between industrial parks and firms within VBMA to a limited extent exists. An example is the cooperation of industrial parks in Vienna and Bratislava. One of the goals of the CENTROPE initiative (Central European Region, an institutional formation territorially larger than VBMA; see www.centrope.com and www.centrope.info) is to coordinate attraction of foreign investors to this area. Its pilot projects serve the regional aims, provide additional knowledge and help to establish basic structures for future coordination. Among such pilot projects, there were, for example, 'Bio Substances' and 'Regional Management' projects. Due to the previous decline of traditional large firms and the weak SMES sector, foreign direct investment inflows were critical for BMA's development. Over the years, the region has attracted many foreign investors, which offered well-paid job opportunities and had a positive impact on the economy. For example, VW-related automobile exports accounting for a substantial share of national exports. However, there are only gradually growing spillover effects from foreign direct investment.

There seems to be also some potential in integrating VBMA's labor markets. Nevertheless, integration can threaten weaker groups in Vienna due to competition from Bratislava and there is a risk of migration of educated labor to VMA. Potential integration can lead to uneven development and a move of labor-intensive production to Slovakia. Therefore, despite wide liberalization of the European Union's labor market, Austria and Germany keep still their labor markets closed to workers from new member states, including Slovakia, thus reducing commuting activity.

Student exchanges between the capitals exist, but coordination of cross-border study programs is rather weak and universities in the region have problems in obtaining funding for such programs. University cross-border cooperation within VBMA is limited, as universities have their cooperation partners at national level (OECD 2003). Furthermore, there are still barriers for universities to participate in a local innovation system – a feature considered as negative in the CRA concept. Slovak universities are not very active in knowledge-based regional development and would probably not be active in cross-border regional development. The situation described has persisted for several years.

Both capitals can benefit from integration due to knowledge transfer, innovation and learning. However, certain strategies promoting integra-

tion have to be developed and some supportive measures have to be implemented. While rapid industrial development takes place in Bratislava, Vienna remains a major urban agglomeration. The Vienna innovation system with all types of knowledge bases is more efficient for commercial use of research results than the system in Bratislava. Hence, to avoid uneven development, industry incubators and technology parks should include firms from both sub-areas, investments in education (generating spin-offs to local industry) and cross-border technological park initiatives. The cooperation within vbma includes joint projects and exchanges of experts, but Bratislava universities have less to offer in applied research (the situation is better in basic science research) and have few local partners in industry. Joint research results from cooperation relevant for industry are commercially used mainly in Vienna (oecd 2003). To become competitive, vbma must have suitable levels of both physical infrastructure and human/social capital. The whole area needs to enhance its innovation capacity and to use its knowledge capacities effectively. Actual demographic movements do not affect substantially the situation in vbma. Nevertheless, some partial measures, joint projects and policies of Bratislava and Vienna are helping to mitigate some negative effects. Uneven social development within the cross-border region would, thus, require a new governance framework to solve the situation.

Further cooperation, especially in the synthetic knowledge base sector (namely automotive sector) is emerging within vbma. However, certain negative effects, like relocations of firms mostly to the East, threaten the whole area. Overdependence on certain sectors (in bma especially on the automobile sector) can potentially lead to higher structural unemployment and erosion of social cohesion even in the areas typically reporting long-term prosperity. Integration and reconciling the competitiveness-cohesion tension within vbma represent some of the tasks both governments are facing today. In addition, regional competitiveness is the key focus of regional government policy to ensure that firms operate in good conditions and have incentives enabling them to be competitive. Competition stimulates higher competitiveness, employment growth and increased living standards, but it also reduces the income levels of some people, which means the risk of relative poverty. Competition-cohesion balance is thus important for policymakers trying to apply cra and other regional development concepts. Increasing benefits from a better competitive position require economic policies – like cra – stimulating generation of a critical mass of institutional density, critical mass

of institutional flexibility, critical mass of technical infrastructure, and critical mass of educated workforce. To avoid the 'win-lose' situation, a certain level of cohesion in the region must be developed. Cities, in this respect, suffer more than other areas from problems of social cohesion and territorial imbalance. However, social capital and the quality of social relations are crucial factors for development. Nevertheless, without competition there is also no possibility of becoming globally competitive.

The Vienna-Bratislava Metropolitan Area, as already mentioned, has a good potential to develop its competitive dynamism. However, it is realistic to expect that such changes will take some time. Promotion of clustering and networking is certainly crucial for enhancing regional competitiveness. Nevertheless, some negative effects, like lock-in-effects, decrease in competitive pressures and the self-sufficiency syndrome (Nauwelaers 2003) have to be taken into account as potential risks. As high regional technological absorption capacity also means higher attractiveness for investors, social capital is important there. Social capital may have positive economic externalities locally and it can lead to higher regional social cohesion.

Conclusion

The internal and external urban dynamism depends on the complex set of international, national and local factors. This paper presents some problems regarding BMA's and VBMA's dynamics. Several factors influence this process, and policymakers are now seeking to find and use proper and innovative regional development strategies, like the CRA concept, allowing the transforming these regions into highly competitive and dynamic ones. However, problems stem from different cohesion/competition perspectives. Different social structures and various local-specific problems and disparities exist within VBMA. Policymakers must cope with these issues, possibly using the CRA approach, as the BMA's development is crucial for the prosperity of the whole country. Nevertheless, the local socio-economic conditions limit the choices available to local policymakers. Social costs of adjustment to changes are, fortunately, rather low in BMA, due to its high level of education and above-average income level. However, Bratislava addresses many issues and confronts obstacles to integration. Its dynamism requires a long-term planning process, and the framework governing the cross-border cooperation will face numerous challenges. To achieve its goals, VBMA

needs to develop further an effective and efficient institutional and governance framework.

This paper indicates that gradual development of cross-border cooperation within vbma has also stimulated economic performance in both countries since 1989. Nevertheless, there is no empirical evidence yet as to what extent this improvement has been caused by economic and political reforms in Slovakia, eu membership or some other factors. It is shown that massive investment in both capitals creates similarities and complementarities in socio-economic structures, which allow for better networking but they also represent a potential for competitive pressures. The extent of similarities and complementarities is quite high. This contributes to higher competition in certain production segments, but also to cooperation within those areas, where complementary assets predominate.

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Are National and Organizational Cultures Isomorphic? Evidence from a Four Country Comparative Study

Rune Ellemose Gulev

This pilot study investigates whether organizational practices as observed through differing organizational cultures systematically replicate or reject national values. It is among the first to project delineated, narrow national cultural portrayals of Germany, Austria, Slovenia and Denmark against pattern-specific organizational cultures. Through country cluster analysis and correlation tests, the results achieve significance along all three dimensions. Trust allocations, authority perceptions and independence assertions were significant predictors for organizational traits of knowledge sharing practices, structure and control utilization, respectively. This demonstrates the value of assessing national values in conjunction with organizational culture in order to further understand the origins of corporate behaviour and the mechanisms that can help promote organizational effectiveness.

Key Words: national culture, organizational culture, multinational corporations, Europe
JEL *Classification:* z10, f23

Introduction

The European business environment is marked by great differences in national culture. These differences have been the focus of many studies, mostly relating to the works of culture authorities (e. g. Hofstede 2001; Hall 1981; Inglehart 1997; Schwartz 1992) and their respective cultural dimensions that, in many ways, set the standard for successfully categorizing cultures in a scientific manner, also termed 'sophisticated stereotyping' (Osland and Allan 2000). Attempts at understanding the impact of national culture on various aspects of society, businesses, latent behaviours of individuals, etc. have subsequently followed in their wake.

The current paper contributes to this ongoing discourse by examining how the values of the environment in which an organization is nested impacts its organizational culture. Both national and organizational cultures have been the focus of much academic scrutiny, yet, despite the in-

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tuitive relationship between the two, their intertwinement remains ambiguous perhaps as a result of previous research agendas relying too heavily on established multi paradigmatic dimensions, such as those of Hofstede (2001), which are argued to be invalid because of the broadness with which they can be interpreted (Blodget et al. 2005), and hence failing at achieving significance.

In this paper I thus digress away from common and broad cultural classifications that may have limited previous research agendas and reduce the study to encompass minimalist narrow national- and organizational-cultural depictions that only embody certain cultural and organizational elements. If isomorphic behaviour between national- and organizational-culture can be significantly detected at this level it will strengthen the ideology that national management and organizational models do persist in Europe as a result of national cultural variances.

The study takes a unique research outset in that it explores avenues of organizational culture that are not commonly projected against national cultural variations. Three bands of national culture, – interpersonal and institutional trust, authority endowment levels and independence perceptions – are linked with three equally narrow bands of organizational cultures impacting communication practices, structural determinants and control mechanisms.

To actualize this pilot study, the national cultures of Germany, Austria, Slovenia and Denmark are analyzed in conjunction with organizations from each of those countries and their emergent organizational cultures.

The Theoretical Backdrop

The organizational culture perspective is representative of a synthesis of managerial and company methodologies that are reliant on human behaviour. As such, it would be a logical anticipation to expect organizations to be isomorphic with their national cultural environments and to maintain management techniques that achieve the highest level of alignment with the cultural values of the local environment. This thought line is not new.

The notion that organizations must correspond with their environment in which they are embedded is a theme that has been increasingly probed by academics over the last 20 years (for a thorough account of this collusive relationship see Koen 2005). Worth mentioning, Goelzer (2003) significantly linked several popular cultural indices to organizational traits and attributed their correlativeness to corporate compliance

that naturally occurs within successful organizations. Similarly, Bussey (1999) found that a collaborative relationship between corporate and national culture could greatly reduce the friction observed in many companies when implementing team-based work strategies; aligning to national cultural values pre-empted a work manner that was counterintuitive for the organization. Ogbor (1998) and Neelankavil et al. (2000) ascertain that the assumptions and values of the indigenous, home-grown population result in managerial dogmas that are particularly meaningful, relevant and compatible with their domestic environment.

The concept is even touched upon by the most noted authors on culture. Hofstede (2001) suggests that organizational value systems exhibit a national component congruent with the nationality of the organization's founders and other top-tier management elite. In particular, he advocates a potentially very strong connection between power distance and uncertainty avoidance to affect certain hierarchical structures and decision making habits, respectively. Trompenaars and Hampden-Turner (1998) hint at the congruency between national cultural variations within equality and task reliability to spawn fulfilment-, project-, person- and role-oriented organizational cultures. Schein (1999) brings forth several layers of organizational culture that harbour specific and particular ways of manifesting themselves relating to the origin and values of the organizational leadership.

Despite the mantra of consensus, it is clear that a unilateral outcome seldom exists. In fact, organizational cultures can develop that offset national biases and reject isomorphic relationships with the societal context. Short of saying that organizations must develop organizational cultures that counter national values, several authors ascertain that certain organizational advantages can be drawn from defying some aspects of commonly accepted norms. This form of differentiation can be termed reciprocated opposition (Reed and Suresh 2003) and can provide an organization with specific advantages by challenging societal norms that can lead to innovativeness and a disconnect from cultural values with which the entire populace may not agree. Indian telecommunications companies operating in Bangalore might illustrate such reciprocated opposition; a disconnect from relaxed attitudes towards punctuality, normally apparent in Indian organizations and national culture, to a very strict time schedule is observed, and accordingly, is considered leading edge and innovative (Singh and Parashar 2005).

Revolutions within industrial capitalism have equally presented a

break from societal norms. Organizations that initially opposed national cultural values and successfully introduced Western education styles and factory labour methods clearly benefited through a non-isomorphic cultural approach (Chandler 1994, 597). Furthermore, when first introduced, the concept of open office spaces was in direct confrontation with many western societies' appreciation of individualism and privacy. At least some of these organizations in even the most individualistic societies managed to draw benefits from a non-isomorphic collectivist organizational culture.

Accordingly, it is apparent that there exists ambiguity and uncertainty surrounding how influential, if at all, national cultures prompt organizational cultures to develop in an isomorphic manner. The studies mentioned above contribute to the topic, yet most suffer from a common limitation; the national cultural outset is not limited to specific measurable dimensions but relies heavily on broad cultural groupings as those suggested by Hofstede (2001), Hall (1981) and others. I believe that these cultural indices have great merit, but on a different level that does not lend itself well to specific organizational comparisons. Rather, much more narrow cultural classifications that pinpoint certain cultural values are sought for which greatly reduce the ambiguity that taints the broader more common cultural depictions.

To work towards this goal, I propose singular classifications of national culture that depict how our focus countries differ from each other along socio-economic tendencies. By no means is the following national cultural country portrayal complete; it serves only to elucidate some specific national cultural traits that are inherent to each of the countries and that may bear latent repercussions on organizational culture. This limited scope reduces the elusiveness of the term and thus arrives at a workable representation of national culture along a few specific dimensions.

An Organizational Culture Typology

Organizational culture comes in many forms and has been variously defined. Because organizational culture cannot be seen, touched nor easily observed, this makes it a complex phenomenon to define; its elusiveness makes the term organizational culture difficult to label and handle. It reflects the organizational atmosphere and leadership which influence the participation and attitude of the personnel (Deal and Kennedy 2000, 4). As such it is a set of elusive, soft variables that are usually regarded as im-

portant but often taken for granted. Organizational culture refers to the underlying values, beliefs and principles that serve as a foundation for a company's social system as well as the set of practices and behaviors that both exemplify and reinforce that organization (Fairfield-Sonn 2001, 12).

In an effort to arrive at a particular and workable definition of organizational culture, the current paper proposes a specific organizational culture typology that taps into the above themes through measurable dimensions. It has its outset in Rosenfeld and Wilson's (1999) delimitation of corporate culture as 'the established patterns of relationships between component parts of an organization, outlining communication, control and authority patterns' (Rosenfeld and Wilson 1999, 136) and builds on several authors' work within the field of organizational culture thus arriving at a definition that absorbs the 'best-of' from these noted authors and that delivers a typology that is of particular relevance to modern organizations. From Trompenaars and Hampden-Turner (1998) structural determinants of organizational culture are considered that depict the verticality, or hierarchical-ness, of authority defining superiors and subordinates (Trompenaars and Hampden-Turner 1998, 157). Finlay's (2000) centrality of decision making power complements this dimension. Phatak et al. (2005) contribute with a system of defining organizational control methodologies through input, behaviour and output control mechanisms that relate to training and supervision, informal coordination mechanisms commonly associated with input and behaviour control, and targets and set goals, formal coordination mechanisms commonly connected with output control. These help visualize how organizational cultures monitor and evaluate employees. Finally, Dowling and Welsch (2004) supply insight into organizational methods of fostering an environment of openness and support for cross-fertilization of ideas and best practices through organizational knowledge sharing. This final facet of organizational culture gives specific insight into the readiness of employees to overcome cognitive and motivational challenges to disseminate important knowledge to other organizational members.

Albeit not all encompassing of everything organizational culture could include, this limited definition of the term helps deliver a workable concept that can be rationally measured. Accordingly, a conceptual framework emerges that allows for organizational cultures to be typified and ultimately correlated to variances in national culture. The three bearing pillars of the current organisational culture model thus elucidate (1)

organisational structure patterns, (2) control and coordination mechanisms, and (3) knowledge sharing practices.

Measuring National Cultural Differences

A necessary precursor to proceed with the study is to delineate variances in the four focus countries and depict their respective national cultures along a selection of characteristics and preferences. Here a conscious step is made away from utilization of standardized cultural dimensions (e. g. typically those of Hofstede 2001; Hall 1981) used in mainstream culture studies and a deliberate move towards a more limited, and thus more precise, cultural depiction. Without implying insult to the previous culture authors and their groundbreaking work, it is the current author's conviction that the broadness with which their cultural dimensions can be applied limits their utility. Accordingly, the current research seeks to depict very limited aspects of national cultures through specific cultural values taken from the European Values Study (EVS 1999).[1]

Upon the enlargement of the EU with ten new members in 2004, the multitude of cultural variances within the union increased by roughly the same amount, with each new country bringing its own specific set of cultural and business intricacies that further extended the cultural variance spectrum within the common market. Zver et al. (2004) propose that there exists a significant culture gap between Central and Eastern European Countries that have recently joined the EU and longstanding EU members. In an effort to depict this gap and other variances that exists between the four countries' cultures, three sets of composite EVS data are calculated and made representative of values residing in each of the four countries. The rationale is to understand how these variances influence corporate behaviour along the three pillars of organizational culture.

The three sets of EVS data that illuminate variances in national cultures are chosen because of their suspected interlinked-ness with organizational culture; a foreseeable connection is predicted which sets the stage for our hypotheses formation. The first national cultural dimension addresses interpersonal and institutional trust (IIT). It seeks to measure the amount of confidence employees retain towards their fellow employees and the magnitude of confidence allocated to institutions or systems. Interpersonal trust is grounded in the experiences employees have with each other and the familiarity that has been built (Bachmann and Zaheer 2006; Hardin 2002, 51). However, employees high on interpersonal trust

TABLE 1 EVS IIT variables with cumulative calculations

Country	V1	V2	V3	V4	IIT
Slovenia	2.2	3.11	4.91	4.41	3.172
			4.143		
Denmark	6.7	5.18	7.30	9.00	6.930
			7.159		
Germany	3.5	3.87	4.83	6.33	4.255
			5.009		
Austria	3.4	4.41	7.19	7.41	4.869
			6.338		

NOTES IIT calculated as mean score of averaged institutional variables (v2, v3, v4) and singular interpersonal variable (v1). v1 – the extent to which people feel that other people can be trusted (interpersonal); v2 – the extent to which people trust parliamentary systems (institutional); v3 – the extent to which people trust the social security system (institutional); v4 – the extent to which people trust the justice system (institutional). Source: own calculations based on composite EVS (1999) data.

will extend this mindset to encompass trusting strangers as well because the belief that people in general can be trusted is strong. Institutional trust is based on the theory that institutions provide reliable sources of input that are less likely to be tainted by individual motivations or perceptions (Weick 2008) which therefore increase its credibility and allow for deeper allocated levels of trust.

Interpersonal trust driven characteristics include having assurance and conviction along with high levels of confidence and loyalty in fellow employees. Institutional trust characteristics also bear remnants of high levels of assurance and confidence but are directed towards institutional sources that are less likely to be biased. To quantify the extent to which the sample countries rank high or low on IIT, one EVS variable that directly measures the intensity of interpersonal confidence has been utilized and three EVS variables have been applied to measure the intensity of institutional confidence in three different systems.

From these results, it is noticeably evident that the countries span out on the IIT spectrum; Denmark and Slovenia appear to be located at high and low IIT levels, respectively, while Germany and Austria are nestled in between. Linking these results to our organizational culture model, in particular knowledge sharing practices, it is suspected that a latent link may be observed.

The knowledge sharing disposition of organizational members is fun-

damentally a property of the composition of individualistic employee traits as individuals embody the behavioural rudiments associated with knowledge sharing. I suspect that these inherent rudiments vary in accordance with IIT levels and influence the deployment of both tacit and explicit knowledge. Therefore, it is expected that high interpersonal trust will yield favourable tacit knowledge sharing organizational cultures, and high institutional trust will yield favourable explicit knowledge sharing conditions. This prediction is based on the former, involving higher levels of unconscious knowledge transfer that act as tacit knowledge breeding grounds and the latter being the result of repetitive and systematic knowledge transfers. Together, high IIT levels the vehicles conducive of both tacit and explicit knowledge sharing practices.

HYPOTHESIS 1 *National cultures that display high IIT levels will exhibit latent preferences towards organizational cultures high on knowledge sharing practices.*

The second national cultural depiction probes levels of authority entrustment (AE). AE considers the readiness to designate influential inputs to both subordinate and authoritative sources opposed to sole authoritative sources. As such it probes the natural flex that exists between authoritative and subordinate members of society within a national culture.

Viewed on a high – low spectrum, people with low AE levels tend to greatly revere authoritative positions and expect authoritative people to have a large impact on the actions of everyone in society. In comparison, people with high AE, revere authoritative and non-authoritative positions equally and do not give a special bias towards the inputs stemming from managerial sources and consequently do not automatically comply with managers' orders but retain the ability to question the logic or motives behind a particular action. In essence, this implies that national cultures with high AE levels delegate authority more readily to non-authoritative positions, whereas cultures with low AE levels retain authoritative powers to a select few.

On the company level, this national cultural dimension is marked by interdependency between managers and subordinates; if managers act in a particular way the subordinate will react accordingly. Consequently, the extent to which a national culture has a preordained bias towards high or low AE depends on the interactions between managerial and subordinate parties from the outset and the values brought into the organization from the start. The following EVS variables have been utilized to quantify

TABLE 2 EVS AE variables with cumulative calculations

Country	v5	v6	v7	AE
Slovenia	1.8	7.4	2.7	3.967
Denmark	4.4	8.3	1.5	4.734
Germany	0.5	7.6	0.2	2.767
Austria	4.0	7.9	4.3	5.400

NOTES   AE calculated as mean score of v5, v6 and v7. v5 – the extent to which an increase in respect for authority would be viewed negatively; v6 – the extent to which employees are free to make decisions at work without consulting with their managers; v7 – the extent to which managers' orders must not always be followed. Source: own calculations based on composite EVS (1999) data.

the extent to which the populations of the sample countries are partial towards high or low AE levels.

The composite results display differing levels of AE for each of the focus countries. Within the four country spectrum, Germany and Slovenia possess the lowest levels of AE whereas Denmark and Austria exhibit the highest levels of AE, implying that the national cultures of the latter countries are comparatively more enthusiastic about entrustment of authority to broader circles in comparison to the former countries. An expected consequence of this is that countries with low AE national cultures will favour organizational structures that bear remnants to the Trompenaars and Hampden-Turner (1998) Eiffel tower organizational culture; namely tall organizational pyramids, high levels of respect and reverence for their superiors and limited questioning of authority compared to countries with high AE levels that engender a more egalitarian organizational structure. Such an approach demands that key decision making be centralized and conducted by a few select groups of managers who maintain focused overviews and thwart the ability and need for decision making to trickle down throughout the organization.

HYPOTHESIS 2 *National cultures that display high AE levels will exhibit a bias away from corporate structures that emulate a hierarchical Eiffel tower organizational culture.*

The third and final cultural depiction addresses independence and distinctiveness (ID) levels. That is, to which extent individualism is rewarded or punished within a national context. The principal variation between high and low ID levels resides in the inter-connectivity with which thoughts and actions of group members occur. As such, a highly

TABLE 3   EVS ID variables with cumulative calculations

Country	v8	v9	v10	v11	v12	ID
Slovenia	2.43	6.2	7.0	9.1	4.6	5.866
Denmark	3.50	4.4	8.0	9.4	7.0	6.460
Germany	7.10	9.3	7.0	9.9	6.2	7.901
Austria	7.09	9.5	7.1	9.7	5.6	7.798

NOTES   ID calculated as mean score of v8, v9, v10, v11 and v12. v8 – the extent to which the individual should take responsibility for people opposed to society or the state; v9 – the extent to which being unselfish is not a priority; v10 – the extent to which being independent is important; v11 – the extent to which participating in community actions is unimportant; v12 – the extent to which freedom is more important than equality. Source: own calculations based on composite EVS (1999) data.

ID culture tends to have many connections with many different people but for a short duration of time and holds that the individual is the primary unit of reality and that society is built up around a collection of individuals. In contrast, low ID reflects group members that have close connections over a long period of time, where a strong sense of unity is maintained and holds that the group is the primary unit of reality and that the group determines one's identity.

Typical cultural characteristics of a high ID are a preference towards individual decision making, being self-orientated, basing efforts on individual initiative and looking out for their own best interests. On the other hand, cultural characteristics of low ID are centred on group decision making, being collectively orientated, efforts based on a sense of loyalty and duty and the group or society at large to go to great lengths to look out for their best interests. To measure and benchmark the extent to which the sample countries reveal a positive or negative latent preference for a high or low ID preference, data from the EVS have been utilized along the following dimensions that draw on the afore mentioned characteristics.

From the composite ID results, we notice a smaller distribution than in the earlier two national cultural depictions, implying that the variance between the focus countries along this dimension is smaller. In essence, within the narrow four country band, Germany and Austria emerge as most ID inclined in contrast to Slovenia and Denmark which possess smaller ID levels. Projecting this onto our organizational culture model, it is suspected that we may observe variations in control and coordination mechanisms within organizational cultures.

Within national cultures that rank low on ID levels, the organization will have great influence on the individual's well being as the organization plays a large role in looking out for and defending the employee's interest. A consequent dependency develops where employees, in return, act in accordance with an organizational form of conduct and rely heavily on company participation and training to stay abreast with corporate initiatives. The organization can best comply with this interdependent relationship through input and behavioural control mechanisms as they have their foundations rooted in informal coordinating mechanisms that are best upheld through personal relationships and informal communication. On the contrary, output control would best complement national cultures that are high on ID levels, as less emphasis is placed on the personal team-like connections, but more emphasis is allocated towards accomplishments and being result orientated. On this basis the final hypothesis is formed.

HYPOTHESIS 3 *National cultures that display high ID levels will exhibit a latent preference towards organizational cultures that utilize output control and coordination mechanisms utilization.*

Combined, the three cultural dimensions provide a static and limited depiction of variances in the four countries' national cultures. However, this limitation increases the accuracy of the results and hence their utility. Rather than reflecting broad cultural representations that would more appropriately embody the entire culture, the current method illuminates only specific bands of cultural variation with surgical precision. Accordingly, the context of the cultural descriptions is neglected in favour of meaningful specific content interpretations that can be connected to organizational culture variations.

The Study

The empirical data for this research were collected as a part of a larger PHD project researching a total of four national culture dimensions and a multitude of organizational aspects. The data were extracted from 50 manufacturing companies taken to typify a stratified sample that allowed for sub grouping of the initial sample data into industry, organization size, organization age, organization success and geographical specific classifications. This was a crucial step as each of the organizational parameters could, and most likely would, have major repercussions on the materialization of the organizational cultures under scrutiny. The sam-

ple organization sizes, age and success rates were crucial parameters to establish and keep constant, as small, newly entrant and modestly profitable vs. large, incumbent and highly profitable companies possess inherently different organizational cultures that would skew entirely the impacts that national culture has on the sought – for results. Furthermore, industrial classifications were necessary as well as a geographical limitation as these parameters equally contaminate the purity of the national culture influence. Thus, in order to discount a scope-peripheral bias, organizational size was limited to large, over 1,000 employees at the MNC level, and organization age was limited to at least ten years of operations. Organization success was limited to at least a ten – year record of profitability, and geographical localities were limited to the four countries comprising the focus of this study. Industry specific classifications were limited to the manufacturing industry mainly as a result of an availability criterion.

Data collection was conducted through questionnaires, although follow – up interviews via telephone and in person were conducted in a select number of organizations. The questionnaires and interviews probed the intricacies of the company's perception of the organizational culture. In order to gauge the actual respondent's national culture fit with that of the EVS data, the questionnaire first sought to identify how the respondent valued certain characteristics pertinent to the national culture dimensions that this study pivots around. Computation methods for the empirical national culture data were identical to those utilized for the EVS, thus providing a comparable base for verifying that the underlying premises from which the hypotheses were made were still valid. Succeeding questions probed the perceptions of the organizational culture along the three dimensions of organisational structure patterns, control and coordination mechanisms and knowledge sharing practices.

For ease of completing and analysing, the questionnaire was setup in four clearly delineated sections that each addressed a separate management aspect. Albeit at the cost of some respondents having to answer in a language that was not their mother tongue, the questionnaire was administered solely in English in order to overcome translation barriers. Furthermore, in order to increase data reliability, the methodology of data triangulation was utilized to address the same management issues repeatedly. The questionnaire consisted of multiple-choice closed-ended questions, five point Likert scale questions and normalized 10 point preference scaling questions. These facilitated point accumulation methods,

which made it possible to compare stances on the different aspects of organizational culture.

The questions pertaining to control and coordination mechanisms primarily probed, through a two-tier form, the respondents' perceptions of the method in which they are controlled by their respective superiors. The first tier illuminated a direct proportionate utilization ratio of the three control forms (input, behaviour and output) as perceived by the respondent. The second tier sought to investigate indirect manager utilization of each control form. The data from each tier were weighted and averaged into a united control and coordination mechanisms score. The questions probing organizational structure patterns were structured along three dimensions. The first examined direct decision making authority levels within the organizations, the second examined the extent to which power delegation was sufficient enough for lower ranked employees to have decision impact on the remainder of the organization, and the third probed interpretative decentralization levels as perceived by the respondents. The questions concerning knowledge sharing practices first examined the respondents' frequency with which they inform others of strategically relevant information, and second, the frequency with which two-way knowledge flow patterns are typical as opposed to one-way knowledge flow patterns.

To test the hypotheses, cross-lateral Spearman rank correlation tests were conducted fitted with confidence intervals for the 50 dataset samples to verify that a significant correlation exists between the national culture and organizational culture scores. The Spearman rank correlation coefficient (ρ) was calculated as:

$$\rho = 1 - \left\{ \frac{SR_i(\sum D_i^2)}{n(n^2 - 1)} \right\} \tag{1}$$

where D_i is the difference between each rank of corresponding values of x and y, and n is the number of pairs of values.

Results and Discussion

The results concerning hypothesis 1 reveal a strong positive correlation (0.648/0.01) between IIT and knowledge sharing; as national cultures increased in IIT levels, so too did the organizational structure aptitude to share knowledge (see columns 1–2 in table 4).

There is a direct, although not perfectly uniform, correlation between high IIT with high levels of composite knowledge sharing practices.

TABLE 4 National to organizational country cluster- and correlation-test results

Country	NC	OC	NC	OC	NC	OC
	(1)	(2)	(3)	(4)	(5)	(6)
Denmark	6.93	0.859	4.73	0.410	6.46	0.71
Austria	4.87	0.855	5.40	0.494	7.80	0.81
Germany	4.25	0.741	2.77	0.652	7.90	0.72
Slovenia	3.17	0.619	3.97	0.598	5.87	0.38
ρ	0.648**		−0.566**		0.580**	

NOTES $N = 50$. ** $p < 0.01$. NC – national culture, OC – organizational culture. Column headings are as follows: (1) Composite IIT scores (2) Composite knowledge sharing practice scores (3) Composite AE scores (4) Composite hierarchical Eiffel tower structure scores (5) Composite ID scores (6) Composite output control and coordination mechanism scores. The individual scores for (2), (4) and (6) obtained at the organizational level are bundled together within their respective country cluster and presented as composite scores.

However, the respective upsurges and reductions in national culture IIT and organizational culture knowledge sharing levels are not proportionately distributed in relation to each other. This is most apparent with the Danish and Austrian data. The Danish IIT scores more than a full point ahead of the Austrian national culture score, yet the knowledge sharing levels are almost identical, with the exception that the Danish organizational knowledge sharing levels just out – edge the Austrian organizations. Thus, the large gap in national culture between these two countries is not represented with an equally large gap in knowledge sharing levels. Furthermore, low IIT scores are accompanied by lesser levels of knowledge sharing, but not low levels of knowledge sharing. For this realization it is noteworthy to recognize that all countries' organizations scored a fairly high knowledge sharing grade and, as such, are all considered fairly knowledge sharing prone. Consequently, Slovenia's and Germany's low IIT scores (3.17 and 4.25, respectively) are not reflected with low absolute knowledge sharing scores but only low comparative scores.

Nevertheless, the results unanimously support the hypothesis, as a clear tendency for greater knowledge sharing organizational culture is observed as national culture trust levels increase. In an earlier study it was shown that the majority of knowledge sharing in Slovenian companies occurs through tacit means (Gulev 2007, 161). In part this might help to further elucidate the positive correlation. In environments that rely heav-

ily on tacit knowledge sharing it is a necessary precursor that the inter-connectedness between members of that environment is strong. Low IIT levels would directly counter such inter-connectedness and would thus undermine the principle vehicle conducive to tacit knowledge sharing practices. This may be the cardinal explanation behind the low knowledge sharing outcome for the Slovenian organizations. Whether the same logic holds for the remaining organizations remains speculative.

The results regarding hypothesis 2 also conform the hypothesis, albeit statistically at a slightly weaker intensity ($-0.566/0.01$). As national culture AE levels increase we observe a decrease in the frequency with which hierarchical Eiffel tower structures were detected (see columns 3–4 in table 4).

The Slovenian and German AE scores are ranked the lowest, while united scoring highest on composite hierarchical Eiffel tower structure scores, and the Austrian national culture, which scored the highest AE, ranked moderately low on hierarchical structure. Taken together, this works in accordance with the hypothesis prediction, albeit the results are not pristine. Slovenia has a higher national culture AE score than Germany, yet also a higher amount of hierarchical organizations were detected. Furthermore, the large variance spectrum displayed between the German and Austrian AE scores (2.63) is not reflected by an equally large variance fluctuation in composite hierarchical structure scores (0.158). This suggests that hierarchical Eiffel tower structure levels are not perfectly correlated to AE levels, as the large AE variance is mirrored only by a small organizational structure variance. Consequently, it appears that there is a tendency for high levels of AE preferences to be accompanied by low levels of hierarchical Eiffel tower structures, although it is not a precise relationship.

To further understand this strong negative correlation it is important to recognize that countries that embrace high AE cultures are more likely to produce an environment that harmonizes with egalitarian ideologies. The endowment of authority to non top-tier positions empowers a larger amount of people with decision making abilities, which works against the constructs of an Eiffel tower organizational culture. In further accord, highly Eiffel tower organizational cultures endorse work environments where a bureaucratic division of labour with various roles and functions is prescribed in advance and coordinated at the top by a hierarchy (Trompenaars and Hampden-Turner 1998, 166). Such a structure demands that authoritative figures retain certain command mandates that

aid in enforcing the dominant boss – subordinate relationships. Low AE national cultures directly facilitate this.

The results pertaining to hypothesis 3 reveal a strong positive correlation (0.580/0.01) between national culture ID scores and organizational culture output control utilization; as individualism and distinctiveness levels increase we observe a proportionate increase in the utilization of organizational output control mechanisms (see columns 5–6 in table 4).

The Slovenian organizations are unique in that only they appear to utilize a larger proportion of input and behaviour control to the detriment of output control (0.38) compared to the other three countries' organizations which collectively use output control to a greater extent. However, this departure from output control utilization detected in the Slovenian organizations concurs nicely with the hypothesis prediction; with a few exceptions, an almost linear correlation is observed. Overall, the correlation is stable and significant, however, the direct results do suffer from some weaknesses as there appears to be no absolute connection between high levels of ID and high utilization of output control. As is evident from the data, the German organizations, which ranked the most ID (albeit just by a fraction), utilizes less output and more input and behaviour control than the Austrian organizations, which were marked by a lower ID score. Even more noticeable, the Danish organizations have an almost identical ratio of output control utilization as that of the German organizations, despite ID levels varying by more than a full point. Nevertheless, when broadening the scope, the underlying notion that organizations in national cultures that score high on ID to utilize output control does remain valid.

The logic behind this positive correlation resides in understanding when an organizational culture emphasizing output control is most useful. Output control through targets and set goals is not limited to highly individualistic individuals; communitarian driven individuals also respond positively to output control (Dowling and Welsch 2004, 137) as well as to input and behaviour control. However, it is possible that individuals in highly ID national cultures respond less favourably to input and behaviour control, as their ability to be distinctive is decreased and in essence they are asked to depart from a conduct that conforms naturally to their high ID culture. As such, the positive ID national culture to output control organizational culture correlation is more a product of the inappropriateness of input and behaviour control, rather than the appropriateness of output control, on highly ID individuals.

Utility and Limitations

The current findings provide utility for a broad range of people. Most notably, managers of organizations can use the findings to provide insight into the fit between their national and organisational culture. On the basis of our findings, managers can deduce that certain organizational traits may be subconsciously inferred as a result of national cultural influences. This has implications for a wide array of organizational circumstances.

First, the findings may prove fruitful in helping to better understand intra-organizational behaviour. It is possible that the actions of corporate employees may have more to do with national cultural roots than organizational agendas. Hence, bridging the gap between national and organizational culture cognitively may help explain why employees and managers conduct themselves in a specific manner; knowledge that can greatly facilitate positive intra-organizational interaction. Second, the results act as a caution signal to any international organization that employs multiple nationalities with differing cultures. For these organizations, achieving a higher level of corporate compliance through organizational culture may lie in further understanding the national cultural roots of their diverse workforce. Finally, the results can be considered as fodder for catalysts of organizational change. In instances where organizational change is warranted it may prove beneficial to give initiative to the transformation process with an investigation of the organizational members' inherent national cultures, as this may provide insight into how the change management process can be endorsed and encouraged internally.

Researchers and academics subscribing to the culturist approach will find value in the study, as a relatively new methodology in analyzing organizational and national cultures is presented. The limited and narrow avenues of national and organizational culture that are explored are uncommon in academic research; most contributions group broad perceptions of national and organizational culture together, thus gaining broader cultural insight but diminishing the comparability of the components. The current study makes a conscious move towards limited cultural definitions, at the cost of providing complete cultural depictions, but with the immense reward of strengthening the validity of the emerging results.

As with most culturally based studies, the current article suffers from

certain limitations. A predictable direct consequence of the limited cultural depictions is that the national and organizational portrayals are not complete representations of the whole picture. As such, certain elements of culture – some even pertaining to the three national cultures covered herein – are ignored. A further limitation is that I utilize datasets from two sources only. Although I feel confident that the EVS and questionnaire data are credible and provide a valid foundation for the research, it must be acknowledged that other sources of national and organizational culture might have produced dissimilar correlation results. I do not, however, believe that our model is sample specific and I expect to find similar correlations from other sources in upcoming studies.

Conclusion

The current article is among the first to examine the extent to which a triad of national cultural depictions influences organizational cultures pivoting around communication, control and authority patterns within a specific selection of European countries. Along this chord, we arrived at several credible results; in large, we proved that organizational cultures do emulate national culture characteristics along three finely defined dimensions.

First, a highly interpersonal and institutional trust-driven national culture inclination acts as a catalyst for knowledge sharing organizational cultures. It was found that trust, measured as a national component, facilitates the vehicles conducive to explicit and especially tacit knowledge sharing. Accordingly, it is suggested that national levels of trust trigger higher levels of knowledge sharing to occur within the organizational culture.

Second, national cultures with high authority endowment traditions yield organizational cultures that depart from the Eiffel tower structure and gravitate more towards decentralized and egalitarian organizational structures. The emphasis here is on the inclination of societal members to disseminate authoritative powers away from select top-tier individuals. Thus, it is proposed that national cultures that have low levels of authority endowment, meaning that authority remains with a select few, will produce organizational cultures that are hierarchical and tall.

Third, national cultures with high levels of independence and distinctiveness characteristics tend to appreciate organizational cultures that depart from the utilization of input and behaviour control but emphasize output control. Here an appreciation of set targets and goals that

benefit (and punish) the individual outweighed communal supervision and socialization of employees into the organization and its values.

Along these specific chords, organizational cultures are seen to be isomorphic with national cultures; a clear and significant habit of dependency between the analyzed variables emerged. These results alone provide further nourishment for researchers and practitioners who subscribe to the notion that national management models do persist in Europe (see also Klarsfeld and Mabey 2004) and that these sometimes follow a predictable pattern. The current results thus provide helpful insight into methods that can help bridge organizational clashes; understanding the core roots that generate differing organizational cultures can help promote the use of constructive conduits for further intra-European corporate cooperation.

Notes

1 The European Values Study is a large-scale, cross-national and longitudinal survey of moral, religious, political and social values. The survey was designed to investigate the nature and inter-relationship of value systems, their degree of homogeneity, and the extent to which they are subject to change across time.

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Corporate Risk Management in Slovenian Firms

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In today's competitive environment the modern firm increasingly focuses on identifying, measuring and managing various risk exposures. Risk management is interwoven with the firm's business strategy and impacts considerably on its competitive position. Thus, management should develop an integrated approach to address it. Although hedging using derivatives accounts for just one part of such an approach, the article solely covers financial risk management using derivatives. Namely, it is found that even Slovenian blue-chip firms still have room to improve as they have only recently started to use derivatives. The article reviews some of the most interesting characteristics and practices of modern Slovenian financial risk management departments and provides a practically oriented case-study which describes the important steps a risk manager must take to hedge commodity price exposure.

Key Words: risk management, derivatives, corporate finance, hedging accounting, reporting, supervision, auditing
JEL *Classification:* G32

Introduction

Modern corporations increasingly analyse and manage risk. They detail risk management strategies and put substantial efforts into communicating them with various stakeholders. Thus, one can find precise information about internal control mechanisms, critical assessments of crucial assumptions, and a valuation of exposures with the effects of hedge activities. The motivation for so doing is primarily the stronger pressure from owners and the business community as a consequence of debacles like Enron, Worldcom etc., and secondly the regulatory framework represented by the Turnbull Report and Combined Code in the UK, KonTraG

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Gesetz zur Kontrolle und Transparenz im Unternehmensbereich in Germany, the Sarbanes-Oxley Act in the us, and the Corporate Governance Code and Principles of Corporate Treasury in Slovenia. Disclosures and a fair valuation are also required by accounting standards and core corporate legislation.[1] Risk management and appropriate disclosure are the focus of the oecd Principles of Corporate Governance (2004). Besides those, voluntary disclosures that disclose but do not reveal valuable information and thus shield a competitive advantage are recommended by various professionals (Epstein and Rejc Buhovac 2006). Therefore, sound risk management and transparent disclosures are a critical determinant of success in today's competitive environment. It helps acquire additional external capital at a lower cost.

A survey conducted by the risk management consultant Tillinghast-Towers Perrrin in 2003 indicated a high increase in awareness and activities of corporate treasurers regarding improved corporate governance requirements (Berk, Peterlin and Ribarič 2005). Besides better management and an adjusted strategic framework, activities are oriented to increasing transparency at all levels. The goal is to achieve a lower probability of the realisation of damaging or dissatisfying states of nature in various fields and, on the other hand, to improve the value-maximising view of a firm (Copeland and Copeland 1999). pwc consultants argue that a holistic approach prevents blindsightedness (PriceWaterhouseCoopers 2004). As a side effect of increasing shareholder wealth, benefits also reach other stakeholders including employees who work in a less turbulent environment and can thus better focus on the core business.

Risk management should not be perceived only as financial risk management. A holistic approach to risk management encompasses operational risk management, strategic risk management, capital budgeting risk management and market risk management (coso 2002; Berk, Peterlin, and Ribarič 2005). Namely, the modern risk management function has recently become quite interwoven and well spread and thus nowadays requires wide identification and measurement systems. It in fact underpins every business decision and is well rooted in the corporate strategy (Clarke and Varma 1999; Epstein and Rejc Buhovac 2005; PriceWaterhouseCoopers 2004). Despite this, the goal of this article is not to address such a holistic approach but to locate financial risk management which represents ordinary and well accepted tools of a modern enterprise and to point out some shortcomings in establishing practices in Slovenia.

The article is structured as follows – after the introductory theoretical background about risk management, contemporary practices concerning the use of derivatives in Slovenian blue-chips and enterprises with the largest perceived exposures are outlined. Their derivatives practices are compared to the practices of us and German firms, which is interesting since firms in the two compared countries operate in a more developed business environment. At the end, a case study is presented that includes all the cornerstone accounting, valuation, supervision and reporting issues. As such, it should help Slovenian cfos overcome the shortcomings that are identified.

Theoretical Background to Risk Management

Broadly speaking, authors studying the significance of motives for risk management in non-financial companies can be divided into two categories. The first highlights various aspects of shareholder wealth maximisation, mainly tax savings, avoidance of underinvestment problems and minimisation of costs of financial distress (the shareholder wealth maximisation theory). Those in the other category build their arguments within the classical problem of relations between agents and principals (agency theory) (Tufano 1998).

In the perfect and efficient world of Modigliani and Miller without taxes and transaction costs, there are only rational investors who maximise their wealth in conditions of perfect information (Modigliani and Miller 1958). In such a setting, any risk management activity reduces their wealth. Namely, prices in capital markets are formed only on the basis of a company's systematic risk. Non-systematic risk is eliminated through diversification (Froot, Scharfstein and Stein 1993). Hence, any managerial activity aimed at reducing non-systematic risk (for example, the operating risk of a company) would unnecessarily reduce risk that has already been eliminated by rational investors by means of diversification. The wealth of shareholders is thereby reduced because of the increased costs (Fatemi and Luft 2002).

This is of course an extreme interpretation, valid only under the strict presumptions of the perfect Modigliani-Miller world and even then only for big public joint-stock companies. There are numerous arguments that undermine this breakthrough idea of the respected academics (Bartram 2000). First, the statements are made in an environment of a well-developed capital market, presupposing that all companies are organised as joint-stock companies where all investors optimally and rationally di-

versify their wealth, and invest in joint-stock companies proportionally to how they are represented in the capital market. Second, the authors neglect the existence of interest groups within the company, for example employees, the management team, suppliers, creditors etc. These are exposed to the company in question, which results in them bearing the consequences of the undesirable realisation of events affecting the company, irrespective of how these events reflect on the value of the company as estimated by the capital market. Third, the authors neglect the existence of numerous companies of a smaller size using diverse forms of organisation that do not aim at the objective of maximising the market value of the company but are pursuing different objectives, such as a comfortable lifestyle, a high level of environmental responsibility etc. Fourth, the authors do not consider transaction costs and taxes. The latter in particular play a dominant role in the theory of risk management in non-financial companies. Through event studies of share price reactions to company announcements relative to the extent of risk management within the company, Cassidy, Constand and Corbett (1990) came to the conclusion that these announcements are followed by periods of growth in share prices. In short, risk management is an activity about which a consensus has recently been reached regarding its benefits for investors and other interest groups.

A survey by the RCEF on the use of derivatives (RCEF-IFI 2005; Berk 2006) and a survey on the stage of development of the business-financial function (Berk 2003)[2] found that even the largest and most exposed companies are relatively unsophisticated in terms of risk management. It is therefore to be reasonably expected that their conduct is in accordance with the shareholder wealth maximisation theory, rather than the agency theory stating that managers overwhelmingly hedge exposures as they are more risk-averse than shareholders. Even the largest companies have started to use derivatives relatively late.[3] This means that the use of derivatives on a broader scale, at the level of the national economy, would make business results less unsteady and therefore contribute to avoidance of the underinvestment problem and to the occurrence of costs of financial distress. For consistent and precise (financial) risk management and supervision an integral system needs to be set up and human resources organised, which demands a lot of time. This article is directed at this aim.

Only in the second stage, when financial risk management systems have been established to a larger extent, can one expect the particular

relationships envisaged by agency theory. Due to its current relevance, only shareholder wealth maximisation theory is presented in detail in the following section.

MAXIMISING THE WEALTH OF SHAREHOLDERS

According to the shareholder wealth maximisation theory a company will, when management goals equal those of the shareholders, actively manage risk if can be the benefits outweigh the costs. While the latter are obvious and relatively simply measured (they represent direct transaction costs and indirect costs of all activities of risk management or transaction administration), the benefits are not so easy to identify. They originate from tax savings, financial distress cost reduction and/or a larger extent of realised investments with a positive net present value (Nance, Smith and Smithson 1993; Fatemi and Luft 2002).

The tax argument is closely connected to tax regulation and marginal tax rates. If the imposition of taxes on companies is progressive and companies are placed in between the tax brackets, if investments are eligible as tax relief and companies are allowed to transfer profits or losses among years, the benefits of risk management start emerging as companies can plan their tax burden with greater accuracy. The higher the degree of progressiveness (the more the taxation is convex), the more tax relief available to companies and the more possibilities of the transfer of profits or losses, the more companies can save using the tools of risk management (Smith and Stulz 1985). Greater variability of profits certainly leads to higher anticipated tax burdens.[4] The latest empirical studies show that tax effects alone do not justify the costs of active risk management – the motive for active risk management is the benefits arising from the two fields that are dealt with below (Fatemi and Luft 2002).

The benefits of protection from risk further derive from the lower variability of cash flows, which reduces the probability of the occurrence of financial distress in the company and the occurrence of the related costs. The benefits of risk management are a positive function of the probability that the company will experience financial distress and additional costs.[5] Smith and Stulz (1985) are advocates of the theory that emphasises the benefits of reducing the costs of financial distress. Their conclusions exert an influence on the capital structure of a company. Namely, if a company manages to reduce the variability of its business profits or business cash flow through risk management because borrowing costs are reduced,[6] it achieves a more stable coverage of fixed obligations –

times interest earned – and acquires additional borrowing capacities and extra benefits from tax shields. Copeland (2002) states an example of two companies, equal on the whole but with different variable cash flows. In this case, risk management is a substitute for equity. Smith and Stulz (1985) observed that hedging risk is reasonable because it brings a reputation and the possibility of more favourable financial conditions for subsequent borrowings – higher prices or lower borrowing costs. A company further reduces the costs of financial distress by having to comply with the restrictive covenants of contracts. As put by Mello and Parsons (1999), hedging policy is wealth-maximising as it changes the probability of exhausting the firms' cash balances and thus the value of the firm. Thus, a hedging program relieves the firm of a cash-balance constraint. However, Copeland and Copeland (1999) stress that a sole variance reduction is neither a necessary nor a sufficient condition for reducing the probability of business disruption. Other factors such as transaction costs, the coverage ratio defined as the ratio of operating cash inflows and outflows to come to the optimal hedge shall be considered.

Third, the hypothesis of the shareholder wealth maximisation theory attributes risk management benefits to possibilities of avoiding situations where the company does not perform enough projects, which would have positive net present values. Namely, in certain circumstances a company is inclined to an underinvestment problem. The advocates of this theory – Froot, Scharfstein and Stein (1993) – at the same time hold the view that this is the most important reason why companies are actively concerned with risk management. The authors refer to the following typical circumstances in companies which are the basis of their theory – first, companies make or increase the value for shareholders with investments in projects with positive net present values; second, business financing (of new investments) is in accordance with Myers' (1977) pecking-order hypothesis;[7] and, lastly, changes in interest rates (variability), commodity prices and foreign exchange rates have a negative effect on net operating cash flows.

Therefore, if the most important source of capital is not protected the company may not carry out all of its profitable projects with a positive net present value, which in turn means that shareholder wealth will not be increasing optimally or will be diminished. If a company secures a stable net operating cash flow, it will not be forced to abandon profitable projects which will lead to an optimal increase in both the wealth of the company and of the shareholders (Froot, Scharfstein and Stein 1993).

The Use of Derivatives: Contemporary Practices

Derivatives are one of the most important and highly resounding innovations in financial markets to which the breakthrough in the risk management field is linked. Previously, companies had been hedging risk by means of insurance policies (Berk, Peterlin and Ribarič 2005).

There are three basic types of derivatives – of the first generation – futures/forwards, options and swaps. All these are term instruments, meaning that the performance of the contract is transferred in its entirety to a (determined) date or period in the future, even though all the essential elements are determined at the conclusion of the contract (Jorion 2005).

A forward contract is a contract where a future purchase or sale is agreed with all essential elements of the contract being determined today. Forwards are traded through banks, other agents or directly between customers – the principal-to-principal market. A future contract is a standardised forward contract which is traded on the stock exchange. The main differences from a forward contract are its trading place and the degree to which the underlying asset is standardised. A financial option is the right to buy or sell the underlying asset at a price agreed today. The cost of the option or the premium is subject to a determined or agreed price. An important difference between the option and the other derivatives is the freedom of the holder of the option, who can either on or before the expiry date of the option decide whether or not to exercise their right. This discretion is accorded with the payment of a premium (compensation) that at the same time limits the possible amount of loss of the option contract in question. The premium can be regarded as an insurance premium and its fair value depends on the fair value of the underlying asset at any time before the expiry of the option. Financial swaps are contracts where counterparties agree to swap two underlying assets in future at a rate decided on today. Both counterparties are in a debtor-creditor relationship until the settlement takes place – throughout the duration of the swap the credit position is changing (i.e. the creditor's net credit risk is increasing). The same applies to forwards and futures (Jorion 2005).

Forwards, futures and swaps are a cheaper means of risk management and have a symmetrical return profile. Options are more expensive but allow for the limitation of loss, which is a big advantage in cases of the uncertain realisation of planned business activities (Jorion 2005). A com-

pany should therefore opt for a forward, future or swap when it wishes to hedge an already existing or concluded contract, while for the hedging of contracts that are only planned it is wiser to choose an option (Giddy and Dufey 1995). Namely, the meaning of this symmetry is that a derivative offsets the initial exposure of a hedged item. Forwards, futures and swaps hence enable precise forecasting of the business outcome; options on the other hand can render it possible to make some profit even if the contract is not concluded, provided that movement of the value of the underlying asset is favourable. Researching a sample of us companies, Bodnar and Gebhardt (1998) found that the use of options is increasing with the variability of the cash flows.

The use of derivatives among Slovenian companies is on the rise, although it is still at a low level even among banks for which there is evidence that they are currently mostly focused on credit-risk models (Aver 2003; Aver 2004). A recent survey shows that 40% of banks do not offer derivatives to their customers nor use them for their own risk management (Bajuk 2005).

Among non-financial companies, the percentage of companies that use them is low in comparison with developed environments (Berk 2006); the best known derivatives category are forwards as a means of hedging foreign exchange risk (Doles 2004, 4). Amid the reasons for the modest use of derivatives, Doles (2000) lists the wrong perceptions of derivatives trading and related losses that Slovenian companies had incurred mostly before the year 2000, the poor flexibility of products and IT support regarding Slovenian conditions, the small size of the financial area where even trading in the cash market is relatively restricted, and the lack of knowledge.

Results of the RCEF-IFI survey (2005) allow interesting conclusions in the fields of the policies and characteristics of the use of derivatives. The primary purpose of the survey was to compare the Slovenian practice in financial risk management with the practices of developed environments. The surveys of the practices of us and German non-financial companies by Bodnar and Gebhardt (1998) and Bodnar et al. (1995) can be regarded as referential. us and German market environments are more developed than the Slovenian one and thus represent a reasonable benchmark for Slovenian firms. The authors of the us and German surveys had similar ambitions and the Slovenian survey was structured in the same manner. Before quoting the results, the next section explains the methodology of the survey.

The sample of companies which were sent a questionnaire about the use of derivatives by the Research Centre at the Faculty of Economics of the University of Ljubljana (RCEF-IFI) in November 2004 was composed so as to include all companies that were expected to use derivatives to the largest extent. Such companies are those with the highest foreign exchange exposure.[8] The selection was determined by the value of the income originating from foreign markets and the proportion of that income in the total income of the company. The results of the survey do not reflect the situation in the Slovenian economy on the whole as there are probably some companies that are less exposed to financial risk and are not as developed as regards hedging with derivatives, or else they only use them to a smaller extent. Smaller companies have also some knowledge and staff restrictions. Moreover, they do not even realise their financial risk exposure, they have inadequate information support and are organisationally weaker.

The sample included all non-financial companies that had their securities listed on the Ljubljana Stock Exchange on 30 September 2004, the top 80 exporters and the top 80 relative exporters regardless of their main activity (relative export is measured by the proportion of income originating from foreign markets). In total, 257 questionnaires were sent out; 57 complete responses were received, which corresponds to a 22% response rate. Survey questions were constructed following US and German surveys conducted by Bodnar, Hayt, Marston and Smithson (Bodnar et al. 1995), Bodnar and Gebhardt (1998). Slovenian firms are significantly smaller. The size breakdown of firms (measured by total revenues) in all three economies under comparison shows that about 95% of the Slovenian firms are in the size group of up to EUR 0.25 billion, but only about 19% and 10% of US and German firms, respectively, are also in that group. At the upper end, there are just two (3.5% of all respondent firms) represented in size groups of more than EUR 0.5 billion, whereas about 64% of US and 82% of German firms are included in that size group.

THE PRACTICES OF DERIVATIVES USAGE IN SLOVENIAN BLUE-CHIP ENTERPRISES AND COMPARISON TO THEIR US AND GERMAN PEERS

US, German and also Slovenian companies most frequently use derivatives to hedge their foreign exchange exposure (see figure 1). The second most used derivatives are related to interest rates, while the least fre-
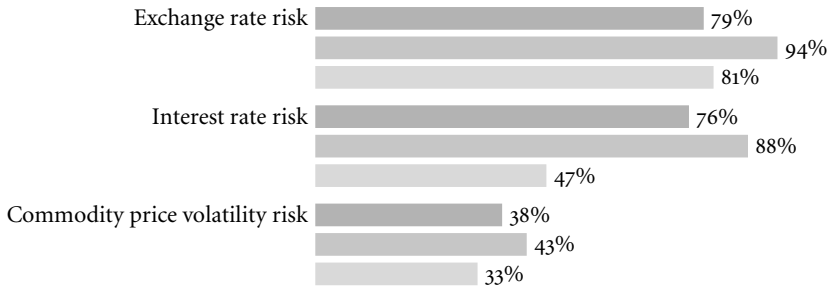
FIGURE 1　Usage of derivatives by different risks (dark gray – USA, gray – Germany, light gray – Slovenia; adapted from Bodnar and Gebhardt 1998; Berk 2006)

quently used are commodity derivatives. Compared to their US peers, a relatively high percentage of Slovenian companies uses derivatives linked to the exchange rate relative to the interest rate and commodity prices (RCEF-IFI 2005; Bodnar and Gebhardt 1998). The use of interest-rate-related derivatives is more modest – only 47.62% of Slovenian companies hedging with derivatives are using them while the percentage among their US peers is 75.90%. The use of derivatives is even higher in German companies, as much for the exchange-rate-related and interest-rate-related as for commodity derivatives.

Bodnar and Gebhardt (1998) claim that a majority of companies simultaneously uses different types of derivatives. This is true especially for German companies – 44.90% of them use derivatives for hedging all three types of financial risk, while 84.70% use a combination of exchange-rate and interest-rate-related derivatives. Among the US companies, there are 26.70% of them using derivatives for all three types of financial risk and 58.80% using a combination of exchange rate and interest-rate-related derivatives. Out of those Slovenian companies which reported the usage of derivatives, there are only 14.30% using them simultaneously to hedge their foreign exchange risk, interest rate risk and commodity price volatility risk. Exchange-rate and interest-rate-related derivatives are used by 35.30% of Slovenian companies (Berk 2006).

A comparison of the use of different types of derivatives shows that the most frequently used derivatives for hedging a foreign exchange exposure are forward contracts, followed by options, swaps and futures. Among Slovenian companies that hedge their foreign exchange exposure with derivatives, most (76%) use forward contracts while the relative importance of options is higher than in Germany. Options, swaps

and futures are much more frequently used by US companies, whereas their German peers more often use the simplest instrument (forward contract). Whereas forward contracts are most appropriate for hedging foreign exchange exposure, swaps are far most frequently used to hedge interest rate exposure. In comparison with their US and Slovenian peers, German companies rely more on forward contracts and OTC options. Also slightly more frequent than in the US case is their use of structured products. Slovenian and US companies use a wider range of derivatives to hedge their exposure to price volatility in the commodity market. Above all, they more frequently state the usage of swaps and options. Both instruments are used by 43% of Slovenian companies and more than half of US companies.[9] German companies mostly use forwards or futures (Bodnar and Gebhardt 1998; Berk 2006).

In the documentation of risk management policy there are no differences among US and German companies. About 80% of companies have their risk management policy documented, the largest companies have a slightly higher percentage figure while the lowest percentage (70%) can be found in the category of the smallest German companies. It was in 1994 that companies started forming their risk management policies quicker and more intensively, when there were huge losses in derivatives trading because companies were using them to speculate and not to hedge their exposures (Bodnar and Gebhardt 1998, 20). Slovenian companies are in this respect lagging behind considerably, as only one-third of the companies participating in the survey responded in the affirmative to the question on the existence of a documented risk management policy (RCEF-IFI 2005). Judging from the results of an analysis of the questionnaire, Slovenian companies are only beginning with their use of derivatives to hedge some types of risk exposure. In this first stage they are gathering knowledge and verifying their appropriateness; in the second stage we can expect with a high probability an increase in both the number and proportion of companies that will be systematically using derivatives to hedge their financial risk.

As Slovenian companies have poor documentation on risk management policy they also lack criteria for their counterparty ratings in derivatives transactions. This holds true for all transactions, regardless of their respective maturity dates.[10] There are a lot of differences between US and German companies on the issue of counterparty ratings in derivatives transactions. German companies have higher requirements than their US peers – this credit protection or conservatism in business

counterparty selection can explain why German companies are then relatively less concerned with the use of derivatives. The responses of Slovenian companies show the (un)importance of counterparty ratings when concluding derivatives contracts. The huge majority of companies do not have a clearly defined orientation in this field, which indicates they are not fully aware of the credit risk linked to it (Bodnar and Gebhardt 1998; RCEF-IFI 2005).

An important element of financial risk management is determining the level of possible influence of financial risk on the business results of a company. One of the financial risk valuation methods available to companies is the value-at-risk approach – VAR. Value at risk is the anticipated loss a company could suffer in a given time period and the given risk degree due to the fluctuation of risk factors in business – non-financial companies most often define their confidence level at 95%. Value at risk is determined on the basis of amounts of resources, debts and capital exposed to different risk factors regarding the historical variability of a given risk factor (Jorion 2005).

The measurement of value at risk for a given type of financial risk reveals a possible negative influence or the importance of particular risk exposure on the business outcome. Value at risk should therefore be measured before any risk management programme, it should determine the possible loss in the case the company does nothing. It is then illustrative to measure the value at risk again after the risk management programme has been carried out. In such a case, with a consideration of the instrument protecting the hedged item, the value at risk should of course be lower. The measurement of value at risk before and after hedging measures determines the accuracy or efficiency of the hedging decision. A company can take decisions about hedging instruments on the basis of such a test.

Slovenian companies did not prove to be very successful concerning the question about their methods of assessing financial risk. The value-at-risk approach is used by only 21% of Slovenian companies, while the figure for their US peers is 56% (Bodnar and Marston 1998).

Slovenian companies also only unsystematically and rarely assess the value of their derivatives. While a quarter of the US companies and almost half of the German ones assess the value of derivatives at least weekly, there is only one-fifth of such companies in Slovenia. Almost one-half only carries out an assessment when necessary or has not determined its frequency (Bodnar and Gebhardt 1998; RCEF-IFI 2005).

Case Study – Hedging against Raw Material Price Fluctuation with a Forward Contract

With this case study we present a practical example of the use of derivatives under a hedging programme.[11] It presents all important elements that a company has to define and the steps that have to be taken to attain its purpose regarding hedging against a certain type of risk. We selected the case of hedging against price fluctuations of the key raw material of a notional company, AluXiX, Inc., which is exposed to two fundamental risk factors due to the nature of its business, namely to raw material price fluctuation risk (aluminium) and exchange rate risk.[12]

The valuation, revaluation and tax treatment of financial instruments depends on the type and intended use and we therefore expose them immediately in the continuation. Further on, it depends on the business and accounting policies how financial instruments will be recognised and derecognised in the company's assets and liabilities. In the hedging process financial instruments are broken down into hedged items and hedging instruments. Likewise, non-financial assets can appear in the hedging relationship, which are hedged against risk factors with financial instruments.

All derivatives are measured at their fair value, while other assets or liabilities of the company can be measured differently. The company's assets and liabilities that are hedged items and appear in hedging relationships have to be measured at their fair value just like hedging instruments. The attainment of the planned profit or loss is also thereby assured, besides the correct selection of the hedging instrument, which is reflected in attainment of the planned cash flow. Determination of the fair value depends on the market as the trading place and on the availability of information on trading (Peterlin 2005).

TYPES OF HEDGING RELATIONSHIPS

Three basic types of hedging relationship are defined in the IAS and IFRS – a fair value hedge, a cash flow hedge and a hedge of a net investment in a foreign operation.

A *fair value hedge* is a hedging relationship where a hedged item is already recognised in the company's assets or liabilities, or else there is a firm commitment to conclude an agreement. In this case, the hedged item and the hedging instrument are measured at fair value, and revaluation adjustments are offset in profit or loss. Hedge effectiveness is measured as an offset rate of revaluation adjustments of the hedged item with

revaluation adjustments of the hedging instrument. If the offset is 80% or more, it is considered that the hedge is effective and the company can continue hedge accounting.

A *cash flow hedge* means that the hedged item is not recognised in the company's assets or liabilities, and therefore revaluation adjustments of the hedged item cannot offset revaluation adjustments of the hedging instrument. In this instance, revaluation adjustments of the hedging instrument are recognised in equity, and the hedging relationship is transformed to a fair value hedge upon recognition of the hedged item, and capital revaluation adjustments are transferred to profit or loss, and revaluation adjustments are accounted for in profit or loss until derecognition of the hedging relationship.

A *hedge of a net investment in a foreign operation* presents a hedge of a capital contribution in an associated undertaking against the changes of the fair value of equity due to exchange rate changes.

Each hedging relationship is subject to an assessment of the hedge effectiveness.[13] Effectiveness is very important for the cash flow hedge, as the effectiveness threshold defined in the standard also represents the threshold of special accounting/tax treatment. So long as the hedge is effective, the revaluation adjustments of the hedging instrument can be recognised in equity, but if the hedge is ineffective, revaluation adjustments are recognised in profit or loss and are subject to taxation. The type of hedging relationship determines the recognition of the hedging relationship and we therefore must also determine the criteria for derecognition of the hedging relationship.

The objective of hedge accounting for the hedging relationship is the fair presentation of the company's profit or loss and assets. When derivatives were not subject to accounting, only hedged items (at that time without this definition) were the subject of revaluation, and a hedging instrument could not offset adjustments. Therefore, the influences on the tax base were unfair and accounting statements did not disclose a company's fair value (Peterlin and Glavina 2007).

RULES ON FINANCIAL INSTRUMENT ACCOUNTING AND CONTROL OVER THE FAIR VALUE MEASUREMENT OF DERIVATIVES

In the Rules on Accounting it is recommended that financial instrument accounting and hedge accounting should be accorded a special chapter. Besides that, we also define the organisational, operational and manage-

rial responsibilities of the finance department team. The company management is responsible for the fair value measurements and disclosures in the accounting statements. In order to fulfil its obligation, it has to: determine the fair value measurement and disclosure procedure; select the corresponding method to estimate (determine) the fair value; form starting assumptions for establishing the fair value and prove them correspondingly with evidence; prepare the fair value estimate, and assure that the fair value measurements and disclosures are in accordance with the accounting standards.

Many measurement methods based on estimates, including the fair price measurement, are inherently imprecise. In the case of fair value measurements, particularly those that do not involve contractual cash flows or for which market information is not available when making the estimate, the estimates often involve uncertainty in both the amount and timing of future cash flows. Fair value measurements may also be based on assumptions about future operating conditions or events whose outcome is uncertain and will therefore be subject to change over time.

Fair value measurements and disclosures underlie the audit which is addressed in ISA 545 and IAPS 1012 (IFAC 2003a; 2003b). This standard provides guidance on audit considerations relating to the measurements, the presentation and disclosure of material assets, liabilities and specific components of equity that are presented or disclosed at fair value in financial statements. The auditor should obtain sufficient appropriate audit evidence that the fair value measurements and disclosures are in accordance with the accounting standards.

The essential disclosures of financial risks and measures for financial risk management are disclosures of exposure to certain types of risk, fair value measurement, risk management policy and hedging measures, and time limits and circumstances connected with financial instruments, and disclosures of accounting policies.

AN EXAMPLE OF A HEDGE AGAINST RAW MATERIAL PRICE FLUCTUATION WITH A FORWARD CONTRACT

In August we need 100 tons of aluminium. In May we conclude a contract at market prices with the supplier for the delivery of 100 tons on 20 August. At the same time, we conclude a forward contract with a financial organisation for the purchase of 100 tons of aluminium at 1,615.50 USD/t. In this way we have assured the aluminium price in advance and obliged ourselves to pay USD 161,550 for 100 tons of aluminium in August.

TABLE 1   Calculation of VAR for the period from 20 May 2004 to 20 August 2004

Item	Quantity	Value	USD
1. Nominal value	100	1,605	160,500
2. Daily aluminium price volatility in USD (250 days; i. i. d.)		1.10%	
3. Daily exchange rate volatility EUR/USD (250 days; i. i. d.)		0.67%	
4. Daily aluminium price volatility in EUR (250 days, i. i. d.)		1.44%	
5. Conclusion	20 May 2004		
6. Maturity	20 August 2004		
7. Working days		63	
9. Risk rate	5%	$z = 1.65$	
10. VAR (aluminium in USD)	14.3% HI		23,023
11. VAR (exchange rate EUR/USD)	8.8% HI		14,083
12. VAR (aluminium in EUR)	18.9% HI		30,269

NOTES   HI – hedged item.

We decided not to hedge against EUR/USD exchange rate fluctuations.[14]

It must be emphasised that we consciously decided not to hedge against the USD exchange rate, even though it would have been appropriate. Thus, we can distinguish between a non-hedged liability for the purchased aluminium in USD, and a hedged aluminium price. They could both be hedged and the hedged item would have two hedged risk factors. This time we hedged only against an aluminium price fluctuation. The influence of an individual risk factor on the company's cash flow and profit or loss can thereby be shown more clearly.

Activities on 20 May 2004

First we precisely define the risk factor – and in our case this is the price of aluminium. We first analyse historical aluminium daily price movements from 20 May 2003 to 20 May 2004 in order to estimate its volatility. Aluminium prices are expressed in USD. For this reason we also analyse movements in the EUR/USD exchange rate in the same period.

We only want to hedge against aluminium price fluctuations, but in spite of this we estimate the risk position that arises from the volatility caused by individual risk factors linked with a firm commitment to purchase 100 tons of aluminium (table 1).

Value at Risk (var) is the expected loss a company could suffer from the impact of the volatility (fluctuations) of risk factors in operations, calculated with pre-determined probability and in a precisely defined time period based on assets, liabilities and equity, exposed to an individual risk factor, regarding the risk factor volatility. Historic data are used for the calculation and therefore the current market situation and rational expectations have to be considered.

Accounting standards state that a company must prove the asset or liability risk that it would like to classify in the hedging relationship, and var is the appropriate tool to achieve this. With this tool we can also verify the correctness of our decision about a hedge as the var of the hedging relationship must be significantly lower than the var of the hedged item, otherwise we may have doubts about the economic value of such a hedge.

Concluding a forward contract, we prepare an annex to the contract in which we define the hedging relationship. We also prepare a document which proves that the hedging relationship is appropriate for hedge accounting. The document's contents must comprise at least:

- The objectives and the purpose of hedging: Guidelines for financial risk management that the company's top management approved on 15 February 2002 precisely define the hedging objectives and strategy of a firm commitment.
- Definition of the hedging relationship: The form with sequence number 13 is an annex to the contract and contains a definition of the hedging relationship.
- Assessment of hedge effectiveness: It is expected that the hedging relationship will be very effective as the forward contract is concluded for the purchase of the same quantity and same type of raw material as agreed in the transaction that is a hedged item. The fair value of the forward contract upon conclusion of the contract is zero.

In the strategy of financial risk management the company AluXiX, Inc. has defined its methods for measuring hedge effectiveness. On concluding a (prospective) hedging relationship we need to estimate whether the hedge will be effective all the time. In our case it should be, as the nominal amount of the forward contract is equal to the purchase agreed in the contract (100 tons of aluminium), and the day of ending the forward contract is the same as the aluminium delivery date in the purchase contract (20 August). Since we do not prepare accounting statements be-

TABLE 2   Definition of the hedging relationship (Annex to the Contract)

Hedging instrument	
Annex number	13
Name of financial instrument	Commodity forward contract
Description of transaction	Forward purchase of aluminium
Conclusion date	20 May 2004
Maturity date	20 August 2004
Instrument concluded by	Company AB, d. d.
Forwards rate	1,615.50 USD/t
Transaction right	Receipt of 100 tons of aluminium
Liability arising from the transaction	Payment 161,550 USD
Hedged item	
Period of exposure to (hedged) risk	20 May 2004–20 August 2004
Definition of a hedged item	A firm commitment to purchase 100 tons of aluminium
Hedge against risk	Aluminium price fluctuation risk
Hedge type	A fair value hedge of a firm commitment

tween the day the hedging relationship is concluded and the day it ends, we will estimate the hedge effectiveness between them (retrospectively) by comparing the change in the fair value of the firm commitment and the forward contract. We expect to achieve a 100-percent offset. We only consider changes in the fair value of the firm commitment and the forward contract that were caused by aluminium price fluctuations. We do not hedge against the EUR/USD exchange rate risk and the influence of this risk on the value of the firm commitment, and the forward contract is disclosed directly in profit or loss (we do not use hedge accounting).

On 20 May the forward contract is not recognised in the balance sheet as the net fair value of the forward contract right and liability is zero.

Activities on 20 August 2004

We first analyse the price situation in the market and establish that the aluminium price has considerably increased since the contract was concluded with the supplier.

First we evaluate the change in the value of the firm commitment that appeared in the period under consideration due to the impact of the risk factor that we hedge against (the aluminium price). As the value of the

TABLE 3   Value and change in the fair value of the firm commitment

Date	Value of firm commitment
20 May 2004	EUR 138,741
20 August 2004	EUR 131,416
Difference (exchange rate)	EUR −7,325
20 May 2004	USD 161,550
20 August 2004	USD 172,000
Difference (aluminium price)	USD 10,450
Difference in EUR	EUR 8,501
Net change (total)	EUR 1,176

firm commitment is also exposed to the risk of changes in the EUR/USD exchange rate, we estimate the changes in the fair value of the firm commitment that can be attributed to changes in the exchange rate. This separate valuation of changes in the fair value of the firm commitment is obligatory, as the purchase value of raw material upon recognition (when the firm commitment is made) is adjusted by the amount of accumulated changes in the value of the firm commitment that can be attributed to the risk that we hedge against. The forward contract is measured at fair value. The value of the firm commitment has changed by EUR 7,325 due to changes in the EUR/USD exchange rate. This further means that our liability to the aluminium supplier decreased due to the influence of this factor. In the same period the value of the firm commitment changed by EUR 8,501 due to the aluminium price fluctuation. This means that our liability to the aluminium supplier increased due to the influence of this factor. Aluminium price fluctuations and changes in the EUR/USD exchange rate led to an increase in the value of the firm commitment (liability) by EUR 1,176.

The presented analysis of changes in the value of the firm commitment is also used for estimating changes in the fair value of the forward contract, except that the direction of changes is the opposite. The exchange rate decreased the value of the forward contract, but the aluminium price fluctuation increased it; the net change is the increase in value by EUR 1,176.

In respect of accounting treatment, it is important to bear in mind the following activities and accounting:

- The change in fair value of the firm commitment (EUR 1,176) is

recognised in the balance sheet and correspondingly in profit or loss.

- We received the purchased raw material. The aluminium price on the invoice date is 1,720 USD/t. The transaction is valuated at this price and calculated to EUR at the spot rate, which is 1.2293 EUR/USD. This event is the basis for charging the raw material inventory and for disclosing a liability to the supplier.

- We adjust the purchase value of the inventory by the amount of the value adjustment of the firm commitment that can be attributed to the risk of an aluminium price fluctuation. The change in the value of the firm commitment, which can be attributed to the risk of changes in the EUR/USD exchange rate, is recognised in profit or loss.

- We recognise the change in fair value of the forward contract in the balance sheet and correspondingly also in profit or loss.

- We settle the forward contract with the counterparty. From the counterparty (the company AB, Inc.) we receive USD 10,450, which can be converted to EUR 8,501 on the spot market.

- We close the account of the forward contract and transfer the difference between EUR 8,501 and EUR 1,176 EUR to profit or loss. This difference was caused by the change in the EUR/USD exchange rate.

- Then we assess the hedge effectiveness in the period between 20 May and 20 August.

- We record a payment to the supplier (USD 172,000) and present the exchange rate differences from 20 May to 20 August 2004. On 20 August 2004 the EUR/USD exchange rate is 1.2168.

The influence of the net change in the fair value of the firm commitment and the forward contract in respect of aluminium price fluctuations on the profit or loss of the company AluXiX, Inc. is thus zero. The decision not to hedge against the exchange rate risk meant that the fall in the USD value had a direct influence on profit or loss as it was not covered by the hedging relationship – through positive exchange rate differences. The change in the value of the firm commitment that appeared due to the risk impact that we hedged against (the aluminium price) neutralised the increased purchase value of the aluminium raw material, which would impair profit or loss. We achieved the purchase price that we established on 20 May, i. e. 1,615.50 USD/t, which is USD 161,550 or EUR 131,416 on 20

August 2004. The hedging objective has been. Namely, the planned cash flow was realised, regardless of the aluminium price volatility.

Conclusion

Modern firms increasingly analyse and manage risk. They detail risk management strategies and put substantial efforts into communicating them with their various stakeholders. It is nowadays common that firms disclose information about internal control mechanisms, critical assessments of crucial assumptions, the valuation of exposures and perceived as well as accomplished effects of hedge activities. One reason for these increased activities are the corporate debacles seen in the last few years and the strengthened supervision of various stakeholders. The second reason reflects the recently reshaped regulatory framework.

There are two main theories explaining corporate risk management behaviour. The first one is based on the shareholder wealth maximisation premise, whereby managers optimise the tax burden, minimise the cost of financial distress and try to avoid the underinvestment problem. The second one rests on the classical principal-agent relationship between shareholders and managers. According to the identified fact that even Slovenian blue-chip firms have only recently started to use basic instruments to hedge their exposures, one may suspect that the shareholder wealth maximisation theory is more of a reality than the agency theory in Slovenia. Therefore, Slovenian managers are only after some starting years expected to push through less risky projects in order to hedge their own non-diversifiable employment risk.

The use of derivatives among Slovenian firms is gaining in importance, although even banks were recently found to be poorly equipped for such tasks. Reasons for such a moderate scope are: wrong perceptions about derivatives hedging and trading activities, the low level of flexibility of products and insufficient IT support, the small size of the domestic financial market and a lack of knowledge.

Slovenian firms predominantly use derivatives to hedge their foreign exchange exposure which also holds for their US and German peers. The second most frequent is interest rate exposure, and only in third place – and much less often addressed – is commodities exposure. A comparison by type of risk shows that foreign exchange exposure is being dealt with by forward contracts, followed by options and only then by swaps. The far most frequent instruments to hedge interest rate risk are swaps, however. Although very similar in these characteristics, Slovenian firms lag

behind us and German ones in terms of the established and approved procedures and documentation policies. According to this finding, the fact that there are no established rules regarding the rating of a derivative transaction counterparty should not come as a surprise. In addition, Slovenian firms lack frequent financial risk exposure measurement, e. g. var as the most commonly used measure of exposure is only used rarely and only by some responding firms (21 vs. 56 percent among us firms).

Although the same set of questions was posed in the three surveys which enabled direct comparison of financial risk management practices one should bear in mind some potential shortcomings. Firstly, Slovenian firms are much smaller than their us and German counterparts. According to the impact of fixed costs of a hedging programme they are more restricted from the economic point of view. Secondly, results of the comparison depend heavily on institutional setting, potential different macroeconomic positions and circumstances in financial markets and their closely related markets in times of conducting a survey. Exposures and thus requirements to hedge are by all means dependent on industry characteristics. However, the three surveys do not allow testing for the differences of financial risk management practices among various industries. Testing for those differences would require the inclusion of a much larger number of companies.

To address the use of derivatives from a practical viewpoint and to encourage Slovenian firms to grasp this efficient risk management tool-kit, we presented a specific case study that discussed all cornerstone accounting, and valuation aspects and shed light on the appropriate documentation and supervision issues. Hedging only commodity risk, despite the fact that a commodity is quoted in a foreign currency, is chosen so that the reader can better grasp the notion of the interplay of the two risk drivers in a single transaction. The case study provides a strong incentive to hedge, as real-world numbers show that derivatives (when properly used) can substantially reduce the volatility of a firm's cash flows and profit, which is the primary motivation for engaging in risk management activities.

Notes

1 See Financial Operations of Companies Act (Zakon o finančnem poslovanju podjetij), Art. 9, and Companies Act (Zakon o gospodarskih družbah), Art. 70.

2 The survey was carried out with the co-operation of the Slovenian Insti-

tute of Auditors and the Research Centre at the Faculty of Economics of the University of Ljubljana.

3 In 2000, there were only two companies out of twenty-one that had confirmed the use of derivatives had actually started using derivatives (RCEF-IFI 2005); in 2001, there were three companies, five in 2002, three in 2003 and one in 2004.

4 In years with high taxable profits a higher marginal tax rate is applied, and a lower one in years with lower profits. If the rates are progressive the variability itself induces the use of too high rates and therefore a higher amount of tax paid. Because of the more than linear growth of the marginal tax rate and the tax, the term convex tax schedule is used.

5 The costs are direct (court expenses, legal expenses etc.) and indirect, opportunity costs – the costs of missed opportunities and costs of lost confidence.

6 As the company is less risky, its creditors require lower profitability.

7 The advocates of this theory argue that internally produced funds – net operating cash flow – are the most important source of capital.

8 Because of the difficulty of determining which companies are most exposed to financial risks (thus taking into account the exchange, interest and price volatility of commodities), only exposure to foreign exchange was considered.

9 Only seven Slovenian companies responded to the question about the hedging of commodity price volatility risk.

10 The question inquired about the lowest ratings of a counterparty (financial institution) with which the company would conclude a derivative contract.

11 Accounting treatment is based on IAS 39 (Commission Regulation (EC) No. 1751/2005; Commission Regulation (EC) No. 1864/2005; Commission Regulation (EC) No. 2086/2004; Commission Regulation (EC) No. 2106/2005) and IFRS 7 (Commission Regulation (EC) No. 108/2006).

12 This is a Slovenian company which operates in EUR, and the aluminium price in the global market is listed in USD.

13 The method for performance measurement has to be stated in the accounting policy and the accounting rules.

14 The particularity of the case lies in the separation of risk factors, even though the factors are logically linked. The exclusion of USD, in which aluminium is listed, as the hedged item, means that USD is left to speculation and only the aluminium rate is hedged. In the valuation of a hedged item we distinguish changes in its fair value due to individual risk factors, and in the hedging relationship we include only such risk factors that we decide to hedge or secure.

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Risk and Efficiency in Credit Concession: A Case Study in Portugal

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The relationship between banks and customers has contributed to several theories in banking economics. The quality of the credit is crucial for banks. Banks classify the risk through quantitative and qualitative indicators. Quantitative indicators are much used by banks, but qualitative indicators are also considered in credit risk evaluation. Taken together, they contribute to increase efficiency and decrease doubtful credit. Several issues arise in order to understand if risk evaluation affects the efficiency of the banking sector or if it affects the bank customer relationship. We wish to analyse some quantitative and qualitative indicators used by the Portuguese banking system. Despite the reputation of a client being a very important qualitative indicator, it is not enough to determine a classification of low risk.

Key Words: credit, banks, bankruptcy, risk
JEL *Classification:* E51, G21, G32, G33

Introduction

The relationship between banks and firms occupies an important place in the economic and financial literature. On the other side, the relationship between banks and households has not been the subject of so many studies, and several times it has been covered by the same studies of the firms. More recently, and because indebtedness of the households is a concern by the government authorities, some research in this area has been developed, studying the reasons for and consequences of debt in the families. Moreover, there is an important part of the credit for micro enterprises, confused with the credit to households, either by the kind of credit or by the guarantees required.

The household customer is defined in this study as families whose credit is used in their private spending. This is more specific than in

much literature about the subject, which covers companies and citizens, and standardize the term 'private' to refer to what is non-public. For the nature of the credit granted, this concept has been sub-divided into credit to housing, consumer credit and credit for other purposes. In the credit to firms, often the subdivision is made by the temporality of credit, being the long-term concept primarily intended for investment and the short/medium term for the current operations of the business of the firm.

To differentiate household customers from other customers is important in banking activity, because their behaviour differs from the firms'. The banks themselves take different attitudes to these two kinds of customers. Moreover, in industrialised countries, the total amount of credit granted to individual customers is not less important than that granted to firms, particularly for long term loans. Considering the dichotomy between credit to businesses and credit to individuals, and according to statistics of credit granted by the Portuguese Association of Banks (Associaçao Portuguesa de Bancos 1994; 2006), credit to firms in nominal values tripled between 1993 and 2005, while the credit to households is eight times more in the same period. While in 1993 the ratio 'credit to firms/credit to households' was 2.29, in 2005 the ratio stood at 0.97, and the credit granted to the households has exceeded the credit granted to firms after 1999.

One of the problems arising from the growth of credit to individuals has been the over-indebtedness of the households. The involvement of citizens in demand for credit has resulted, on one side, in the decision of each individual for credit and the consequent offer of banking products to this segment of the market and, on the other side, by the general conditions of the economy. Although the Portuguese economy has shown signs of over-indebtedness, indicators of doubtful credit had not increased significantly in recent years until 2007, which led us to assume a high degree of efficiency in the credit risk evaluation. In 2008, as a consequence of the financial crisis, doubtful credit increased in both segments of the market.

This article reviews the criteria for granting credit to firms and households and analyses differences of each one. We evaluate the efficiency of banks in the assessment of credit and determine the importance of qualitative and quantitative indicators.

The paper is structured as follows: the next section reviews the economic principles of the role of the intermediation in the contracts be-

tween banks and firms or between banks and households. The third section is dedicated to empirical analysis of the indicators of risk of credit. The fourth section concludes the paper.

Literature review

THE ROLE OF BANK INTERMEDIATION

Several theories of intermediation have developed the relationship between banks and firms in an environment of asymmetric information. Banks impose several incentives in order to solve problems of moral hazard (Allegret and Baudry 1996). According to Stiglitz (1985), the principles of the theory of intermediation are based on the inability of financial intermediaries to obtain the necessary information in a climate of uncertainty and the inability of banks to control effectively the risk taken by the borrowers. Gorton and Kahn (1993) show the interest of the financial intermediary to take credible procedures, considering a package of incentives in the contract.

According to Allegret and Baudry, three structures can be observed in the relationship between banks and firms: (1) market relationship (2) hierarchical relationship, and (3) relationship of quasi-integration. The market relationship (1) is characterized by a greater flexibility in the relationship and a lack of control by the bank on the quality of information provided by the firm. In the market, the loyalty observed in the relationship between banks and firms does not seem very important. The bank diversifies its portfolio of clients and the firm diversifies its sources of funding. In this case, the firm can get into greater difficulty when starting its activity with investments that have a certain degree of risk. Bad credit penalties are required by the market itself. It is essential that the bank establish statistical tests over data provided by the firms whose results can justify the restriction of credit. From the opposite side, there is the hierarchical structure (2). In this case the bank has ability to carry out audits over the firm. Financing structure is marked by the dependence of the firm on the bank. By diversifying banking products and services offered to the firms, the bank can monitor more closely the activities of the firm. Financial intermediaries occupy the central part of the system. The firm, under this structure, maintains a privileged relationship in the long term with a bank (the principle of authority). On the other side, the bank obtains the right of interference in the management of the firm. Banks, in this case, take control in the management of important sectors of the firm: they can monitor and collect information about the firm,

as lenders as well as shareholders. The exchange of information between them is very strong. Finally, the structure of quasi-integration (3) corresponds to the usual customer relationships with the banks. This structure is a combination of the two other principles, particularly about the need to create incentives and provide attitudes of confidence. For the firm, the importance of this structure is justified by the durability of the relationship. Consequently, the relationship is not based on a pricing system as the market structure indicates, or by a kind of administrative authority, as in the hierarchical structure model. The support of this kind of relationship is based on the fact that information is expensive and because of that it should be shared by all the players. The information is the basis of the relationship and its potential efficiency. Firms can have a relationship with several banks, but only one has the role of the main bank. If the firm wants to change bank, this attitude will be considered as a sign of alarm for the bank.

Considering research on consumer credit, the life cycle model of Ando and Modigliani (1963) should be mentioned. According to this model, consumers choose a path of optimal consumption for their lives. Thus, younger consumers borrow more, expecting to re-pay debt with future revenues. On the other side, middle-aged consumers prefer to save for their retirement needs. Therefore, the level of consumption is chosen, based on the expected total income for life without being limited by the time at which the income is expected to be available. Note that present resources of a family are the result of income from the past and do not reflect the potential future income of the family. This means that, in a perfect world, there are no over-indebted consumers. It is assumed that the permanent income of the consumer depends on their age, current income (or in cases where there is no data about their income or debt, the consumption value can be used as a proxy for income or debt), size of the household and possibly the education level.

THE VALUE OF CONFIDENCE IN THE RELATIONSHIP BETWEEN BANKS, FIRMS AND HOUSEHOLDS

According to Gambetta (1988), confidence is defined as a level of subjective probability where an agent evaluates the action to be produced by another agent, in a context where his own action is also evaluated by the other. Confidence solves complex problems resulting from the relationship and reduces, to some extent, the climate of uncertainty where the relationship is developed. Uncertainty dominates some procedures in the contracts because the markets are imperfect considering the in-

formation shared by the players. The contracts are incomplete because it is not possible to consider all the states of nature underlying the completion of the contract at the time of the negotiation. The confidence is born from the relationship established by the agents. But what gives confidence? The geographical proximity of contractors increases the feeling of belonging to the same community, which may contribute to the resolution of the contract. The banks that maintain a close and long-term relationship with customers are supposed to have a particular attitude to these customers. For instance, confidence between players supports an attitude for helping, in temporary difficulties the payment of debts. If a client faces temporary financial problems and the bank refuses help to overcome client difficulties, this attitude will destroy the trust and benefit assessment of the long term relationship. According to Allegret and Baudry (1996), a firm that does not repay its own debt when it falls in temporary difficulties can receive some support from the bank. However, the bank expects that the firm undertake efforts to resolve their difficulties.

The relationship between banks and customers has registered significant changes in recent years. Technological development has facilitated access to information and contributed to increase the flow of capital between countries. At the same time, this flow of capital accelerates the participation of banks in credit. The spread of financial markets and the intervention of foreign investors in domestic markets have contributed to increase the role of banks in the management of these movements. In response to the growth of financial markets in the world, banks have developed several services, providing analysis and advice, providing new banking products, managing investment portfolios, providing credits for investment in stock market, etc. Moreover, one of the most important consequences is the intensification of bank competition, expressed by a reduction of its financial margins. Consequently, the banks have diversified financial instruments, as with new saving products and with new credit products.

THE QUALITY OF THE CREDIT

A problem of the relationship between banks and clients, with firms as well households, is the quantity and quality of information required by the banks to be provided by their customers. Information is shared among economic agents and that obligation is usually formalized in the contract. There are asymmetries of information in the relationship between customers and banks. According to Diamond (1989), it is neces-

sary to ensure the transmission of information. When a customer requires a loan, he or she communicates information to the bank. However, the loan is always a repayment to be made in the future, which makes it difficult to fully ensure the completion of the loan in advance. The bank may face a situation of moral hazard and the probability of non-reimbursement increases. However, with the information obtained, the bank gets an advantage that will allow the bank to examine conditions for future loans. The quality of the information submitted by the customer is essential. Therefore, the information is usually formalized by an increase of guarantees provided by the client and the evidence of audits performed regularly gives more confidence to credit.

The quality of credit is also crucial for banks. Some of the problems faced by banks are connected with financing of high risk projects. Canals (1997) classifies the difficulties registered by the banks into two groups: cyclical reasons (economic recession, high loans ratio etc) and structural reasons (low financial intermediation, globalisation of markets and financial innovation). The analysis of risk and control of the credit are thus fundamental for banks.

Despite the supervision of banks, loans are always risky. Competition between banks has led banks to take more aggressive strategies that increases risk in their credit portfolios. On the other side, the existence of asymmetries of information has led the banks to increase administrative costs of supervision. Sometimes, clients have the advantage of being able to hide internal information. Several studies examine the conditions of an optimal contract. Eber (1996) discusses the conditions of a contract in a long-term relationship with the firm. Mojon (1996) considers the optimal contract, at the time the credit is requested, through the interest rate negotiated with the bank. Stiglitz and Weiss (1981) analyze the optimal contract agreement with the existence of collateral. Diamond (1991) based his analysis on the ability of the banks to supervise the activity of the firm. Pollin and Vaubourg (1996) analyse repeated contracts, which are signed between the firm and the bank.

Empirical studies show that there is an optimal ratio for doubtful credit, which should not exceed 3% of total credit (Sousa 1992). However, doubtful credit cannot be totally eliminated because a full analysis of the credit is too expensive. However, should investment banks accept a higher proportion of doubtful credit? Investment banks have fewer possibilities to diversify their credit portfolio and, consequently, this can increase diversifiable risk.

In the credit market, there are borrowers with a very low risk profile, a second group with a medium risk profile and a third group with a high risk profile. Banks know only an estimate of the proportion of customers in each group. The first group, probably doesn't need a high level of monitoring. The third group, on the other hand, has nothing to lose with an ex post revelation of their situation. Thus, the monitoring is now perhaps more effective in the second group of customers. The existence of doubtful credit in all groups of risk should occur because banks do not know ex ante the group in which the customer should be classified. Moreover, should the banks get benefits in decreased monitoring in order to face a very competitive market? Is the rapid expansion of credit, which has occurred in the last ten years, the result of decreasing procedures in credit risk evaluation?

ASSESSMENT OF CREDIT AND RISK

Some empirical and theoretical studies about the risk of credit can be resumed in the use of two kinds of tools. One is more targeted for quantitative analysis, as in the study by Rosenwald (1998), and the other for descriptive analysis, basing the analysis on qualitative indicators, as per Milewicz (1991). That distinction still persists in more recent studies. Some authors, such as Mihai (2003), Cossin and Pirotte (2001) developed their mathematical models following distributions of probabilities and relatively complex mathematical formulae to determine the risk. They conclude that property values are the best indicators to determine the risk. Other authors, such as Mallick, Chakraborty, Cresenta (2002), claim that past behaviour, reputation and the importance of recognized persons, associated with personal wealth are determinants in the bank-customer relationship. When a bank decides to limit the credit, risk perceived becomes more important than calculated risk. However, the existing literature seems more abundant with regard to the study of credit to firms than to private customers.

The increase of credit in Portugal has been a study for many authors, such as Japelli and Pagano (2000), Blanchard and Giavazzi (2002), Spiegel (2004), and Brzoza-Brzezina (2004).

Blanchard and Giavazzi (2002), describe the large increase in credit in Portugal as a 'natural' result of the growing international integration, with a more free flux of capital from rich countries to poorer ones. The increase in confidence in the Portuguese economy after the entry of Portugal in to the European Union resulted in more foreign investment in

Portugal. Increases in the amount of credit were also a result of the dynamic of the Portuguese economy and a consequence of decreasing interest rates and inflation.

Some recent empirical studies suggest that the marginal propensity towards consumption (MPC) is in decline in many industrialized countries. Considering the standard model of representative consumer, there are two factors apparently not correlated, which, according to Bishop and Park (2004), are closely linked. The trend of the decline of recent MPC coincides with the reduction of restrictions on credit. At first glance, this should not happen. Curiously, there is a consumption decrease when debt grows, especially derived by the use of credit cards. The explanation is the decrease of income. The current proliferation of credit cards makes current consumers less responsible than the previous generation about marginal propensity to save. Nowadays, there is a greater facility to borrow, and because of that, consumers are better prepared to face some temporary crises in their income or face occasional increases in household expenditure.

Empirical research

METHODOLOGY

The methodology is based on the achievement of two surveys to banks, one on the assessment of credit to firms and a second on the assessment of credit to household customers. These two surveys were made by the authors at two different times. In this paper, we wish to make a joint reflection on the problem of risk in the assessment of credit to firms and households. The methodology of the survey and collected data is identical in both researches.

In the survey to the banks, about the methodology to determine credit's risk to the enterprises, 27 banks responded out of a total of 52 banks registered in the Portuguese Association of Banks. From the 27 banks that responded, 13 were universal banks, 10 investment banks, and 4 were foreign banks operating in Portugal. In the second survey, on the methodology to determine credit risk to household customers, there were only 20% of the banks that participated in the survey. Note, however, that investment banks were not included in this second survey.

QUALITATIVE AND QUANTITATIVE INDICATORS

Banks use quantitative and qualitative indicators to evaluate credit for firms as well as for household customers. The first ones show the per-

formance of the firm or the financial strength of the household, and the second indicators normally reflect the quality of management, the reputation of the customer.

The importance of qualitative indicators is founded on the assumption that signs of past or present financial soundness may not be sufficient to ensure future payments. In this case, the reputation of the customer becomes important and reflects the conditions of credit in the contract.

The main quantitative indicators used by banks in the assessment of credit risk for firms are: sales; cash-flow generated by the firm; cash-flows obtained by the business, financial charges, salaries and social charges; financial autonomy; capacity for repayment of loans; debt to the public sector; debt to other banks; existing mortgages.

The main qualitative indicators are economic and social ones, such as the location of the business, if the firm is already classified as a privileged client; market reputation for goods or services sold by the firm; labour policies; seniority of employees, labour conditions; past commitments and firm's strategy; credibility of future commitments; redistribution of profits strategy; innovation; ability to innovate equipment or procedures, etc.

For credit to households, quantitative indicators considered in the survey are: household revenue; historical bank balance sheet of the customer; customer wealth in general; patrimony; mortgages; savings accounts and insurance; failure of payment to other banks; taxes default; past loans; collateral warranties; potential charges with commitments For qualitative indicators: reputation and credibility of the customer; opinion of the account manager of the bank; honesty; occupation; employment conditions; education; age; reputation and financial capacity to face difficulties; marital status; number of members of the household, etc.

We are interested to analyse the banks that give importance to qualitative indicators in order to understand the importance of these indicators in the credit evaluation. In a first attempt to understand the importance of risk indicators in credit analysis, we have interviewed managers of three banks, which have explained the methodology applied by the banks to evaluate credit risk. The first perception was that quantitative indicators have more importance in the credit risk analysis than qualitative indicators. For the classification of banks into universal and investment banks we have followed the Portuguese Banking Law that transpose sthe

TABLE 1   Banks classified by the importance given to quantitative indicators (%)

Group 1 (more than 80% of the evaluation of quantitative indicators)	22
Group 2 (from 60 to 80% of the evaluation of quantitative indicators)	52
Group 3 (more than 40% of the evaluation of qualitative indicators)	26

TABLE 2   Distribution of banks in accordance with the activity and the weight given to quantitative indicators

Banks	Groups 1 + 2 (%) ($Q \geq 60\%$)	Group 3 (%) ($Q \leq 60\%$)	Total Banks
Public banks	100	0	2
Private banks	71	29	21
• universal banks	63	37	11
• investment banks	80	20	10
Foreign banks	75	25	4
• universal banks	100	0	1
• investment banks	66	34	3

NOTES Q – percentage of quantitative indicators given to credit risk evaluation.

EEC Directive 92/30/EEC into the Portuguese banking regulation. For foreign banks we have considered the banks that have representative offices in Portugal.

Thus, given that information and data on the assessment of credit to firms, the banks were classified into three main groups:

- *Group 1:* this group gives high importance to the quantitative indicators in the analysis of credit risk. These banks allocate more than 80% of the weight to quantitative indicators and less than 20% to qualitative indicators.
- *Group 2:* this group gives more importance to quantitative indicators, but less than the previous ones. The banks included in this group score between 60% and 80% for quantitative indicators.
- *Group 3:* this group gives more importance to the qualitative indicators in the analysis of credit risk. The banks included in this group score over 40% of qualitative indicators.

In accordance with the results of the survey, the percentages, given to the evaluation of credit risk to households were 54% for quantitative indicators, while for qualitative indicators they were about 46%. Quantitative indicators continue to gain a stronger weight in the evaluation of

credit risk of the households. The most referred are: the total amount of past credit, average balances of customer accounts, and household revenue. Larger banks favour the quantitative indicators, giving a weighting of 75%. Smaller Banks have a more equitable balance between quantitative and qualitative indicators.

In accordance with the importance of credit given to individual customers, mortgage credit is the most important, followed by credit for consumption and credit applied to other property such as cars. Also important is the credit applied to small investments to support participation in financial markets or support participation in small business. Reasons for that kind of credit are: mortgage credit, because of the collateral and the loyalty of the customer; credit for investment to support business, considering the wealth of the customers.

DEGREE OF USE OF QUANTITATIVE INDICATORS IN THE ANALYSIS OF CREDIT RISK

Credit to firms

The quantitative indicator most used by the banks is the indebtedness level of the firm and its financial autonomy. Meanwhile, quantitative indicators that differentiate most the importance given by the banks are: volume sales; total mortgages; expenses on human resources; solvency of the firm and cash-flow generated by the business.

The qualitative indicators most used by the banks are: good management of the firm (an indicator often used by 63% of the banks that answered the questionnaire); capacity of the managers (often used by 52% of the banks); conditions of trade (often used by 13% of the banks) and the introduction of new technologies in the firm (used by 37% of the banks);

The following qualitative indicators mostly differentiate its use by the banks: human resources of the firm (often used by 7% of the banks but never used by 37% of the banks), the opinion of the manager's account about the firm (used most by 37% of banks and little or never used by 19%).

Table 3 considers the banks that most use quantitative indicators (>80%) compared with the banks that have a moderate use of these indicators (<60%) when they analyse firms with a very low or low risk level.

Table 4 considers the banks that use most quantitative indicators (>80%) compared with the banks that have a moderate use of these

TABLE 3   Banks' behaviour to very low and low risk level firms classified by the use of quantitative indicators and by the intensity of use of the referred indicators

Bank's behaviour	Risk level									
	Very low (%)					Low (%)				
	1	2	3	4	5	1	2	3	4	5
A. *No monitoring of the firm*										
Q₁ – quantitative (>80%)			50	50			16	50	33	
Q₂ – quantitative (<60%)		14	14	71			14	43	43	
B. *Risk prime (+ or –)*										
Q₁ – quantitative (>80%)			33	33	33		67	33		
Q₂ – quantitative (<60%)			43	14	43		50	50		
C. *Bank's participation in financial needs of the firm*										
Q₁ – quantitative (>80%)				100				100		
Q₂ – quantitative (<60%)				100				71	29	
D. *Guarantees (+ or –)*										
Q₁ – quantitative (>80%)				100				83	17	
Q₂ – quantitative (<60%)			43	57				86	14	

NOTES   Use of the referred indicators: 1 – never used, 2 – seldom used, 3 – used, 4 – often used, 5 – always used.

TABLE 4   Banks' behaviour to high and very high risk level firms, classified by the use of quantitative indicators and by the intensity of use of the referred indicators

Bank's behaviour	Risk level									
	High (%)					Very high (%)				
	1	2	3	4	5	1	2	3	4	5
C. *Reduce the participation of the bank in credit and other operations*										
Q₁ – quantitative (>80%)				17	83					100
Q₂ – qualitative (<60%)				86	14			29	14	57
D. *Guarantees (+)*										
Q₁ – quantitative (>80%)				17	83					100
Q₂ – quantitative (<60%)				86	14			29	14	57
E. *Credit rationing*										
Q₁ – quantitative (>80%)				33	67					100
Q₂ – quantitative (<60%)		29		57	14		29			71
F. *Interfere in the management of the firm*										
Q₁ – quantitative (>80%)	67		17		17	67		17		17
Q₂ – quantitative (<60%)			57	29	14		29	57		14

indicators (<60%) when they analyse firms with a very high or high risk level.

Table 5 considers the banks that use the most quantitative indicators

TABLE 5 Banks' behaviour to doubtful credit firms, classified by the use of quantitative indicators and by the intensity of use of the referred indicators

Bank's behaviour (%)		Banks		Bank's behaviour (%)		Banks	
		$Q \geq$ 80%	$Q <$ 60%			$Q \geq$ 80%	$Q <$ 60%
A. Solved by court	1			E. Re-organize the firm with participation of the bank	1		
	2				2	17	
	3	50	43		3	50	57
	4	33	43		4	33	
	5	17			5		29
	NR		14		NR		14
B. Re-evaluate patrimony	1			F. Renegotiate debt	1		
	2				2		
	3	33	29		3		
	4	67	14		4	67	14
	5		42		5	33	72
	NR		14		NR		14
C. Force monitoring	1			G. Transform debt into negotiable asset	1	17	
	2				2	67	86
	3				3	17	
	4	67	14		4		
	5	33	71		5		
	NR		14		NR		14
D. Contact other banks	1						
	2	67					
	3		14				
	4	33	43				
	5		29				
	NR		14				

($Q > 80\%$) compared with the banks that have a moderate use of these indicators ($Q < 60\%$) when they analyse doubtful credit.

The most referenced indicator is: 'increase the guarantees' for high risk firms (see table 4, row D). If the class of risk increases, the answers go from 'often used' to 'always used.' Only for firms classified with very low risk is the reduction of the guarantees used more, namely for banks that use preferably quantitative indicators.

Considering now the reduction of interest rate prime (see table 3, row B), there are differences in the attitude of banks towards very low risk firms from those classified with other levels of risk This percentage dropped from 66% (often used or always used) considering very low risk firms, to 33% for low risk firms, considering banks that give high per-

centage to quantitative indicators (>80%). For banks that give moderate percentage to quantitative indicators (>60%) this percentage is not so significant (from 57% to 50 % considering often used plus always used indicators).

The restriction of credit for higher risk firms (see table 4, row E) is considered by most banks: 100% and 71% (in accordance with more than 80% weight given to quantitative indicators or less than 60%) indicated 'always used' for very high risk firms, decreasing to 67% and 14% for high risk firms.

Financing very low risk firms (see table 3, row C) is chosen by all the banks. Some differences are from very used to used indicators, when considering very low risk firms to low risk firms. There is, however, strong caution of banks in financing businesses. Banks wish to reduce credit to firms with very high risk and even for firms with high risk. However, there are differences of attitude by banks that use more quantitative indicators than those that use less than 60%.

We also observed the relationship between the risk and the need to supervise the firm (see table 3, row A). Reducing the supervision is not clear, even for firms classified as very low risk: nearly half of the responses indicate that the banks do not attenuate the supervision of firms classified as very low risk.

Finally, the willingness of banks to interfere in the management of firms, in case of danger of bankruptcy (see table 5, row E) is not followed by most of the banks that give more than 80% weight to quantitative indicators, but is considered for some banks that give less than 60% of weight to quantitative indicators. All the banks prefer to renegotiate debt in case of bankruptcy risk than to interfere in the management of the firm.

Finally, we analyse the association between risk level and reputation, if reputation is really important in the rating risk of the firm.

We also observed that obtaining a good reputation is a sign of the bank's readiness to consider the firm as low or very low risk (see below table 6, row B). As soon as the risk level increases, less important is reputation in the evaluation. The banks that value less the quantitative indicators (<60%) are those that associate more the reputation of the firm with very low risk.

One main benefit of this sign is the proposal of new products, a higher protection if the firm faces difficulties or a more favourable interest rate for 44% of the banks (see table 7). In conclusion, having a good repu-

TABLE 6 Banks' behaviour to the reputation of the firm, classified by the use of quantitative indicators and by the intensity of use of the referred indicators

Bank's behaviour face to reputation of the firm (%)		Banks		Bank's behaviour face to reputation of the firm (%)		Banks	
		Q ≥ 80%	Q < 60%			Q ≥ 80%	Q < 60%
A. Reputation is when firm obtains very low risk rating	1			D. Reputation is when firm obtains very low, low, medium risk or one time risk rating	1		
	2				2	83	29
	3	17			3	17	57
	4	67	43		4		
	5	17	43		5		
	NR		14		NR		14
B. Reputation is when firm obtains very low or low risk rating	1			E. Reputation is when firm obtains very low, low, medium risk, one time or many times risk rating	1	33	
	2				2	33	71
	3	17			3	33	14
	4	50	86		4		
	5	33			5		
	NR		14		NR		14
C. Reputation is when firm obtains very low, low or medium risk rating	1			F. Risk and reputation are independent	1	84	71
	2				2	17	
	3	83	71		3		14
	4	17	14		4		
	5				5		
	NR		14		NR		14

TABLE 7 Attitude of the banks to the reputation of the firms by the intensity of use of the referred indicators

Attitude	(1)	(2)
Increase relationship with the firm	81	
Protection in case of temporary difficulties	52	
Favourable interest rate	44	11
Less guaranties	30	11
Less administrative requirements		81

NOTES Column headings are as follows: (1) often used + always used (%), (2) never used + seldom used (%).

tation is important for negotiating credit but not enough to reduce the level of bank guarantees in the contract.

Credit to Household Customers

In the evaluation of credit risk to households, the most used indicators to evaluate credit risk are the credit file of the customer and his present and

TABLE 8   Use of quantitative credit risk indicators by the banks to evaluate household customers, by the intensity of use of the referred indicators (%)

Quantitative credit risk indicators	(1)	(2)	(3)	(4)	(5)
1. Customer account (average balance)				25	75
2. Permanent salary and other revenues				33	67
3. Patrimony*			22	56	22
4. Mortgages		12		44	44
5. Saving accounts and insurances	11	11	33	33	11
6. Failure payments with other banks					100
7. Tax debts	11		11	22	56
8. Amount of the loan				11	89
9. Purposes of the loan				56	44

NOTES   Column headings are as follows: (1) never used, (2) seldom used, (3) used, (4) often used, (5) always used. * Houses, firms, shares, and other kind of wealth.

expected revenue. Failure of past obligations of repayment are heavily penalized. The loan is confronted with other indicators related with the customer's wealth and reputation.

The most important quantitative factors in the assessment of credit risk are, in order of importance: Failure with other banks; customer account; stable income; debts to tax authorities:

The most important qualitative indicators in the assessment of credit risk are, in order of importance: permanent employment; reputation and credibility of the client:

Profession and age are equally important though less than the previous indicators. The relationship of the account manager with the client is more or less considered in the evaluation. Marital status and the number of elements of the household are also relatively indicated by some banks.

Consumption level and a more favourable economic conjuncture are the main factors referred by the banks to justify the increase of credit to households.

On other side, favourable interest rates and household revenue are the most mentioned indicators for high demand of credit.

Banks favour credit to households despite the increase of intrinsic risk. Banks have the opinion that the benefits are higher than the risk of credit to households.

For banks, despite some credit risk to households, they have favoured consumption credit and other credit products destined to households.

TABLE 9   Use of qualitative credit risk indicators by the banks to evaluate household customers, by the intensity of use of the referred indicators (%)

Quantitative credit risk indicators	(1)	(2)	(3)	(4)	(5)
1. Reputation and credibility of the client			22	33	45
2. Relationship of the account manager*	11	22	22	45	
3. Moral integrity and honesty of the borrower			12	44	44
4. Profession of the client			33	45	22
5. Permanent employment				55	45
6. Academic studies of the client	12	22	55	11	
7. Age			44	44	12
8. Reputation and wealth of other members**		13	12	50	25
9. Marital status		11	44	22	22
10. Number of members of the household	11	11	33	22	22

NOTES   Column headings are as follows: (1) never used, (2) seldom used, (3) used, (4) often used, (5) always used. * With the client. ** Of the household.

TABLE 10   Factors that contribute to the credit to households, by the intensity of importance of the referred indicators (%)

Factors	(1)	(2)	(3)	(4)
1. Financial liquidity of the banks		50	13	37
2. Competition in banking industry	11	11	44	33
3. Consumption level		11	33	56
4. Favourable economic conjuncture			66	34
5. Economic growth			89	11
6. Government incentives for credit	12	50	38	

NOTES   Column headings are as follows: (1) not important, (2) little important, (3) important, (4) very important.

For credit to firms as well to credit to households, banks give more importance to quantitative indicators. However, as a consequence of banking competition, banks have offered new credit products to households and give more weight to some qualitative indicators. They recognize that because of this strategy, intrinsic risk has increased but bank efficiency has not been reduced because of increased risk.

Conclusion

This study explains the indicators considered by banks to analyse the credit risk. Controlling those indicators, they contribute to better effi-

TABLE 11 Factors that contribute to household demand for credit, by the intensity of importance of the referred indicators 8%)

Factors	(1)	(2)	(3)	(4)
1. Increased wages			89	11
2. Lower interest rates				100
3. Better conditions of credit to younger households	11	33	33	22
4. Offer of credit products		11	78	11
5. Good economical conditions		33	56	11
6. Government incentives to credit	22	45	33	
7. Consumer behaviour		13	75	13

NOTES   Column headings are as follows: (1) not important, (2) little important, (3) important, (4) very important.

TABLE 12 Banks' attitude for the demand of credit by household customers

Statement	Answer (%)
1. More credit products have increased household customers, including those that have no possibilities in accordance with previous credit conditions	T 67, F 33
2. Increased demand for credit has led banks to reduce conditions of credit evaluation.	T 22, F 78
3. Increased credits to households have contributed to increasing banking risk	T 55, F 45
4. Despite an increase in intrinsic risk, bank efficiency is not reduced	T 89, F 11

NOTES   T – true, F – false.

ciency in the Portuguese banking system. The credit market has registered a strong expansion in the Portuguese economy, where the assessment of credit to households has obtained, in recent years, figures never seen before. Banks use quantitative indicators as well qualitative indicators in the analysis of the credit risk. Banks give more importance to quantitative indicators in the credit evaluation, mainly in credit to firms. In the evaluation of credit to households, qualitative indicators have relatively more weighting in the analysis of assessment of credit. However, even in this segment larger banks prefer quantitative indicators, while smaller ones give more importance to qualitative indicators. The importance of quantitative and qualitative indicators is related with the existence of asymmetries of information. However, asymmetries of information are impossible to totally remove and some qualitative indicators

gain importance in credit risk evaluation, such as the good reputation for the firm as well for the household. Reputation is not a different value for firms and for households. Despite the fact that for firms, banks consider the kind of business important, for both it is important to signal respect for past compromises. Ethical integrity is important for the managers as well for the head of the household. Moreover, some quantitative indicators are independent from those qualitative ones. For example, the failure of payment of debt with other banks, which is considered a quantitative indicator, also reveals the behaviour and/or reputation of the client.

The intensification of banking competition has led the banks to lower the interest rate and provide more banking products. This situation makes us presuppose that doubtful credit was increasing. However, considering the values of doubtful credit ratios, these have relatively low values (more or less three percent of total credit). Banking seems to be competitive and efficient in creating more products and controlling the risk. However, the economy has expanded until 2007. In a more stagnated economy probably the excess of credit to households would reveal its consequences and credit evaluation should restrain credit. On the other hand, most of the information provided by the banks does not reveal the a real situation of its strategies and its consequences.

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