Models of competition between firms: the case of Slovenia's (post)transitional economy*

Tomaž Čater , Danijel Pucko **

The process of competition between firms can be described as a causal-consecutive sequence. The paper is built on the findings of empirical research based on a sample of 225 Slovenian firms. By using statistical methods we examine which approaches firms use to ensure their competitiveness and, based thereon, offer a judgement on the existence of potential models of competition in a posttransitional Slovenian economy. We conclude that there are four such models. They mainly differ in the sources of competitive advantage, financial and nonfinancial performance, size of firms and firms' strategies, whereas differences regarding the forms of competitive advantage are much less significant. Slovenian firms are therefore taking different paths towards competitiveness, which is not very surprising given the complexity of the competition process.

Der Prozess von Wettbewerb zwieschen Firmen kann als kausal-konsekutiver Ablauf beschrieben werden. Dieser Aufsatz basiert auf dem Ergebnis der empirischen Untersuchung von 250 slowenischen Firmen. Durch die Anwendung statistischer Methoden untersuchen wir, welche Firmen sich eine Wettbewerbsfähigkeit sichern und darauf basierend bieten wir eine Beurteilung über die Existenz potentieller Wettbewerbsmodelle in der post-transitionellen slowenischen Wirtschaft. Wir schliessen darauf auf 4 Modelle. Sie unterscheiden sich in den Ursachen des Wettbewerbsvorteils, finanzielle und nichtfinanzielle Leistung, Firmengröße und –strategien, wobei Unterschiede bezüglich derFormen des Wettbewerbsvorteils zu vernachlässigen sind. Slowenische Firmen schlagen demzufolge verschiedene Wege zur Wettbewerbsfähigkeit ein, was nicht überraschend angesichts derKomplexität des Wettbewerbsprozesses ist.

Key words: firm, sources of competitive advantage, forms of competitive advantage, performance, models of competition

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1. Introduction

The discussion on a firm's competitiveness takes place literally every day, not only among managers but also among academics, politicians and others. In spite of its relevance, however, the discussion is usually too simplified. It seems that many people do not properly understand how complex the process of competition between firms really is. In the paper we try to bring the above-mentioned discussion on a higher level, building on a presumption that the process of competition between firms can be described as a causal-consecutive sequence 'sources of competitive advantage → forms of competitive advantage → performance'. In other words, if a firm wants to build a competitive advantage, certain sources of competitive advantage must first be developed. The scientific literature usually discusses four basic schools concerning the sources of competitive advantage, i.e. the industrial organisation school, the resource-based school, the capability-based school and the knowledge-based school, along with two fundamental forms of competitive advantage, i.e. lower price (costs) and differentiation. This paper's purposes are to examine the approaches that firms use to ensure their competitiveness and, based thereon, offer a judgement on the existence of potential 'models of competition' in a (post)transitional (Slovenian) economy. More specifically, we first group the firms into several clusters, which are created according to the relevance of the sources of competitive advantage for each firm. We then analyse the differences between the identified clusters in terms of firms' sources and forms of competitive advantage, their performance and their basic characteristics such as legal form, sector, size, age, type of ownership etc. Finally, building on the discovered differences we offer a discussion on the existence of potential 'models of competition' in a (post)transitional (Slovenian) economy. After briefly reviewing the relevant theory on the sources and forms of competitive advantage, the paper mainly involves a presentation of the empirical findings of a study of 225 Slovenian firms. By comparing the empirical evidence with the theoretical findings drawn from the literature, we believe some new insights can be offered to scholars and researchers in the area of competitiveness, especially in a (post)transitional business environment.

2. Sources and forms of a firm's competitive advantage – literature review

2.1. Four schools of thought on the sources of competitive advantage of a firm

Within the industrial organisation school there are at least two different views of the origin of a firm's competitive advantage. On one side, there are advocates (Bain 1956; Mason 1939) of the so-called classical industrial organisation school who claim that a firm can neither influence industry conditions nor its

own performance (Gadhoum 1998; Lado/Boyd/Wright 1992). In this context, the competitive advantage is sourced in external sources (i.e. it is determined by the characteristics of the environment) rather than in internal sources. External sources are especially the structural parameters of the industry such as the bargaining power of suppliers, the bargaining power of buyers, the threat of new entrants, the threat of substitute products or services, and current competition within the industry (Porter 1979) and, at least for those firms that mostly compete against foreign competitors, the basic characteristics of the nation (i.e. national economy) like domestic demand conditions, domestic factor conditions, related and supporting industries within the economy, and domestic rivalry (Porter 1990). On the other side, there is a modified framework advanced by a new group of industrial organisation scholars which recognises that firms have a certain influence on the relationship between industry structure and a firm's performance (Hansen/Wernerfelt 1989). According to Porter (1981), there are some fundamental parameters of industry but, within those parameters, industrial evolution can take many paths depending (among other things) on the strategic choices firms actually make. Porter (1979) believes a firm's strategic choice regarding the competitive forces in the industry includes positioning a firm so that its capabilities provide the best defence against the competitive forces, influencing the balance of the competitive forces, and/or anticipating and exploiting shifts in the factors underlying the competitive forces.

In complete contrast to the industrial organisation school are the resource-based, the capability-based and the knowledge-based schools which all emphasise the internal sources of competitive advantage. This means a competitive advantage is proactively created by firms through the accumulation of unique resources, capabilities and knowledge. The resource-based school rests heavily on the so-called 'resource-based view of the firm' (Penrose 1959; Wernerfelt 1984). This view focuses mostly on an understanding of a firm's resources, their implications for the firm's performance and lately also on the relationship with environmental threats and opportunities (Barney 1986; Barney 1996; Mahoney/Pandian 1992). According to the resource-based school, the competitive advantage of a firm can be built on a firm's resources (Bharadwaj/Varadarajan/Fahy 1993; Hunt 1999) that meet some important conditions such as value, heterogeneity, rareness, durability, imperfect mobility, unsubstitutability, imperfect imitability, and 'ex ante' limits to competition (Cater 2001a). The literature that deals with the sources of competitive advantage usually classifies a firm's resources into physical, financial, human and organisational resources (Barney 1997). Other authors who prefer to use a different classification also classify a firm's resources as either tangible or intangible resources (Michalisin/Smith/Kline 1997). Although all resources are important, the literature treats the human and organisational (i.e. the intangible) resources as slightly more relevant for creating a firm's competitive advantage (Whitehill 1997; Zupan 1996).

As its name reveals, advocates of the capability-based school claim that a firm's competitive advantage derives from its capabilities/competencies (Collis 1991; Day 1994). Different authors use different expressions to describe the sources of capability-based competitive advantage. The most common expressions found in the related scientific literature are core skills (Tampoe 1994), distinctive capabilities (Hitt/Ireland 1985; Snow/Hrebiniak 1980), organisational capabilities (Collis 1994), organisational capital (Prescott and Visscher, 1980), dynamic capabilities (Eisenhardt/Martin 2000; Luo 2000) and core competencies[1] (Leonard-Barton 1992; Post 1997). Firms seeking to build their competitive advantage on capabilities should focus on their business processes, transform their key processes into strategic capabilities and make strategic investments to support these capabilities. Since the capabilities on which competitive advantages can be built necessarily extend across the whole firm the champion of any capability-based strategy must be the chief executive officer (Stalk/Evans/Shulman 1992). In the literature capabilities are most frequently classified into managerial, input-based, transformational, and output-based capabilities (Lado/Boyd/Wright 1992). Clearly, capabilities create no competitive advantage if they are easily achieved (imitated) by one's competitors. Thus, the potential sources of competitive advantage are those capabilities that are difficult to develop, meaning they have to be complex (Bartmess/Cerny 1993), diffused throughout the firm (Ulrich 1987), and based upon the co-operation of many individuals/teams within the firm (King/Fowler/Zeithaml 2001).

Advocates of the knowledge-based school concerning the competitive advantage of a firm argue that a firm can win a competitive battle only if it possesses more relevant knowledge than its competitors (Inkpen 1998; Zack 1999). Naturally, from the firm's point of view not all kinds of knowledge are equally useful. Especially important is that part of knowledge that can be labelled commercial knowledge. Its goal is not to find the truth, but to ensure effective performance (Demarest 1997). Knowledge can be classified according to several criteria, two of which are especially important. The first classification divides the intellectual capital of a firm into human and structural capital (Edvinsson 1997; Edvinsson/Malone 1997). Human capital is based on the employees' knowledge and skills and cannot be the property of a firm. It can only be rented, which means that it is highly risky. On the other hand, structural capital is the property of a firm and can be traded (Edvinsson/Sullivan 1996). For this reason, one of the most important challenges of management is to transform the firm's human capital into its structural capital (Lank 1997). The second important

[1] According to Prahalad and Hamel (1990) core competencies play an especially important role in building a firm's competitive advantage. Based on their thoughts, a new 'sub-school' (based on core competencies) within the capability-based school has emerged in the scientific literature.

classification distinguishes between explicit and tacit knowledge (Nonaka/Takeuchi 1995; Teece 1998). Since the former can more easily be copied by competitors, the latter is said to be a more relevant source of competitive advantage (Leonard/Sensiper 1998; McAulay/Russell/Sims 1997). The growing importance of intellectual capital naturally calls for its systematic management. Knowledge management can be defined as that part of the total management process which focuses on the systematic analysis, planning, accumulation, creation, developing, archiving and exploitation of a firm's knowledge and tries to transform as much of a firm's human capital as possible into its structural capital in order to develop the competitive advantage of a firm and help fulfil its other main objective(s) in an expedient way (Cater 2001b). As such, knowledge management is and must be a cross-functional activity that remains within the competence of a firm's top (strategic) management (Cater 2001b; Pucko 1998).

2.2. Two basic forms of competitive advantage of a firm

A competitive advantage can be defined as a unique position (a more detailed discussion on a 'positional' competitive advantage is given by Ma (2000)) that a firm develops in comparison with its competitors. Outward evidence of a competitive advantage is a position of superiority in an industry or market (Bamberger 1989), where the superiority depends on how customers perceive it. Since customers are the ones that make a firm's operations and progress possible, the whole idea of competitive advantage should actually be analysed from their perspective. For example, a firm can produce superior products but, so long as the customers do not perceive them as superior, the firm is unlikely to gain a competitive advantage and outperform its competitors. The above understanding of competitive advantage brings us to the conclusion that firms have to compete on superior customer value delivery. They can offer superior value to customers by offering similar products and services as the competitors at a reduced price or by differentiating themselves from the competitors (i.e. offering something the competitors cannot). Two main forms of competitive advantage are therefore lower price and differentiation. The latter can take many different forms, among which the literature usually places the greatest stress on superior product/service, the totality of supply (when a firm has a broad product line and offers support and complementary products/services), speed (fast delivery), flexibility, and the positive image of a firm (Helms/Ettkin 2000; Kotha/Vadlamani 1995; Sashi/Stern 1995).

Another interesting question we need to deal with is the dilemma of simultaneous cost and differentiation advantage. As proposed by Porter (1980), firms mostly cannot choose more than one (cost leadership or differentiation) generic business strategy because implementing either of them requires total commitment and supporting organisational arrangements that are diluted if there is more than one primary target. Although we agree with Porter's idea of 'pure'

generic strategies, we believe these strategies should not be seen as synonyms for forms of competitive advantage. In other words, the idea of pure generic business strategies does not directly interfere with the idea of simultaneous cost and differentiation advantage. A firm should indeed concentrate on only one of the generic business strategies, but it can still find itself in a position (for example, due to rare and valuable resources) of having a simultaneous cost and differentiation advantage. We can therefore agree with many other authors (see, for instance, Flynn/Flynn 1996; Flynn/Schroeder/Sakakibara 1995) that a firm can offer a superior (differentiated) product at a lower price. In addition, Karnani (1984) believes both forms of competitive advantage are continuums, where more of one can be a substitute for less of another (trade-off). This means a firm's competitive advantage results from an appropriate combination of a firm's price (cost) and differentiation position.

3. Methodological background

3.1. Research hypotheses

Based on the presentation of the four schools on the sources of competitive advantage and many different forms of competitive advantage we believe the process of competition between firms is extremely complex. This is probably even more true in (post)transitional economies where 'the rules of the game' are sometimes insufficiently defined and where frequent external disturbances (such as an emerging political structure, legislation changes, privatisation etc.) demand that firms focus on things other than those strictly related with their businesses. Taking into account Slovenian excellent macroeconomic achievements since the declaration of its independence it can be concluded that Slovenia (next to Hungary and maybe Czech Republic and Slovakia) is the leading economy of (post)transitional countries. Therefore, the basic argument for the decision to analyse Slovenian firms is that their strategic behaviour can serve as a role model to firms from other transitional economies.

Reflecting the complexity of the process of competition, it is expected that firms take different paths towards competitiveness (i.e. build on different sources of competitive advantage, create different forms of competitive advantage and consequently achieve different financial and nonfinancial performance), which enables us to develop the following research hypothesis.

Hypothesis 1: Based on the empirical data on Slovenian firms' sources and forms of competitive advantage and their financial and nonfinancial performance, several models of competition can be identified in a (post)transitional (Slovenian) economy.

The path each firm chooses to build its competitive advantage represents one of the key characteristics of its strategic behaviour. For this reason we believe that

(especially in a (post)transitional business environment) a firm's path towards competitiveness is at least partly influenced by a firm's basic characteristics such as legal form, sector, size, age, type of ownership etc. Reflecting this belief, the following research hypothesis is developed:

Hypothesis 2: Firms that appear in different models of competition also differ in their basic characteristics (such as legal form, sector appurtenance, size, age, type of ownership, nationality of capital and sales markets) and the strategies they implement.

3.2. The sample of firms, collection of data and description of variables

Empirical research in this paper forms part of a broader study on the strategic behaviour and competitive advantages of Slovenian firms. Data was collected by sending questionnaires[2] to the Chief Executive Officers or members of the top management of randomly selected firms by post. In selecting the firms the Gospodarski vestnik[3] (2002) business directory was used. As this database includes firms, i.e. economy subjects that are legal persons (not natural persons), from all sectors (industries), size groups, age groups etc., we can say that the target population are all Slovenian firms. By the end 2002, questionnaires from 225 (out of 508 initially distributed) Slovenian firms had been satisfactorily completed and returned to the author, meaning the response rate was 44.3%. The respondents were mostly Chief Executive Officers (36.4%), assistant managers (27.6%) or members of the top management (25.3%). In the remaining 10.7%, the respondents were the heads of different (mostly advisory) departments such as controlling, accounting etc. If the above structure of respondents holds true, this can be regarded as very satisfactory as in most cases the respondents were individuals who should have fluently mastered the discussed topics.

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[2] On consultation with leading Slovenian professors of management (in order to assure maximal reasonableness and validity) the questionnaire was designed by the authors.

[3] Gospodarski vestnik is the most complete and widely used business directory in Slovenia. It includes firms, i.e. economy subjects that are legal persons (not natural persons), from all sectors (industries), size groups, age groups etc. Taking into account that a vast majority of Slovenian firms are also included in the Gospodarski vestnik business directory this directory can serve as an accurate and objective information on the actual structure of Slovenian firms. In other words, the database can be a useful tool in choosing a sample of firms to be included in various business-related studies in Slovenia.

Because of the broader goals[4] of the research we used stratified sampling in selecting firms in the sample. The structure of firms in the sample can be shown according to several criteria:

Sector: manufacturing (33.3%), service (34.2%), trading (32.4%);

Size[5]: large (33.3%), medium-sized (33.3%), small (33.3%);

Year of foundation: founded in 1989 or sooner (50.7%), founded in 1990 or later (49.3%).

Since the structure of firms in the sample, especially according to the criterion of size distribution, was somewhat different from the actual structure[6] of Slovenian firms, it cannot be said that the sample is completely representative. The reason for this primarily lies in the use of stratified sampling which, as already explained, was influenced by the research's broader goals.

In order to test the research hypotheses we first (based on a study of the relevant scientific literature) designed a list of the relevant sources and forms of a firm's competitive advantage. The values of these variables were, as already explained, obtained by sending questionnaires to the managers of selected firms. Most questions in the questionnaire required an answer in the form of (dis)agreement with the offered statements. Respondents were asked to choose between five answers (a five-point Likert scale was used), where 1 means they completely disagreed with the statement, whereas 5 means they completely agreed with it. Based on these basic variables, the compounded variables (constructs) were then

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4 The goals of the research were much wider than the goals presented in this paper. Among other things, we also wanted to examine the differences in the sources and forms of competitive advantage between different groups of firms such as manufacturing, service and trading firms, large, medium-sized and small firms, and so on. In order to have a sufficient number of large firms in the sample, as required to carry out these analyses, stratified sampling was used.

5 The size of the firms in Slovenia (as well as in this research) is statutorily defined. Small firms are those that meet at least two of the following three conditions: (1) average number of employees in the last year does not exceed 50; (2) sales in the last year do not exceed 1 billion SIT (4.26 million EUR); and (3) average assets in the last year do not exceed 0.5 billion SIT (2.13 million EUR). Medium-sized firms are those that are not small and meet at least two of the following three conditions: (1) average number of employees in the last year does not exceed 250; (2) sales in the last year do not exceed 4 billion SIT (17.02 million EUR); and (3) average assets in the last year do not exceed 2 billion SIT (8.51 million EUR). Firms that cannot be defined as small or medium-sized are large firms (Uradni list RS 2001).

6 The actual structure of Slovenian firms shows that at the end of 2001 17.4% of firms were in the manufacturing sector, 45.4% were in the service sector, while 37.2% were in the trading sector. From the aspect of size, there were 95.0% of small firms, 4.1% of medium-sized firms, and only 0.9% of large firms (Statistical Office of the Republic of Slovenia 2002).

calculated. We formed 22 constructs representing the sources (see Table 1) and 7 constructs representing the forms (see Table 2) of competitive advantage. The formation of these constructs[7] was carried out by *calculating unweighted*[8] *means from the relevant basic variables. The total estimation of the* relevance of physical resources was, for example, calculated as a mean from the relevance of all individual types of physical resources such as land (geographic location), buildings and infrastructure, classical and information technology (equipment), and a firm's access to material, energy and services. In like manner also the total estimations of all other constructs were calculated. In this way we collected data for two groups of variables, i.e. the sources and forms of competitive advantage.

Data for the third (i.e. a firm's performance) and fourth (i.e. a firm's basic characteristics) groups of variables were partly collected through a questionnaire (estimates of the nonfinancial performance indicators and data on a firm's implemented strategies were obtained in this way) and partly from the Gospodarski vestnik (2002) database (providing data needed to calculate financial performance indicators and data on a firm's basic characteristics). As already mentioned, we used several financial and nonfinancial indicators when measuring a firm's performance[9]. As for the financial performance indicators, firms were asked to provide the data needed to calculate: (1) return on equity;

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[7] When calculating the constructs we also computed their Cronbach's alphas in order to find out how reliable measurements of these constructs using the set of chosen basic variables really are. For a reliable measurement Cronbach's alphas should exceed 0.6, although we have to stress that this is more an experimentally defined value than a strict statistical rule. As the computed Cronbach's alphas for all constructs were relatively high (between 0.85 and 0.95) we were able to conclude that the measurements of the constructs are sufficiently reliable.

[8] Unweighted means were calculated because we were unable to determine different weights for every variable in an objective way (for example, based on the study of the relevant literature).

[9] The data necessary to calculate all performance indicators were collected at both the corporate and strategic business unit (SBU) levels. The reason for this lies in the fact that the discussed schools treat the sources of competitive advantage at both organisational levels. While the industrial organisation and resource-based schools discuss the sources at the SBU level (Peteraf 1993; Porter 1985; Pucko 2002; Wernerfelt 1984), the capability-based and knowledge-based schools discuss them at the corporate level (Pucko 2002; Quinn/Anderson/Finkelstein 1996; Stalk/Evans/Shulman 1992; Tampoe 1994; Wiig 1997). Naturally, the difference between both levels is also taken into account when estimating the relationship between the sources of competitive advantage and firm performance. In order words, when we discuss the sources of competitive advantage at the SBU level we compare them with the performance of SBUs. Similarly, when we discuss the sources of competitive advantage at the corporate level we compare them with the performance of corporations. In spite of this important distinction regarding the organisational level we only use the term 'firm' to avoid any unnecessary notional confusion.

(2) return on assets; (3) return on sales; (4) revenues-to-expenses ratio; (5) sales-to-operating-expenses ratio; and (6) value added per employee. On the other hand, they were also asked to provide data on several nonfinancial performance indicators, namely: (1) percentage of loyal customers; (2) percentage of loyal suppliers; (3) turnover (of staff); (4) share of expenses on training and education; (5) share of expenses on research and development; and (6) percentage of reclaimed deliveries. The data for all performance indicators were collected for the period between 2000 and 2002. We then used these figures to calculate a three-year unweighted mean[10] for each indicator. These means were then used in all statistical analyses instead of individual annual indicators. All statistical analyses within this research were carried out by using SPSS for Windows.

4. Empirical findings

4.1. Identified clusters of firms

To be able to reach certain conclusions regarding the research hypotheses we first had to group the firms into several clusters. Clusters were created according to the relevance of the sources of competitive advantage for each firm. In creating the clusters we first used Ward's (hierarchical) method (with Squared Euclidean Distance as a clustering criterion), which is usually a good indicator of a reasonable number of clusters. In step two, we improved the results of Ward's method by using the K-Means (non-hierarchical) method. The results of Ward's method are shown in a dendrogram (see Figure 1). They indicate that, in our case, it is most appropriate to discuss either two or five clusters of firms. Given the distances between the clusters we should discuss just two clusters, with 202 firms in the first and 23 firms in the second cluster. However, since the two-cluster solution is less useful (as we will explain later) for investigating potential models of competition, we decided to use the five-cluster solution, with 64 firms in the first, 75 firms in the second, 42 firms in the third, 21 firms in the fourth and 23 firms in the fifth cluster. As mentioned, the results of Ward's method were improved by using the K-Means method, albeit the improvement was minimal with only one unit being moved from cluster 1 to cluster 3. The final distribution of firms we use in the analyses throughout the paper therefore recognises 63 firms in the first, 75 firms in the second, 43 firms in the third, 21 firms in the fourth and 23 firms in the fifth cluster.

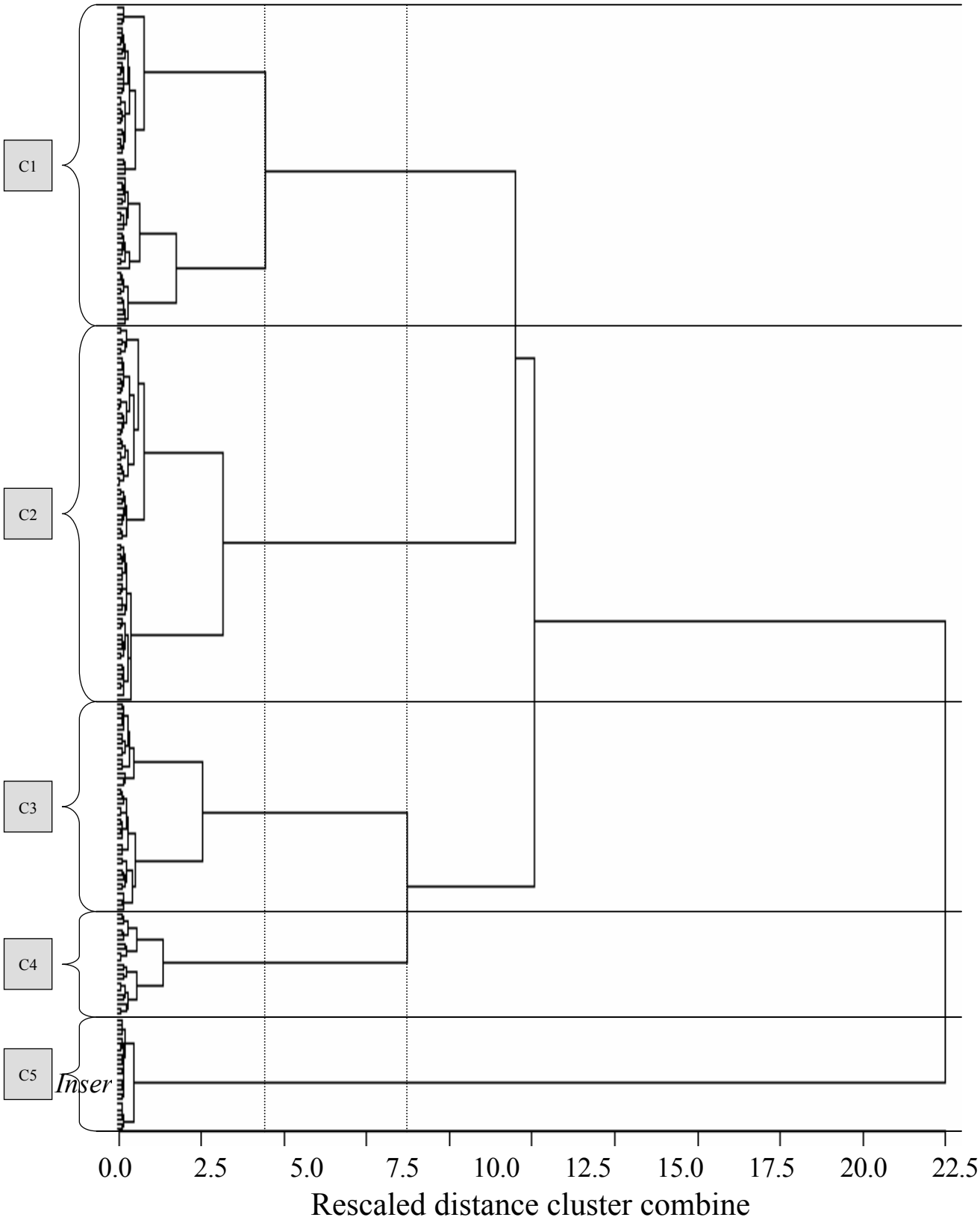
[10] The measurement of firm performance based on three-year means was necessary to avoid the influence of unique and random events. At the same time, the measurement of firm performance over several years follows the logic of competitive advantage that is said to be a long-term phenomenon.

4.2. Differences between the models (clusters) with regard to the sources and forms of competitive advantage

Naturally, the number of firms in different clusters has no meaning without knowing what their characteristics are. For this reason, we first sought to find out which sources of competitive advantage are most relevant in each of the identified clusters. Accordingly, we compared the mean values of the sources of competitive advantage among the five clusters and (to be more analytically correct) supported our conclusions by using the contrast analysis method (see Table 1). Our most important conclusion is that cluster 5 obviously differs from all other clusters (statistically significant differences in contrasts 4, 7, 9 and 10). Firms (N = 23) in this cluster on average estimate the relevance of all sources of competitive advantage as very low, indicating that these firms have are no significant sources of competitive advantage. Knowing that, we can now finally explain why the decision to discuss five (instead of two) clusters was necessary. Namely, if we had limited our discussion to two clusters we would be forced to debate just the differences between firms that possess certain sources of competitive advantage and firms with no such sources. Had we acknowledged just two clusters, other analyses would be impossible.

Since we now understand the differences between clusters 1 to 4 on one side, and cluster 5 on the other, the differences between clusters 1, 2, 3 and 4 remain to be studied. The results show that in comparison with other clusters (comparison among the columns) firms from cluster 1 (N = 63) assign the highest estimates of importance to organisational (intangible) resources, transformational and output-based capabilities, structural capital and tacit knowledge, as also indicated by the statistically significant differences for most of these sources of competitive advantage in contrasts 1, 2 and 3. In addition, the characteristic of cluster 1 (comparison among the rows) is also a high estimate of the importance of human capital, although this estimate is not the highest among all clusters. On the other hand, the highest estimates of importance (comparison among the columns) for human resources, managerial capabilities, human capital, explicit knowledge and firms' implemented strategies can be noticed in cluster 2 (N = 75). This is also confirmed by the statistically significant differences for most of these sources of competitive advantage in contrasts 1, 5 and 6. In addition, the characteristic of cluster 2 (comparison among the rows) is also a high estimate of the importance of organisational (intangible) resources, transformational and output-based capabilities, structural capital and tacit knowledge, i.e. those sources of competitive advantage that have the highest estimates of importance in cluster 1. The highest (albeit not very high) estimates of importance (comparison among the columns) for physical and financial (i.e. tangible) resources and input-based and functional capabilities is the main characteristic of cluster 3 (N = 43).

Figure 1. Identified clusters of firms based on the differences in the sources of competitive advantage (dendrogram based on the Ward's clustering methods)



This conclusion can also be supported by the statistically significant differences seen for most of these sources of competitive advantage in contrasts 2, 5 and 8. Another characteristic of cluster 3 (comparison among the rows) is the above-average estimate of the importance of structural capital and tacit knowledge, i.e. those sources of competitive advantage that have somewhat higher estimates of importance in clusters 1 and 2. Based on the above discussion, we can conclude that firms from clusters 1, 2 and 3 build their competitive advantage mostly on 'internal' sources such as resources, capabilities and knowledge. On the other hand, the highest estimates of importance (comparison among the columns) for 'external' sources of competitive advantage (i.e. weak bargaining power of buyers and suppliers, low threat of substitution, low threat of new entrants, mild rivalry in the industry and advantageous characteristics of the national economy) can be found in cluster 4 (N = 21). This is also evident from the statistically significant differences found for most of these external sources in contrasts 3, 6 and 8. Beside the external sources, cluster 4 is also characterised (comparison among the rows) by above-average estimates of the importance of structural capital, i.e. the source of competitive advantage that has even higher estimates of importance in clusters 1, 2 and 3.

After analysing the differences in the sources of competitive advantage among the five clusters the same analysis (using the same methodology) must be performed for the forms of competitive advantage (see Table 2). Cluster 5 (N = 23) again differs from all other clusters (statistically significant differences in contrasts 4, 7, 9 and 10) in that the firms in this cluster on average estimate they have no competitive advantage in any of the discussed forms. Of course, this conclusion makes sense, especially if we recall that firms from cluster 5 also have no significant sources of competitive advantage. As for clusters 1 to 4, the differences in the forms of competitive advantage between them are minor. For clusters 1 and 2 (N = 63 and 75) we can conclude that firms on average achieve a differentiation advantage to a greater extent than the price advantage. Cluster 1 is mostly characterised by a competitive advantage in the forms of superior product/service, speed, flexibility and positive image, whereas in cluster 2 a competitive advantage in the forms of total supply, speed, flexibility and positive image seem to be the most relevant. Unlike clusters 1 and 2, cluster 3 (N = 43) is already characterised by somewhat lower estimates of most forms of competitive advantage. Further, cluster 3 is the only cluster in which firms on average achieve a price advantage to a greater extent than a differentiation advantage. Among the forms of differentiation advantage, only the totality of supply was ascribed a somewhat greater estimate. Finally, cluster 4 (N = 21) is characterised by a slightly higher estimate of the flexibility-based advantage, whereas all other forms of competitive advantage can be described as being average

Table 1. Differences in the relevance of the sources of competitive advantage among five clusters of firms

iDependent varable (Y) = Sources of competitive advantage	**Average of Y**					**Contrast[(a)] analysis**									
	X = C1	X = C2	X = C3	X = C4	X = C5	Contrast 1: T-Test (α)	Contrast 2: T-Test (α)	Contrast 3: T-Test (α)	Contrast 4: T-Test (α)	Contrast 5: T-Test (α)	Contrast 6: T-Test (α)	Contrast 7: T-Test (α)	Contrast 8: T-Test (α)	Contrast 9: T-Test (α)	Contrast 10: T-Test (α)
Characterist. of the national economy	2.09	2.08	2.24	2.68	1.68	0.080 (0.936)	-1.521 (0.130)	-4.658 (0.000)	3.325 (0.001)	-1.644 (0.102)	-4.810 (0.000)	3.341 (0.001)	-3.279 (0.001)	4.300 (0.000)	6.573 (0.000)
Weak bargaining power of suppliers	2.48	2.37	2.57	2.98	1.85	1.330 (0.186)	-0.979 (0.330)	-3.613 (0.001)	6.731 (0.000)	-2.234 (0.029)	-4.558 (0.000)	6.258 (0.000)	-2.785 (0.009)	7.017 (0.000)	7.927 (0.000)
Weak bargaining power of buyers	2.46	2.34	2.58	3.09	1.79	1.384 (0.168)	-1.182 (0.238)	-4.873 (0.000)	5.399 (0.000)	-2.459 (0.015)	-5.931 (0.000)	4.527 (0.000)	-3.734 (0.000)	5.997 (0.000)	8.427 (0.000)
Low threat of substitution	2.30	2.13	2.42	2.81	1.78	1.622 (0.107)	-0.838 (0.405)	-2.808 (0.009)	4.435 (0.000)	-2.106 (0.039)	-3.806 (0.001)	3.132 (0.003)	-1.947 (0.058)	4.360 (0.000)	5.529 (0.000)
Low threat of new entrants	2.52	2.35	2.40	2.86	1.76	1.907 (0.058)	1.175 (0.241)	-2.592 (0.010)	5.947 (0.000)	-0.489 (0.625)	-3.966 (0.000)	4.711 (0.000)	-3.326 (0.001)	4.709 (0.000)	6.964 (0.000)
Mild rivalry among existing firms	2.54	2.32	2.43	2.91	1.88	2.771 (0.006)	1.208 (0.228)	-3.199 (0.002)	5.869 (0.000)	-1.226 (0.222)	-5.183 (0.000)	4.012 (0.000)	-3.926 (0.000)	4.610 (0.000)	7.408 (0.000)
A firm's strategic response	3.00	3.33	2.77	2.67	1.99	-2.590 (0.011)	1.709 (0.090)	2.110 (0.040)	7.409 (0.000)	4.973 (0.000)	4.820 (0.000)	11.860 (0.000)	0.670 (0.506)	6.295 (0.000)	4.667 (0.000)
Physical resources	2.55	2.33	3.32	3.17	1.80	1.974 (0.051)	-6.963 (0.000)	-4.409 (0.000)	6.377 (0.000)	-13.077 (0.000)	-7.278 (0.000)	6.202 (0.000)	1.293 (0.206)	18.161 (0.000)	11.313 (0.000)
Financial resources	3.01	2.84	3.33	2.98	1.95	1.543 (0.126)	-2.811 (0.006)	0.197 (0.845)	8.434 (0.000)	-6.281 (0.000)	-1.047 (0.304)	9.561 (0.000)	2.596 (0.014)	13.846 (0.000)	7.070 (0.000)
Human resources	3.35	3.42	2.87	2.97	2.18	-0.695 (0.489)	4.191 (0.000)	2.517 (0.016)	8.350 (0.000)	6.270 (0.000)	3.407 (0.002)	10.432 (0.000)	-0.698 (0.490)	5.177 (0.000)	4.765 (0.000)

Organisational resources	3.98	3.63	3.08	3.18	2.29	4.716 (0.000)	9.204 (0.000)	7.397 (0.000)	13.511 (0.000)	5.378 (0.000)	4.001 (0.000)	10.449 (0.000)	-0.775 (0.442)	5.575 (0.000)	5.961 (0.000)
Tangible resources	2.71	2.80	3.51	3.19	1.91	-0.606 (0.546)	-4.561 (0.000)	-2.526 (0.015)	6.120 (0.000)	-4.641 (0.000)	-2.314 (0.027)	8.828 (0.000)	1.626 (0.110)	11.129 (0.000)	7.983 (0.000)
Intangible resources	4.10	3.77	3.35	3.38	2.35	2.822 (0.006)	4.400 (0.000)	5.788 (0.000)	14.903 (0.000)	2.272 (0.026)	2.684 (0.010)	10.108 (0.000)	-0.167 (0.868)	5.301 (0.000)	6.949 (0.000)
Managerial capabilities	3.41	3.75	3.19	2.99	2.32	-3.534 (0.001)	1.690 (0.094)	2.945 (0.005)	8.029 (0.000)	5.099 (0.000)	6.084 (0.000)	12.163 (0.000)	1.326 (0.191)	6.004 (0.000)	4.280 (0.000)
Input-based capabilities	2.86	2.90	3.10	2.68	2.13	-0.373 (0.710)	-2.237 (0.027)	1.414 (0.163)	6.565 (0.000)	-2.396 (0.018)	1.978 (0.056)	8.580 (0.000)	3.610 (0.001)	10.116 (0.000)	4.510 (0.000)
Transformational capabilities	3.88	3.52	3.39	3.12	2.23	4.785 (0.000)	5.620 (0.000)	6.811 (0.000)	15.359 (0.000)	1.536 (0.126)	3.639 (0.000)	12.268 (0.000)	2.271 (0.024)	10.182 (0.000)	6.711 (0.000)
Output-based capabilities	3.93	3.54	3.45	3.18	2.27	4.946 (0.000)	4.940 (0.000)	5.533 (0.000)	15.949 (0.000)	0.944 (0.348)	2.652 (0.013)	12.056 (0.000)	1.813 (0.078)	9.792 (0.000)	5.940 (0.000)
Functional capabilities	3.27	2.74	3.31	2.49	1.93	6.484 (0.000)	-0.438 (0.662)	6.545 (0.000)	11.603 (0.000)	-6.246 (0.000)	2.192 (0.029)	7.210 (0.000)	6.521 (0.000)	11.278 (0.000)	3.901 (0.000)
Human capital	3.81	3.92	3.28	3.43	2.35	-0.900 (0.370)	3.932 (0.000)	2.488 (0.016)	8.524 (0.000)	6.144 (0.000)	3.870 (0.000)	10.577 (0.000)	-1.078 (0.287)	5.864 (0.000)	6.192 (0.000)
Structural capital	4.35	4.07	3.75	3.54	2.14	3.185 (0.002)	5.905 (0.000)	6.293 (0.000)	17.666 (0.000)	3.261 (0.001)	4.218 (0.000)	15.773 (0.000)	1.569 (0.118)	12.139 (0.000)	9.005 (0.000)
Explicit knowledge	3.46	3.64	3.19	3.00	2.30	-1.669 (0.098)	3.043 (0.003)	2.531 (0.018)	6.679 (0.000)	4.392 (0.000)	3.390 (0.002)	7.408 (0.000)	1.037 (0.310)	5.174 (0.000)	2.993 (0.005)
Tacit knowledge	4.11	3.89	3.51	3.24	2.43	1.944 (0.055)	5.048 (0.000)	8.075 (0.000)	11.382 (0.000)	2.608 (0.010)	4.753 (0.000)	8.563 (0.000)	1.908 (0.061)	6.160 (0.000)	4.788 (0.000)

Note: [(a)] Contrast 1: C1 / C2; Contrast 2: C1 / C3; Contrast 3: C1 / C4; Contrast 4: C1 / C5; Contrast 5: C2 / C3; Contrast 6: C2 / C4; Contrast 7: C2 / C5; Contrast 8: C3 / C4; Contrast 9: C3 / C5; Contrast 10: C4 / C5;

Before reaching a conclusion regarding research hypothesis 1, we should also analyse the differences in performance (using the same methodology as in the previous paragraphs) between the five clusters (see Table 3). Firms from cluster 5 (N = 23) again differ from all other firms (statistically significant differences in contrasts 4, 7, 9 and 10) in that they on average perform much worse, both financially and nonfinancially. Knowing that these firms have no significant sources of competitive advantage and consequently also no competitive advantage, their poor financial and nonfinancial performance comes as no surprise. As for clusters 1 to 4, the conclusion is that there are differences in performance between them, although these differences are statistically significant only for most of the financial performance indicators, whereas for most of the nonfinancial ones they are not. Most of the significant differences relate to the greater average performance of firms from clusters 1 and 2 (N = 63 and 75) compared to firms from cluster 3 (N = 43) (contrasts 2 and 5), especially if we concentrate on the financial performance indicators. Firms from clusters 1 and 2 are on average also more successful than firms from cluster 4 (N = 21) (contrasts 3 and 6), although these differences are mostly not great enough (except for the sales-to-operating-expenses ratio, value added per employee and share of expenses on training and education) to be statistically significant. Statistically significant differences mostly also cannot be found between clusters 1 and 2 (contrast 1) and between clusters 3 and 4 (contrast 8), although the figures in Table 3 indicate that firms from cluster 1 are on average slightly more successful than firms from cluster 2, whereas firms from cluster 4 are on average slightly more successful than firms from cluster 3. Based on the above discussion, we can rank the five clusters according to their decreasing average performance as follows: cluster 1 → cluster 2 → cluster 4 → cluster 3 → cluster 5.

After our detailed analyses of the five clusters of firms in terms of their prevailing sources and forms of competitive advantage and their performance, we can conclude that firms in a (post)transitional (Slovenian) economy are indeed taking different paths in building their competitive advantage. If we disregard the fifth cluster (poorly performing firms without any competitive advantage) we can say that four such paths (models) may be identified. The differences among them, especially in the sources of competitive advantage and in performance, are significant enough to conclude that *hypothesis 1* can be *confirmed*.

Table 2. Differences in the relevance of the forms of competitive advantage among five clusters of firms

Dependent variable (Y) = Forms of competitive advantage	**Average of Y**					**Contrast[(a)] analysis**									
	X = C1	X = C2	X = C3	X = C4	X = C5	Contrast 1: T-Test (α)	Contrast 2: T-Test (α)	Contrast 3: T-Test (α)	Contrast 4: T-Test (α)	Contrast 5: T-Test (α)	Contrast 6: T-Test (α)	Contrast 7: T-Test (α)	Contrast 8: T-Test (α)	Contrast 9: T-Test (α)	Contrast 10: T-Test (α)
Total	3.59	3.31	3.13	3.03	1.83	2.009 (0.074)	2.788 (0.007)	2.656 (0.012)	13.119 (0.000)	1.117 (0.267)	1.336 (0.191)	10.775 (0.000)	0.409 (0.685)	7.728 (0.000)	5.660 (0.000)
Lower price	3.35	3.09	3.19	2.96	1.83	1.692 (0.093)	0.893 (0.374)	1.595 (0.121)	10.580 (0.000)	-0.540 (0.590)	0.511 (0.613)	8.530 (0.000)	0.856 (0.397)	7.747 (0.000)	4.765 (0.000)
Differentiation	3.70	3.42	3.10	3.06	1.84	1.994 (0.048)	3.555 (0.001)	3.088 (0.004)	13.139 (0.000)	1.914 (0.059)	1.733 (0.092)	11.045 (0.000)	0.132 (0.895)	7.165 (0.000)	5.804 (0.000)
Superior product/service	3.72	3.34	3.00	3.08	1.82	2.668 (0.009)	3.903 (0.000)	2.997 (0.005)	13.023 (0.000)	1.840 (0.070)	1.229 (0.228)	10.530 (0.000)	-0.300 (0.765)	6418 (0.000)	5.836 (0.000)
Total supply	3.57	3.49	3.26	3.06	1.79	0.574 (0.567)	1.669 (0.099)	2.089 (0.045)	11.233 (0.000)	1.244 (0.217)	1.765 (0.088)	10.923 (0.000)	10.923 (0.000)	7.474 (0.000)	5.044 (0.000)
Speed	3.74	3.47	3.00	3.01	1.90	1.878 (0.062)	3.939 (0.000)	3.420 (0.002)	12.370 (0.000)	2.448 (0.017)	2.113 (0.042)	10.366 (0.000)	-0.039 (0.969)	5.756 (0.000)	5.122 (0.000)
Flexibility	3.78	3.51	3.08	3.15	1.79	1.885 (0.061)	4.198 (0.000)	2.959 (0.003)	9.760 (0.000)	2.657 (0.008)	1.715 (0.088)	8.624 (0.000)	-0.319 (0.750)	5.989 (0.000)	5.407 (0.000)
Positive image	3.75	3.43	3.03	3.01	1.92	2.196 (0.029)	4.276 (0.000)	3.468 (0.001)	8.861 (0.000)	2.451 (0.015)	2.020 (0.045)	7.482 (0.000)	0.112 (0.911)	5.089 (0.000)	4.257 (0.000)

Note[(a)] Contrast 1: C1 / C2; Contrast 2: C1 / C3; Contrast 3: C1 / C4; Contrast 4: C1 / C5; Contrast 5: C2 / C3; Contrast 6: C2 / C4; Contrast 7: C2 / C5;
: Contrast 8: C3 / C4; Contrast 9: C3 / C5; Contrast 10: C4 / C5;

Table3. Differences in Financial and nonfinancial performance among five clusters of firms

Dependent variable (Y) = Firm performance	**Average of Y**					**Contrast[(a)] analysis**									
	X = C1	X = C2	X = C3	X = C4	X = C5	Contrast 1: T-Test (α)	Contrast 2: T-Test (α)	Contrast 3: T-Test (α)	Contrast 4: T-Test (α)	Contrast 5: T-Test (α)	Contrast 6: T-Test (α)	Contrast 7: T-Test (α)	Contrast 8: T-Test (α)	Contrast 9: T-Test (α)	Contrast 10: T-Test (α)
Return on equity (%)	13.5	14.0	6.2	9.3	-3.9	-0.179 (0.858)	3.068 (0.003)	1.434 (0.158)	4.411 (0.000)	3.803 (0.000)	1.732 (0.092)	4.757 (0.000)	-1.098 (0.279)	2.695 (0.011)	3.149 (0.003)
Return on assets (%)	6.4	6.0	2.9	4.4	-2.6	0.285 (0.776)	3.128 (0.002)	1.390 (0.171)	6.920 (0.000)	3.281 (0.001)	1.260 (0.215)	7.379 (0.000)	-1.134 (0.265)	4.951 (0.000)	4.823 (0.000)
Return on sales (%)	5.3	4.4	2.1	3.6	-3.1	0.847 (0.399)	3.269 (0.002)	1.118 (0.270)	6.344 (0.000)	3.184 (0.002)	0.588 (0.561)	6.520 (0.000)	-1.155 (0.295)	4.803 (0.000)	4.263 (0.000)
Revenues-to-expenses ratio	1.06	1.05	1.02	1.04	0.97	0.650 (0.517)	3.385 (0.001)	1.200 (0.236)	6.482 (0.000)	2.907 (0.004)	0.710 (0.482)	6.306 (0.000)	-1.219 (0.235)	5.219 (0.000)	4.030 (0.000)
Sales-to-operating-expenses ratio	1.06	1.06	1.02	1.03	0.97	0.172 (0.864)	2.730 (0.007)	2.129 (0.036)	5.061 (0.000)	2.773 (0.006)	2.114 (0.038)	5.157 (0.000)	-0.721 (0.474)	3.407 (0.002)	3.862 (0.000)
Value added per empl. (000 EUR)	26.4	25.1	18.7	19.1	11.5	0.390 (0.697)	3.136 (0.002)	2.612 (0.011)	6.433 (0.000)	3.739 (0.000)	2.849 (0.006)	8.810 (0.000)	-0.357 (0.723)	6.805 (0.000)	5.015 (0.000)
Percent. of loyal customers (%)	71.6	70.6	68.4	72.1	51.6	0277 (0.782)	0.743 (0.458)	-0.099 (0.921)	3.849 (0.000)	0.521 (0.603)	-0.293 (0.770)	3.736 (0.000)	-0.646 (0.519)	3.061 (0.002)	3.190 (0.002)
Percent. of loyal suppliers (%)	81.3	80.4	79.6	84.7	68.6	0.287 (0.774)	0.478 (0.633)	-0.762 (0.447)	2.934 (0.004)	0.237 (0.813)	-0.977 (0.330)	2.792 (0.006)	-1.076 (0.283)	2.400 (0.017)	3.004 (0.003)
Turnover (of staff) (%)	6.7	6.5	8.2	7.7	12.6	0.200 (0.842)	-1.070 (0.286)	-0.562 (0.575)	-3.400 (0.001)	-1.285 (0.200)	-0.712 (0.478)	-3.618 (0.000)	0.264 (0.792)	-2.387 (0.018)	-2.275 (0.024)
Share of expen. on train. and educ. (%)	2.7	2.7	1.5	1.9	1.2	0.242 (0.809)	4.008 (0.000)	2.417 (0.019)	5.206 (0.000)	3.288 (0.001)	1.969 (0.053)	4.310 (0.000)	-1.105 (0.275)	1.107 (0.273)	2.086 (0.044)
Share of expen. on R&D (%)	3.0	2.4	2.3	2.7	0.7	1.034 (0.304)	1.150 (0.253)	0.369 (0.714)	4.309 (0.000)	0.318 (0.751)	-0.438 (0.665)	5.565 (0.000)	-0.604 (0.550)	3.684 (0.001)	3.143 (0.005)
Percent. of reclaim. deliveries (%)	0.8	1.3	1.6	1.6	3.0	-2.442 (0.016)	-3.156 (0.003)	-1.912 (0.096)	-3.849 (0.001)	-1.236 (0.220)	-0.796 (0.433)	-2.977 (0.006)	0.004 (0.997)	-2.273 (0.030)	-1.994 (0.053)

Note: [(a)] Contrast 1: C1 / C2; Contrast 2: C1 / C3; Contrast 3: C1 / C4; Contrast 4: C1 / C5; Contrast 5: C2 / C3; Contrast 6: C2 / C4; Contrast 7: C2 / C5; Contrast 8: C3 / C4; Contrast 9: C3 / C5; Contrast 10: C4 / C5;

4.3. Differences between the models (clusters) with regard to the firms' basic characteristics and implemented strategies

Before painting the final picture of the different models of competition, we must analyse the differences between them in terms of firms' basic characteristics such as legal form, sector, size, age, type of ownership, nationality of capital and prevailing sales market. Using the contingency method (see Table 4), we compare the actual counts, i.e. the actual number of firms with a given characteristic in each cluster (the first number in each cell), and the expected counts, i.e. the expected number of firms with a given characteristic in each cluster if there were no correlation between the characteristic and the cluster appurtenance (the number in brackets in each cell). The contingency coefficients and their significance levels indicate that firms from different clusters do not differ in their sector appurtenance, nationality of capital, prevailing sales markets and age (although the differences between the actual and expected counts regarding age indicate that firms founded in 1989 or before dominate in cluster 3, whereas firms founded in 1990 or later are more frequently found in clusters 1 and 2). With regard to all other studied characteristics, i.e. legal form, size and type of ownership, statistically significant differences between the five clusters can be found.

With regard to the firms' sizes, the results show that in clusters 1 and 2 there are more small and less large firms, whereas in clusters 3 and 4 there are more large and less small firms. With respect to the prevailing sources of competitive advantage in these clusters, such a size distribution of the firms can partly even be considered as expected. The reason is that large firms more easily compete with their vast physical and financial resources (cluster 3) and external sources of competitive advantage such as weak bargaining power of buyers and suppliers, low threat of substitution and new entrants etc. (cluster 4). On the other hand, small firms that obviously cannot compete in this way are forced to look for other sources of competitive advantage such as capabilities and knowledge (clusters 1 and 2). Since the actual counts in cluster 5 do not differ much from the expected counts it can be concluded that firms can be unsuccessful and without any significant sources and forms of competitive advantage irrespective of their size. As for the legal form, again the greatest differences can be found between firms from clusters 1 and 2 (mostly private limited companies) and firms from clusters 3 and 4 (mostly public limited companies). However, although these differences are statistically significant we believe there is a considerable likelihood that they may arise from the differences in firms' sizes (i.e. private limited companies are on average smaller than public limited companies) and are not directly connected with the identified models of competition. Regarding the type of ownership, the greatest differences can again be found between firms from clusters 1 and 2 and firms from clusters 3 and 4. While in clusters 1 and 2 more firms are owned by managers (in cluster 2 also by employees) and less by external owners the situation in clusters 3 and

4 is exactly the opposite. Although one possible reason for this may be that managers care more about developing valuable capabilities and knowledge of their firms (clusters 1 and 2) if they are also the owners, it is possible that such a distribution of firms is at least partly also the result of the relationship between a firm's ownership and size (i.e. managers are frequently majority owners in small firms, whereas most large firms are usually owned by external owners). To sum up, the differences between the discussed clusters mostly relate to firms' sizes, legal form and type of ownership, although the differences seen in legal form and type of ownership probably at least partly arise from the differences in size.

Table 4. Relationship between the cluster membership and the basic characteristics of firms

Independent variable (X) = Basic characteristics of firms		**Dependent variable (Y) = Cluster of firms**					**Cont. coef.** (α)
		Y = C1	Y = C2	Y = C3	Y = C4	Y = C5	
Legal form	public lim. comp.	23 (28.6)	28 (34.0)	24 (19.5)	12 (9.5)	15 (10.4)	0.213 (0.030)
	private lim. comp.	40 (34.4)	47 (41.0)	19 (23.5)	9 (11.5)	8 (12.6)	
Sector	manufacturing	18 (20.7)	24 (24.7)	18 (14.1)	8 (6.9)	6 (7.6)	0.157 (0.682)
	service	25 (21.6)	28 (25.7)	9 (14.7)	7 (7.2)	8 (7.9)	
	trading	20 (20.7)	23 (24.7)	16 (14.1)	6 (6.9)	9 (7.6)	
Size	small	29 (21.6)	32 (25.7)	8 (14.7)	2 (7.2)	6 (7.9)	0.294 (0.007)
	medium-sized	19 (21.3)	25 (25.3)	18 (14.5)	7 (7.1)	7 (7.8)	
	large	15 (20.2)	18 (24.0)	17 (13.8)	12 (6.7)	10 (7.4)	
Year of foundation	1989 or sooner	28 (31.4)	33 (37.3)	29 (21.4)	9 (10.5)	13 (11.4)	0.184 (0.095)
	1990 or later	35 (31.6)	42 (37.7)	14 (21.6)	12 (10.5)	10 (11.6)	
Type of ownership	state	2 (2.2)	3 (2.7)	0 (1.5)	2 (0.7)	1 (0.8)	0.318 (0.014)
	managers	24 (21.3)	34 (25.3)	10 (14.5)	2 (7.1)	6 (7.8)	
	employees	11 (6.4)	5 (7.7)	3 (4.4)	1 (2.1)	3 (2.4)	
	external owners	26 (33.0)	33 (39.3)	30 (22.6)	16 (11.0)	13 (12.1)	
Nationality of capital	domestic	54 (55.4)	69 (66.0)	37 (37.8)	17 (18.5)	21 (20.2)	0.111 (0.587)
	foreign	9 (7.6)	6 (9.0)	6 (5.2)	4 (2.5)	2 (2.8)	
Sales markets	Slovenian market	49 (45.6)	52 (54.4)	31 (31.2)	13 (15.2)	18 (16.7)	0.225 (0.352)
	ex-Yug. markets	1 (2.5)	3 (3.0)	3 (1.7)	2 (0.8)	0 (0.9)	
	EU market	11 (12.6)	17 (15.0)	9 (8.6)	4 (4.2)	4 (4.6)	
	other markets	2 (2.0)	3 (2.3)	0 (1.3)	1 (0.7)	1 (0.7)	

If we ask ourselves how the firms from the five clusters differ in the strategies they implement the answer can again be found by using the contingency method (see Table 5). In this respect, several classifications of corporate and business

strategies[1] were considered. With regard to corporate strategies[2], we first analyse growth-stabilisation-retrenchment strategies. Growth strategies, especially diversification strategies, are more frequently implemented in clusters 1 and 2 and less frequently in cluster 5. This, of course, makes sense if we recall that firms from clusters 1 and 2 are on average very successful and have solid sources of competitive advantage. For this reason, these firms naturally wish to grow, not only operationally but also by entering new businesses. On the other hand, unsuccessful firms from cluster 5 on average try to stabilise their position and/or preserve only those businesses that allow them to be competitive. Implementing stabilisation and/or retrenchment strategies therefore seems to be the only logical choice for these firms. In clusters 3 and 4 there are no major differences between actual and expected counts, except perhaps in the implementation of limited diversification strategies which is less frequent in cluster 3 and more frequent in cluster 4. Minor differences regarding corporate strategies can also be found for the implementation of an acquisition strategy which is more frequent in cluster 1 and less frequent in cluster 5.

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[1] Corporate level strategy guides the activities of firms that have more than one line of business, which means that diversification is the key issue in corporate strategy. The role of the corporate strategy is to look for solutions that are best for the corporation as a whole. Corporate strategy must therefore focus on the kinds of businesses the firm wants to engage in, ways to acquire or get rid of businesses, allocation of resources among the businesses, and ways to manage the businesses. On the other hand, business level strategy guides the operations of a single business or strategic business unit. The key question of the business strategy is 'How do we compete?' It must therefore focus on how a firm or its strategic business unit can build and/or maintain its competitive advantage.

[2] There are several different classifications of corporate strategies in the strategic management literature. Perhaps the most common one parts corporate strategies into growth, stabilisation, and retrenchment strategies (Hunger/Wheelen 1996). Growth strategies can further be divided into eight groups, depending on the following three dimensions: product dimension (whether a firm releases new products or not), market dimension (whether it enters new markets or not), and technology dimension (whether it develops new technologies or not). Eight growth strategies based on these three dimensions are: market penetration, product development, market development, technology development, product-market diversification, market-technology diversification, product-technology diversification, and complete diversification (Pucko 1999). Beside the above classification of corporate strategies the scientific literature also discusses several other strategies such as merger strategy, acquisition strategy, internationalisation strategy etc. (Ellis/Williams 1995; Wright/Kroll/Parnell 1996).

Firms (SBUs) from different clusters also differ with regard to how frequently they implement different business strategies [3], as also indicated by four statistically significant contingency coefficients. These coefficients relate to business strategies based on the portfolio matrix, independence/collaboration strategies, pioneer/imitator strategies and offensive/defensive strategies (see Table 5). As for portfolio-matrix-based strategies, especially an investment strategy is more frequently implemented in cluster 1, a milking strategy in cluster 2 and a divestment and/or liquidation strategy in cluster 5. Regarding independence/collaboration strategies, the former are more frequent in cluster 5, whereas the latter are more frequent in cluster 4. Finally, with regard to pioneer/imitator strategies and offensive/defensive strategies, firms from cluster 1 choose to be pioneers more often than imitators. Also, these firms implement offensive strategies on average more than defensive strategies. On the other hand, firms from cluster 5 mostly choose to be imitators and implement one of the defensive strategies, which is partly also the case for firms from cluster 3. The above distribution of business strategies suggests that the strategic behaviour of firms from cluster 1 (and partly cluster 2) is much more offensive and innovative, whereas just the opposite applies to firms from cluster 5 (and partly cluster 3). This again makes sense if we know that firms from cluster 1 are on average very successful, while firms from cluster 5 are on average very unsuccessful.

Based on the above discussion, we may conclude that there are certain differences between the five clusters of firms, especially in terms of their legal form, size, type of ownership and the strategies they implement. Firms in a (post)transitional (Slovenian) economy that appear in the different models of competition therefore differ in some of their basic characteristics, which means that *hypothesis 2* can also be *confirmed*.

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[3] Among many classifications of business strategies Porter's generic business strategies are undoubtedly the most frequently discussed in the scientific literature. The core idea of the concept is that a firm can choose between three potential strategic approaches to outperform its competitors in an industry, namely cost leadership, differentiation, and focus (based either on low costs or on differentiation) (Porter 1980). Important classification of business strategies is also the one based on the portfolio matrix. According to BCG matrix, each SBU in the corporate portfolio can be labelled as star, question mark, cash cow, or dog. For each of those BCG prescribes a different strategy, namely investment, investment or divestment, 'milking', and divestment or liquidation strategy, respectively (Thompson/Strickland 1996). Business strategies can also be classified according to several other criteria. Consequently we can distinguish between strategies based on the stage of the product life-cycle, between independence and collaboration strategies, between being a pioneer and being an imitator strategies, between offensive and defensive strategies etc. (Pucko 1999).

Table 5. Relationship between the cluster membership and the firms' strategies

Independent variable (X) = Corporate and business strategy	**Dependent variable (Y) = Cluster of firms**					**Cont. coef.** (α)
	Y = C1	Y = C2	Y = C3	Y = C4	Y = C5	
Market penetration	7 (7.0)	7 (8.3)	7 (4.8)	0 (2.3)	4 (2.6)	0.582 (0.000)
Development of one dimension	15 (16.5)	23 (19.7)	13 (11.3)	5 (5.5)	3 (6.0)	
Limited diversification	23 (20.2)	25 (24.1)	9 (13.7)	13 (6.8)	2 (7.3)	
Complete diversification	14 (11.5)	17 (13.7)	8 (7.8)	2 (3.8)	0 (4.2)	
Stabilisation or retrenchment	4 (7.8)	3 (9.4)	6 (5.4)	1 (2.7)	14 (2.8)	
Merger	7 (10.9)	14 (13.0)	8 (7.5)	4 (3.6)	6 (4.0)	0.17 (0.538)
No merger	56 (52.1)	61 (62.0)	35 (35.5)	17 (17.4)	17 (9.0)	
Acquisition	16 (11.2)	15 (13.3)	4 (7.6)	5 (3.7)	0 (4.1)	0.210 (0.035)
No acquisition	47 (51.8)	60 (61.7)	39 (35.4)	16 (17.3)	23 (18.9)	
Internationalisation	44 (41.2)	49 (49.0)	29 (28.1)	12 (13.7)	13 (15.0)	0.095 (0.725)
No internationalisation	19 (21.8)	26 (26.0)	14 (14.9)	9 (7.3)	10 (8.0)	
Cost leadership	7 (9.5)	10 (11.3)	10 (6.5)	4 (3.2)	3 (3.5)	0.316 (0.071)
Differentiation	22 (17.6)	24 (21.0)	7 (12.0)	5 (5.9)	5 (6.4)	
Focus based on cost leadership	5 (8.1)	8 (9.7)	9 (5.5)	2 (2.7)	5 (3.0)	
Focus based on differentiation	20 (14.3)	20 (17.0)	6 (9.7)	3 (4.8)	2 (5.2)	
Stuck in the middle	9 (13.4)	13 (16.0)	11 (9.2)	7 (4.5)	8 (4.9)	
Investment	54 (48.7)	54 (58.0)	37 (33.3)	17 (16.2)	12 (17.8)	0.315 (0.002)
Milking	8 (10.4)	15 (12.4)	6 (7.1)	3 (3.5)	5 (3.8)	
Divestment or liquidation	1 (3.9)	6 (4.7)	0 (2.7)	1 (1.3)	6 (1.4)	
Product innovation	10 (5.0)	5 (6.0)	2 (3.4)	1 (1.7)	0 (1.8)	0.261 (0.424)
Product introduction	11 (12.0)	15 (14.3)	7 (8.2)	5 (4.0)	5 (4.4)	
Sales growth	35 (33.9)	40 (40.3)	25 (23.1)	10 (11.3)	11 (12.4)	
Defending position	6 (11.2)	14 (13.3)	9 (7.6)	4 (3.7)	7 (4.1)	
Withdrawal	1 (0.8)	1 (1.0)	0 (0.6)	1 (0.3)	0 (0.3)	
Independence	26 (24.4)	28 (29.0)	17 (16.6)	2 (8.1)	14 (8.9)	0.230 (0.014)
Collaboration	37 (38.6)	47 (46.0)	26 (26.4)	19 (12.9)	9 (14.1)	
Being a pioneer	31 (23.5)	30 (28.0)	12 (15.1)	9 (7.8)	2 (8.6)	0.242 (0.007)
Being an imitator	32 (39.5)	45 (47.0)	31 (26.9)	12 (13.2)	21 (14.4)	
Offensive strategy	34 (26.6)	34 (21.7)	14 (18.2)	11 (8.9)	2 (9.7)	0.265 (0.002)
Defensive strategy	29 (36.4)	41 (43.3)	29 (24.8)	10 (12.1)	21 (13.3)	

5. Discussion and conclusion

To sum up our key findings, we can say that four (if we disregard the fifth cluster involving poorly performing firms) models of competition among (post)transitional Slovenian firms can be identified. The differences between them can mostly be found in the sources of competitive advantage (which is fully expected given that the clusters were created based on the differences in

these sources), firm performance, firm size and their implemented strategies (see Figure 2).

Firms from cluster 1 are distinguished by their organisational (intangible) resources, capabilities (especially transformational and output-based) and knowledge (especially tacit and whole-firm-related), which results in their superior products/services, speed, flexibility and overall positive image as the main forms of competitive advantage as well as their successful performance. In this cluster there are more small than medium-sized and large firms and their strategic behaviour is relatively offensive. Considering all their characteristics and comparing them with the world of wild animals the members of cluster 1 can be seen as '*panthers*' (known for their great hunting capabilities, slyness, speed, flexibility and aggressiveness) of the business environment. Firms from cluster 2 are, in general, relatively similar to those from cluster 1. However, they differ in certain characteristics such as various kinds of capabilities (more managerial-related) and knowledge, somewhat less superior products/services, smaller speed and flexibility and slightly worse nonfinancial performance.

Following this description, the members of cluster 2 can be compared to '*wolves*', which are also capable and successful hunters but are somewhat slower and probably less flexible than panthers. Firms from cluster 3 already differ considerably from those in clusters 1 and 2. They are distinguished by their physical and financial (i.e. more tangible) resources, input-based capabilities and certain kinds of knowledge. These sources of competitive advantage allow these firms to build a competitive advantage in lower price/costs and the totality of supply. They are on average relatively large, quite defensive but still successful (although not as much as the firms from clusters 1 and 2). Due to their (physical) power, size, defensiveness and smaller competitive advantage, these firms can be labelled '*elephants*'. Firms from cluster 4 are (compared to other firms) known for their external sources of competitive advantage (among internal ones only certain types of knowledge were ascribed greater relevance), great flexibility and above-average performance. They are, on average, relatively large and can be compared to '*polar bears*'. The similarity can primarily be seen in polar bears' amazing ability to adapt to the environment as well as in their success in hunting. Further, polar bears are the strongest animals in their environment (an analogy with the strong bargaining power of these firms) and have few natural enemies (an analogy with mild rivalry in the industry). As mentioned, firms from cluster 5 have no (sources of) competitive advantage and are very unsuccessful. Consequently, their strategic behaviour is defensive and non-innovative. Therefore, they can be compared to any sick animal ('*patient*') that vegetates, is unable to find enough food and is sooner or later sentenced to death.

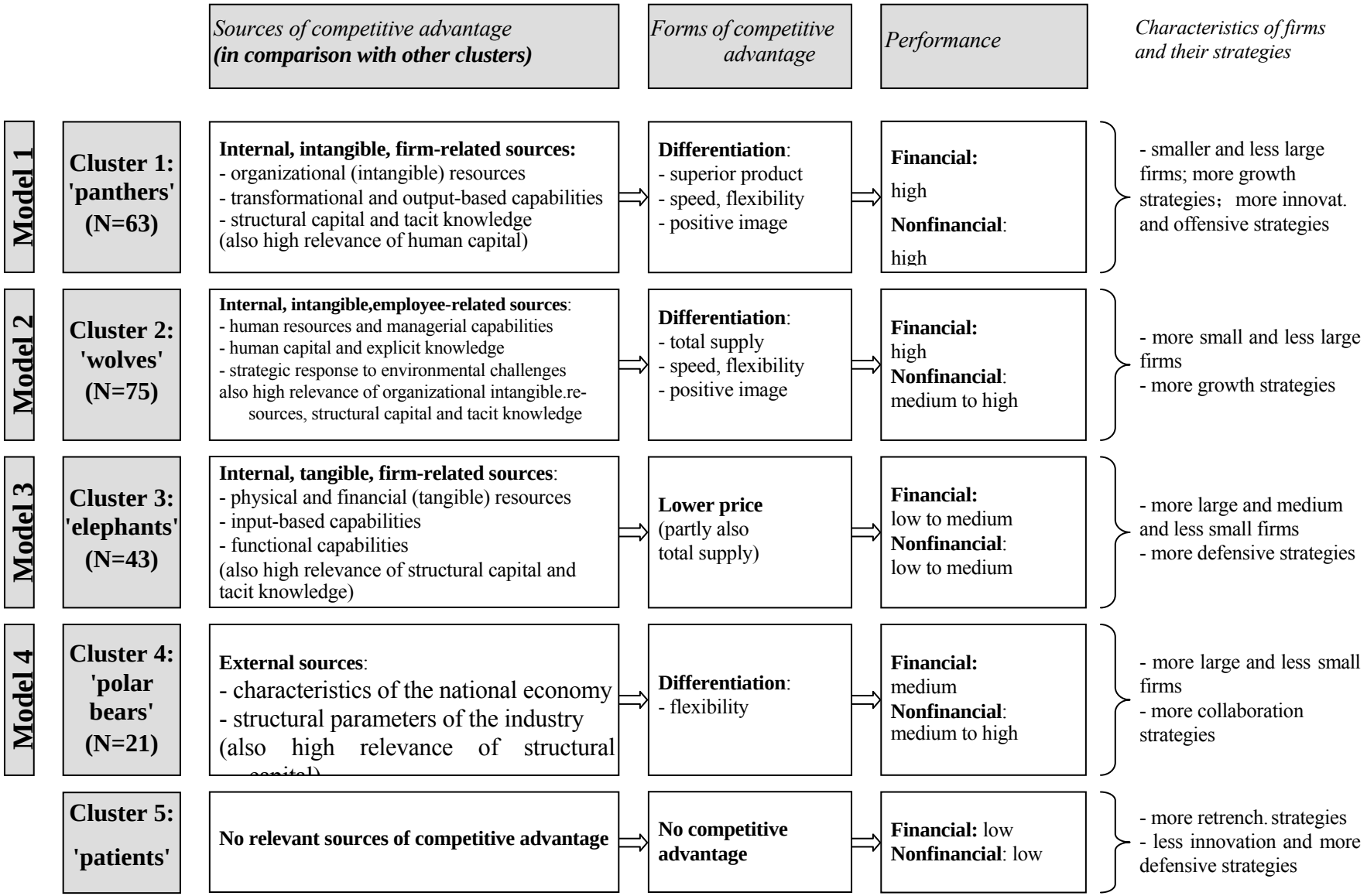
Based on our discussion, we can conclude that in spite of the fact that the (post)transitional Slovenian economy is small and relatively inexperienced we

can identify four broad and significantly different models (approaches) that the firms use when competing in the market. In our opinion, this comes as no surprise given that the process of competition between firms (i.e. the process that begins in certain sources of competitive advantage, continues in different forms of competitive advantage and ends in a firm's more or less successful performance) is extremely complex. By discovering that clusters of firms, in which the internal sources of competitive advantage are more relevant than the external ones, are more successful on average, our research also implicitly confirms the findings of many past empirical studies on the internal and external sources of competitive advantage.

Most of these studies show that, although both groups of sources have a statistically significant influence on a firm's performance (Spanos/Lioukas 2001), internal sources seem to be even more important (i.e. they explain relatively larger portions of the variance in different performance indicators). Some of the studies report the following proportions between the variances explained by internal and external sources: 45.8% vs. 4.0% (Rumelt 1991), 36.9% vs. 6.2% (Mauri/Michaels 1998), 55.0% vs. 10.2% (Roquebert/Phillips/Westfall 1996), 37.8% vs. 18.5% (Hansen/Wernerfelt 1989), and 36.0% vs. 18.7% (McGahan/Porter 1997), all in favour of internal sources. Similar results are also reported by Barney (1986), Powell (1993) and Maijoor and Van Witteloostuijn (1996), while only a few studies give priority to external sources (see, for example, Kotha and Nair (1995)).

The question that needs to be answered before reaching a final conclusion is also how might the empirical results be influenced by the fact that the study was carried out in a (post)transitional business environment. We believe that the answer here is twofold. On one hand, for example, the finding that in a (post)transitional economy internal sources seem more relevant for building a competitive advantage than external sources was expected (and is similar to the findings of studies carried out in established market economies). On the other hand, however, we certainly did not expect to discover that smaller firms (clusters 1 and 2) would be more successful on average than larger firms (clusters 3 and 4). When exploring the data in greater detail we found that most of today's large Slovenian firms were established before Slovenia's independence in 1990. These firms therefore used to be ex-socialist enterprises and their slightly worse performance may well be the result of their still incomplete recovery after the change in political system and loss of the relatively large ex-Yugoslav markets.

Figure 2. Identified models of competition between firms in a (post)transitional (Slovenian) economy



Also, the fact that no clear distinction between clusters regarding basic forms of competitive advantage have been discovered could be the consequence of firms' indecision regarding the strategic choices they make. One possible explanation for this can be found in Slovenian firms' relative inexperience with the market economy as well as in other challenges Slovenian firms were preoccupied with during the transition period (radical restructuring, search for new markets etc.). In conclusion we can say that Slovenian firms' strategic behaviour is still at least partly influenced by the burden of ex-socialist political system. Irrespective of that, however, most Slovenian firms seem to have rapidly and successfully reoriented themselves towards western European markets. This relatively successful transition of Slovenian firms is of course also reflected in Slovenia's commendatory macroeconomic results. After all, in less than 14 years Slovenia has travelled the path from being one of the socialist republics within ex-Yugoslavia (in 1990) to being the best prepared new member of the enlarged European Union (in 2004).

In this paper we naturally not only wish to stimulate and contribute to the discussion on a firm's competitiveness among academics, but also to offer additional insights into this important topic to practitioners, i.e. managers. The general implications of our findings for management are that firms should always keep in mind that not all types of their resources, capabilities, knowledge and other sources of competitive advantage have the same potential to contribute positively to a firm's improved competitiveness and performance. More specifically, three suggestions can be offered to managers:

On average, firms cannot and should not expect to base their competitive advantage on external sources such as favourable governmental policy and specific attractive conditions within the industry. This is even more true in Slovenia where the long-term governmental policy is to withdraw from the economy as much as possible. Firms therefore need to build up solid sources of competitive advantage themselves. In doing so they need to understand that the creation of such sources is rarely a 'short-term project'. It often takes many years of patience and continuous learning, which usually results in the accumulation of unique knowledge, capabilities and resources on whose basis a superior value for customers can be created. This suggestion should be of particular interest to the 'polar bears'. We are not suggesting that these firms should not continue to exploit their external sources of competitive advantage but at least in long term this probably will not be enough. Only those firms that will succeed in combining external sources of competitive advantage with a smart approach to the development of internal ones will be the future champions.

In general, modern firms should strive to build up their competitiveness on rare (if not unique) intangible sources and not so much on tangible ones. The reason for this is that valuable intangible sources generally cannot be easily imitated by competitors. Their imperfect imitability is in most cases a direct consequence of

their invisibility, complexity, complementarity with other resources and the specific environment in which these sources were created. On the other hand, tangible sources are visible and chiefly purchased in the market (i.e. not developed within a firm), meaning they can also quite easily be either imitated or purchased by competitors. This suggestion primarily concerns the 'elephants' in our model. We are not suggesting that elephants should not continue to exploit their size-related advantages. We do, however, wish to stress that size-related advantages could be more risky and less maintainable than competitive advantages based on intangible resources, primarily firm-specific knowledge.

Finally, firms should try to 'chain' as many of the developed sources of competitive advantage as possible to the firm as a whole. Of course, sources of competitive advantage chained to individual employees can also be profitable but they are also very risky, as individual employees can always leave the firm and take an important part of knowledge and capabilities with them. Even worse, they can sometimes transfer these sources of competitive advantage to the competitors. In other words, by stimulating the sharing and transferring of knowledge among all employees, which necessarily involves a suitable organisational structure, compensation system, team work etc., managers should try to transform as many of the individual-related sources of competitive advantage as possible into firm-related sources of competitive advantage. Obviously, this discussion is primarily intended to support the 'wolves'. They should understand that although the sources of their competitive advantages are relatively strong they still have a chance to further improve their competitive positions by trying to 'chain' as many of the developed sources of competitive advantage as possible to a firm as a whole.

Except for the aspect mentioned in the above paragraphs, unfortunately our findings cannot be fully and adequately compared with similar past studies as such studies simply do not exist in (post)transitional nor established market economies, at least not in the literature available to us. In this respect, our paper can immodestly be regarded as an introduction to further and much more detailed studies on the approaches firms harness when trying to outperform their competitors. Irrespective of all the findings of this research, its possible weaknesses should also be mentioned. Perhaps the most important weakness lies in the fact that real sources of competitive advantage are usually well hidden, making it impossible for a researcher to measure them completely objectively. For this reason, we had to use managers' relatively subjective assessments of the basic sources and forms of competitive (dis)advantage of their firms. This weakness might be partially avoided by personally interviewing managers and/or by observing each firm over a longer period of time. Another possible weakness of this research is the use of stratified sampling, which was necessary because of the broader goals of the research. The consequence of stratified sampling is that the sample is not completely representative, meaning the

conclusions cannot be automatically extrapolated for all Slovenian firms. As a suggestion for further research, we believe that similar studies should also be carried out on a much more homogeneous sample of firms. In spite of these weaknesses, we still believe the research has the potential to broaden our knowledge in the field of firm competitiveness. Its most important advantage is probably the relatively large sample of firms involved, which has allowed us to draw certain conclusions with minimum risk.

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