

ROLE OF CORE COMPETENCIES AND COMPETITIVE ADVANTAGES IN EVALUATION OF COMPETITIVENESS OF SMALL AND MEDIUM SIZED ENTERPRISES: EMPIRICAL STUDY BASED ON COMPETITIVENESS DATA OF HUNGARIAN FIRMS

András Rideg

Assistant lecturer, University of Pécs

ridega@ktk.pte.hu

SUMMARY

The Small Business Competitiveness Research Group of University of Pécs Faculty of Business and Economics led by Dr. Laszlo Szerb, has developed the Small and Medium Enterprises' Competitiveness Index (SMECI). The index was based upon a data of a representative cluster sampling survey, carried out between 2013-2014, focusing on Hungarian small and medium enterprises (SME). The approach utilises Barney's resource-based and Miller's configuration theories and accepts Czakó-Chikán's definition of firm-level competitiveness and accommodates it to a conceptual model, thus allows index creation. In their view, an interconnected system containing ten internal competences shape the competitiveness.

According to Szerb, the key of competitiveness lies in the well-synchronized system of the competencies, because individual competences can easily be copied. According to the theory of core competences, company should focus on high-performance competences, which can provide the greatest competitive advantage. Regarding small enterprises however, this theory is thought to be only partly valid. Because of these characteristics, the "penalty for bottleneck" method is often used, which has established theoretical background in literature (e.g., Theory of Weakest Link, Theory of Constraints, Six Sigma Management). Consequently, the methodology of SMECI – while determining firm-level competitiveness it – paradoxically validates the impact of bottleneck competences, which are generally competitive disadvantages.

This study follows multiple objectives. The first is to specify a methodology – using Szerb's theoretical basis – which enables the examination of the improving effects of high-performance core competences and competitive advantages. The results are comparable to Szerb's results, since both approaches rely on the same dataset. Finally, an experiment is reported that links the two logics, which are complementary and not contradictory. According to the author's opinion, the joint application of the two approaches can provide a more complete picture on small enterprises' competitiveness.

INTRODUCTION

The Small Business Competitiveness Research Group of the University of Pécs; Faculty of Business and Economics led by László Szerb, has developed the Small and Medium Enterprises' Competitiveness Index (SMECI) (Szerb et al., 2014). This index was based upon a data of a representative cluster sampling survey, carried out between 2013-2014. The survey focused on Hungarian small and medium enterprises (SME). The approach utilises Barney's (1991) resource-based and Miller's (1996) configuration theories and accepts Czakó-Chikán's (2006) definition of firm-level competitiveness. It accommodates these concepts to a conceptual model, thus allowing index creation. In their view, an interconnected system containing ten internal competences shape the competitiveness. These competencies enable

small firms to compete effectively against competitors and to provide products/services that are highly appreciated by customers.

According to Szerb et al. (2014), the key of competitiveness lies in the well-synchronized system of competencies, because a certain individual competence can be easily copied. According to the theory of core competences, a company should focus on high-performance competences, thus providing the greatest competitive advantage. Regarding small enterprises however, this theory is thought to be only partly valid. Because of these characteristics, the “penalty for bottleneck” method is often used (Rappai & Szerb, 2011), which has established theoretical background in the literature of Theory of Weakest Link, Theory of Constraints and Six Sigma Management (see Goldratt, 1994; Stamatis, 2004). Consequently, the methodology of SMECI – while determining firm-level competitiveness – paradoxically validates the impact of bottleneck competences, which are generally competitive disadvantages.

This study follows multiple objectives. Firstly the literature review will introduce the theories regarding competitive advantages and disadvantages. Following, these approaches will be connected. After the theoretical background, the formation of the reward-function will follow based on the reward for high performance; similarly to the penalty-function based on the penalty of bottleneck theory. The formation of these functions enables the calculation and comparison of the financial connections, in regards to the two functions which are the base of the competitiveness points. The goal is to be able to give a better explanation for the financial performance of SMEs. According to these financial correlations, it became clear that a new financial factor analysis needed to be defined, instead of the present complex performance indicator. Lastly the analysis’s global results will be described. According to the gathered data, it is visible that the model of core-competences and competitive advantages provided only slightly better results from the bottleneck and competitive disadvantages methodology. This indicates that a deeper analysis is needed with a segmentation of SMEs according to industry, activity, life-cycle or size to gain a broader picture of the competitiveness of SMEs.

THE RELEVANCE OF COMPETITIVENESS ANALYSIS OF SMES

The European Union recognising and acknowledging the social and economic importance of Small and Medium Sized Enterprises (in short SMEs); also analysing the impacts of the 2008 crisis on the financial sector, the “Entrepreneurship 2020” action plan has been announced. This action plan names measures that need to be implemented on the level of the whole European Union, also on the level of individual member states. The aim is to develop entrepreneurial activity, to make the number of active entrepreneurs higher, to re-start economic growth and to make unemployment lower (COM, 2012, 795 final). According to the EU initiative, an implementation plan titled “SME strategy 2014-2020” has been composed in Hungary, which describes the present situation in detail. It provides a vision for the future with an attached implementation plan (Hungary’s Office for National Economic Planning, 2013). The difficulty with this strategy is, that its success and the efficiency of invested funds is at question, since there is a low amount of empirical studies about SMEs competitiveness. These are limited, not sufficient to show precisely what corporate factors, and how they influence the competitiveness.

Competitiveness has been analysed with definitive instruments, theoretical approaches and empirical tests, both domestically in Hungary and internationally, including different levels: products, business, industry, corporate, regional, international, national and subnational (see Török, 1989; Delgado et al., 2012; Wang, 2014). From the list, the relevance of analysis of competitiveness on a firm-level can be highlighted; since even prominent figures of contemporary economic thinkers like Porter and Krugman agree; that those having competitiveness are companies and not regions or countries. Szerb (2010) emphasises, that firm-level specifics in the competitiveness methodologies cannot be excluded. Among competitiveness research the analysis of large corporations and clusters dominate, while the competitiveness of SME is rarely analysed (see Porter, 1998; Lengyel, 2001; Rugman & Verbeke, 2001; Chikán, 2006; Cerrato & Depperu, 2011; Kállay, 2012). A relative low number of studies can be found in regard to SMEs (Szerb, 2010). Those that investigate this field usually focus on a specific theory, or in empirical studies focus on one business sector, region or cluster, with a narrow firm sample size. Since SME competitiveness is a considerably neglected field, the following concerns can be described:

1. The weight of the SME sector in Hungary, in regards to occurrence frequency (prevalence) is over 99.5%, it employs over 70% of labour in all national economic fields, it is responsible for circa 55% of gross national added value, also about 20% of all exports (based on data tables of the Hungarian Central Statistical Office, 2013, www.ksh.hu). It can be stated that this sector is an important element of the national economy, nonetheless our knowledge of the internal factors that shape competitiveness is limited. Usually aggregated statistical data is used as an approach to draw conclusions. This also means that it is not precisely known which are those appropriate economic and professional policies that can strengthen the competitiveness of SMEs, with optimal resource allocation.
2. It is well known that the competitiveness of bigger enterprises is better than at smaller ones – regardless of the definition of competitiveness – still, it is not known how small companies become big, thus more competitive. Those enterprises that are fast growing, those gazelles which are responsible for the bulk of new workplaces are in the focus point of research (Henrekson & Johansson, 2010; Acs, 2011; Csikány & Takács, 2015). The main problem with these gazelle studies is, that they don't focus on competitiveness. These studies also doesn't substitute the systematic analysis of a much higher number of SMEs. On the other side, we are not sure which are those companies that close down – or go bankrupt – because of their own fault, or because of a change in the business environment.
3. It can be stated that owners, leaders, employees and generally the stakeholders don't receive much information about the real competitiveness of the firm. The question is what actions need to be taken in order to strengthen an SME's ability to seize opportunities and to enhance income generation. It is frequent at SMEs to overstate their real position and competitiveness.

The Small Business Competitiveness Research Group (University of Pécs, Faculty of Business and Economics), led by László Szerb, conducted explorations on SME competitiveness on a representative Hungarian firm sample, in the period of 2004-2007 and

2013-2014. This made it possible for the Small and Medium Enterprises Competitiveness Index (SMECI) to be assembled (Szerb, 2010; Szerb et al., 2014). This exploratory work is making up for the research deficit on a Hungarian level – it can be understood as an expansion to the research focused on big and medium sized businesses by the Competitiveness Research Centre (Corvinus University of Budapest) – nevertheless it is also rare on an international level.

SMECI theory and methodology

Szerb (2010, 2014) acknowledges the definition of firm-level competitiveness by Czákó-Czikán (2007) which is the following: “The competitiveness of the national economy, is the competence/ability of the national economy to make, use and sell in the global competitive environment products and services. During this process the yield of the factors of production and also the wealth of the citizens is growing in a sustainable fashion.” (translated from Hungarian). The condition of competitiveness in this case is the development of effectiveness strengthening conditions at companies and institutions that enable the growth of the resource productivity on a long term basis (Czákó & Chikán, 2007:3). This definition of general firm-level competitiveness is fused with a conceptual model that enables index creation.

To formulate this new model, background information relating to strategic management and small-company specific business knowledge is needed (see Grant, 1991; Lengnick-Hall, 1992; Peteraf, 1993; McGahan, 1999; Man et al., 2002; Dholakia & Kshetri, 2004; Ray et al., 2004; Aragón-Sánchez & Sánchez-Marín, 2005; Singh et al., 2007), beyond the sample properties. At the SMECI model the configuration theory of Miller has been also utilised (Miller, 1996; Miller & Whitney, 1999) that states that the individual elements can be easily copied one by one, thus the competitiveness is formulised according to the system of internal competences. With this addition, the examination adopts the logic of the core-competence based and resource-based theories (see Penrose, 1959; Rumelt, 1984; Teece, 1984; Wernerfelt, 1984, 1995; Prahalad & Hamel, 1990; Barney, 1991, 1995, 2001; Peteraf, 1993; Collins & Montgomery, 1995; Rugman & Verbeke, 2002; Grant, 1991, 2010).

These above provide the literature fundament and definitional basis of the research into SME competitiveness by Szerb et al. (2014). The approach changed due time – further developed – because the research group considered the characteristics of the empirical observations. Thus the definitions in 2010, 2014 and 2015 match totally in their logic, but they overlap each other only partially. An introduction to the most recent definition to the conceptual model according to the described theories is the following: “The competitiveness of SMEs is determined by the domestic market, the cooperation, the processes of becoming international, the human resources, the offered product/services, the production, the sales methods (marketing), the online presence, the administration and decision making routines and the strategy. These are combined to a system of internal competences. These competences make it possible for the business entity to compete effectively with other companies in offering products and services to the market that have high value for customers”. This is the definition of SME competitiveness, which is used in the present article.

The model uses 10 pillars with all together 46 complex variables to gain information. In the pillar of domestic market and competition the model takes into consideration the effects of

geography on sales, the perspectives of the target market, the layers of competition and its intensity, finally those variables are listed that effect the company's ability to react to the change in consumer demand. In the pillar of cooperation those supporting elements are listed that develop corporate growth and innovation, including external links, stability and uniqueness. The pillar of internationalisation lists the variables of export performance, the fulfilment of conditions for sale to foreign customers, and the uniqueness of location. In the pillar of human resources those variables are described which influence leader and employee excellence, also those which describe the human resource management function. The product and product innovation pillar lists the new or improved products, their success in the customer segment, the variables of intellectual property and linked intellectual capital rights, also the uniqueness of these intellectual properties. The pillar of production considers the level of development of the used technology, how modern and efficient it is, its age, the level of production innovation, the sophistication of the production management and quality insurance systems and the use of unique info-communication technology. In the marketing pillar the uniqueness of products and services, the distribution channels, the price range, the marketing communication tools, the features of the marketing methods and the innovation of marketing methods. In the online presence pillar the technical specifics of the corporate website, its services and content. In the pillar of decision making, organisation and administration routines the variables of information management, decision making and administration proceedings are listed. In the strategy pillar the dynamics and direction of change in firm operating range, the capabilities for leadership and entrepreneurship, and the uniqueness of the proactive long term strategy.

The calculation of the competitiveness index (Szerb et al., 2014) uses the following seven point logic:

1. Identification and calculation of the variables
2. normalization of the variables to the <0,1> range
3. calculation of the pillars, according to the average of the normalized variables
4. normalization of the pillars to the <0,1> range
5. transformation of the individual pillar values using the same k -th power to get the same pillar averages according to the combined average of the 10 individual pillar averages
6. using the penalty-function, according to the penalty for bottleneck (PFB) methodology (Rappai & Szerb, 2011):

$$h_{i,j} = \min y_{i,j} + (1 - e^{-(y_{i,j} - \min y_{i,j})})$$

where:

$h_{i,j}$ the modified, after punishment value in case of j pillar and i firm

$y_{i,j}$ the normalised value for j pillar and i firm

$\min y_{i,j}$ the minimal value of $y_{i,j}$ in case of i firm

$i = 1, 2, \dots, n$ = number of firms

$j = 1, 2, \dots, m$ = number of pillars

7. calculation of competitiveness index, through addition of the ten adjusted pillar values.

In the methodology of the SMECI, the penalty for bottleneck method (Rappai & Szerb, 2011) is used because of the validity of the configuration theory by Miller. The theoretical background of the method is based on the Theory of Weakest Links and the Theory of Constraints (TOC). According to the TOC theory the performance of the system can be enhanced by the development or liquidation of the weakest link (Goldratt, 1994). This same method is visible in operation, although in other utilisation in the Six Sigma Management method (Stamatis, 2004). Thus in the method the negative effects on competitiveness are visible and validated by a deficit in harmony between the pillars. Harmonisation in this case means that the normalised and the adjusted values of the 10 pillar averages are equal. Among the identified competitiveness pillars the bottlenecks will negatively influence and pull back the pillar values and the competitiveness index. Thus the elimination of bottlenecks is in the core of corporate strategy. Because of the strong correlation between the pillars, developing an already high pillar value can only slightly enhance the firms overall competitiveness. This means that there are huge differences in the resources necessary for the repair/development of the pillars, those which have lower values are harder, those pillars with higher values are easier to make better. One of the main aims of the research was to make the method and theory of competitiveness index applicable in actual decision making. Thus power-transformation was used to eliminate the distortion effect caused by the difference in arithmetic averages of the pillars – before using the penalty function.

The research came to the conclusion, that in general the Hungarian SMEs are uncompetitive and that the governmental benefits and support don't enhance competitiveness, they only incubates the un-competitiveness. In many cases in SMEs nobody speak foreign languages, have no training programs for employees, don't cooperate, have no innovations, no marketing communication, nor online presence; whereas 40% of these same SMEs operate in a highly competitive segment of the industry. According to the research in competitiveness clusters, it can be stated that the distance between the best (most competitive) and worst (least competitive) companies is huge. Although data is available on the sample globally, no analysis is focused on the sector, activity, life-cycle or corporate size. The use of these cross-variables would yield in interesting and unique results. It is important to state that a weak to medium positive correlation has been found between the complex performance indicator and the competitiveness index. The complex performance indicator is comprised from three components that are based on publicly available annual financial reports from the past five years. The components of the performance indicator and the competitiveness index showed inconsistent connections. The structure of the complex performance indicator is the following:

- Sales income growth indicator: The real-income data computed out of the income data in a 5 year term and the inflation data, considering the steepness supposing a linear correlation. Afterwards limiting out-layers (capping) according to the two-sigma principle.
- Yield indicator: The 5 year ROA, ROE, ROS capped data according to the two sigma principle, the average of the adjusted average of yield variables.
- Bankruptcy indicator: According to a neural web (auto multi-player perceptrons) and a SVM (Support Vector Machine – Evolutionary with anova kernel) accuracy result comparison. It has been implemented in a learning sample of 1250 bankrupt and 3900 operating companies. This algorithm is able for bankruptcy forecast.

- To get the equal averages of the component values a transformation was needed using the same k -th power according to the combined average of the 3 component averages. The complex performance indicators are calculated from the average of the adjusted component values.

The contradiction is probably caused by the difference of the stock and flow indicators. The comparison of the variables from the quantitative and qualitative information can be problematic, further complicated by the reliability questions of the provided financial data. This can be attached to the tax-minimisation policies at the SMEs, also explained by the potential external economic effects (Szerb et al., 2014).

The limitations of the model have also been described. The social utility, ethical questions, external environment, industrial factors, all are presented as external factors. These fields can highly influence corporate operations and competitiveness, thus the research team is working on solutions to incorporate them into the model.

The actualisation of SMECI

The models accuracy is being developed further from 2014, according to the development of the competitiveness point, the complex performance indicators, and the uncovered unfavourable results of their individual components. It became evident that the performance causing and performance representing indicators based on the annual financial reports cannot be categorically left out, thus the financial variables have been removed from the conceptual model. Furthermore, the practice of gaining public data from the e-beszamolo.im.gov.hu website (Information and Electronic Company Registration Service) has been discontinued, the components of the complex performance indicator have been re-calculated according to the financial data from OPTEN. This change was necessary, because data quality on the Service's website is not verified (Márkus, 2015). According to the assumption if there are errors in the OPTEN database, those can be considered as systematic. At the present article, only the latest, most recent 2015 approach of the SMEs competitiveness research will be described. Regarding the empirical data, the results of the research will be compared with the recalculated results. Thus the methodology of the competitiveness index will be taken as a benchmark and not the already published results.

The methodology and theory of the empirical research

The consequence of the considered theories in the methodology, the SMECI methods at the SME competitiveness – paradoxically – takes and validates the bottleneck effects, usually the competitive disadvantages. The literature review from the resource based approach and the core competence theory, describes the production factors, the resources and capabilities (in short the resources). The competences and core-competences coming from these resources are potentially suitable to create competitive advantage, thus be the source of competitiveness. In this viewpoint the high-performance core-competences are in the focus of the corporate strategy. These competences helps the firm to achieve differentiation or cost leadership, thus it can create and sustain a more profitable position in contrast to its competitors. The functional area that is responsible for the competitive advantage will be in the focus of the

business strategy. These core-competences have to be considered when composing the strategy. According to Porter (2008) it can be extremely harmful if the corporation limits the focus of its strategy to extremely ambitious growth goals. When the number of suppliers, capacities and employees that are active in value creation is growing fast, it can erode the core-competences. The supply chain should be also in focus: beside internal also external integration is necessary along the supply chain (Rosenzweig et al., 2003; Deutsch et al., 2013). This can be synthetized in Figure 1. (the areas in the dashed lines are not further elaborated in the present article).

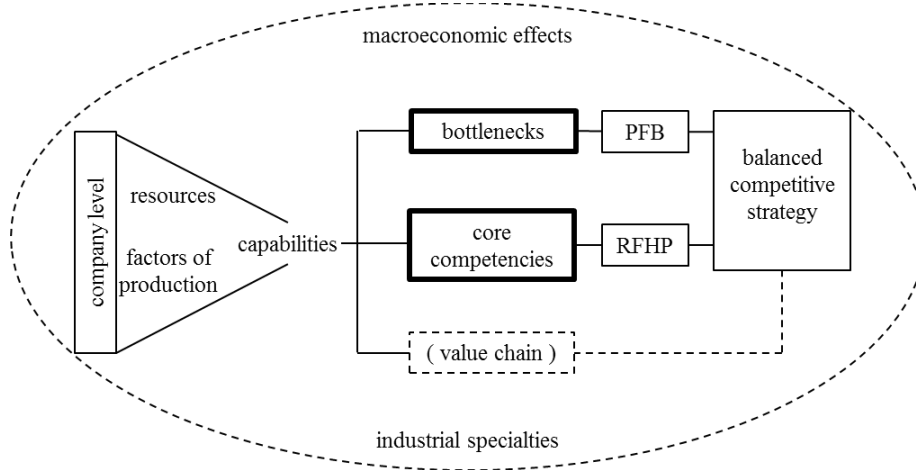


Figure 1. Linking competitive advantages and disadvantages

Source: own work

In those competitive strategies that build both on the theory of competitive advantages and competitive disadvantages, the development of core-competences and the elimination of bottlenecks are equally important. To calculate the effects of the bottlenecks the penalty-function was described. This penalty-function can be used in turn to formulate the following reward-function that shows the positive effects of the high-performance core-competences on the competitiveness:

$$h_{(i),j} = \max y_{(i),j} - (1 - e^{-(\max y_{(i),j} - y_{(i),j})})$$

ahol:

$h_{i,j}$ the adjusted value after the reward, at j pillar and i firm

$y_{i,j}$ the normal value at j pillar and i firm

$\max y$ the $y_{i,j}$ maximal value at i firm

$i = 1, 2, \dots, n$ = number of firms

$j = 1, 2, \dots, m$ = number of pillars

With the help of the reward-function a reward for high performance (RFHP) can be given. This RFHP makes the methodology able to research those outstanding core-competences that are usually responsible for competitive advantages, also to examine other related positive effects that influence competitiveness. Because of the mathematical similarity, the results of the two correction techniques are comparable. In the calculation methodology of the competitiveness index, the reward-function should be applied as the 6-th step.

Global results of empirical research

The data warehouse of the competitiveness research has 852 entities. The primary data collection has been conducted in 2013 by the market research and public opinion polling company Szociográf. A small portion (about 6%) of the data has been collected by university students. Table 1. shows the composition of the sample according to firm size categories.

Table 1. Composition of the sample

Cases of missing data	62 pcs
1-4 person	321 pcs
5-9 person	181 pcs
10-19 person	105 pcs
20-49 person	113 pcs
50-249 person	60 pcs
above 250 person	10 pcs
Total:	852 pcs

Source: own work

The following cases have been removed from the sample: data not attained from SME companies, companies from which missing data reached a critical level, thus the data cannot be analysed. This affected globally 72 firms, although in some specific analysis's additional records needed to be removed. The preparation of the data has been done with Microsoft Excel 2007 (v14), while the analysis has been conducted with IBM SPSS (v20).

The competitiveness index has been calculated according to the 7 steps of the described calculation methodology in two alternative ways: one with the penalty-, and the other with the reward-function. After these processes the correlation was examined between the competitiveness indexes, the complex performance indicator (from the financial data) and the indicator's three components.

Table 2. The competitiveness points, the complex performance indicators and the correlation of their components

Correlations		Complex performance indicator	Revenue growth indicator	Yield index	Bankruptcy index
Competitiveness points - penalty	Pearson Correl.	0.140	0.139	0.050	0.097
	Sig. (2-tailed)	0.000	0.000	0.166	0.008
	N (piece)	745	775	773	749
Competitiveness points - reward	Pearson Correl.	0.148	0.152	0.070	0.098
	Sig. (2-tailed)	0.000	0.000	0.051	0.007
	N (number)	745	775	773	749
Complex performance indicator	Pearson Correl.	1	0.499	0.676	0.886
	Sig. (2-tailed)		0.000	0.000	0.000
	N (number)	745	745	745	745

Source: own work

According to Table 2. there is no relevant and measurable correlation between the competitiveness values and the financial performance indicator. Because of the present and past failures of the complex performance indicator, an attempt has been made to group and compress the financial data in a different way.

- Financial data hasn't been analysed on a 5 year term, only financial data from 2013 have been utilised. This eliminated the stock-flow problem in the analysis. The derivative financial indicators have been also removed.
- Factor analysis has been implemented. This method reduces data, it shows the linear correlation of financial variables, it shows those factors that have a common essence.
- The generating of the latent variable (financial factor) – according to the internal connection of the variables – had no obstacle. According to the research, the KMO value (with 0.732 value) was above the threshold, the Bartlett-test was also significant. The saved information content was above 50% (51.2%).
- The financial factor holds information about 9 financial variables. These are: number of employees, net sales, operating income, profit after tax, stock of fixed assets, current assets, total assets, equity holdings and liability holdings. This financial factor compresses 3/4s of all the corporate financial data obtained from the OPTEN system.

At this point the correlation of the new financial factor values and the competitiveness indexes can be examined:

Table 3. Correlation of financial factors and the competitiveness points

Correlations		Financial factor
Competitiveness point - penalty	Pearson Correl.	0.367
	Sig. (2-tailed)	0.000
	N (number)	761
Competitiveness point - reward	Pearson Correl.	0.394
	Sig. (2-tailed)	0.000
	N (number)	761

Source: own work

According to Table 3. the correlation between the financial factors and the competitiveness indexes is much stronger than between the complex performance indicator and the competitiveness values. It is also visible that according to the two alternatives of the competitiveness index calculation, the results with the reward-function were slightly better. This can be a methodological cause since the penalty-function based on the pillar harmonisation, lowers the distances between the pillar values, whereas the reward-function has an opposite effect, it makes the distances bigger. It is known that the correlation is stronger if we are able to explain high standard deviation with high standard deviation, thus it can be assumed that a lower deviation will possibly indicate lower correlation. Taking this into consideration, the results of the two alternative correlation analysis's can be taken as more similar and robust.

From the point of view of a statistician the strength of the revealed correlation is weak. The results of other authors should be also mentioned. In their models the performance variables could be explained by the internal firm-level factors in the following weight (in brackets the percentage of all given explanation is visible): Schmalensee (1985) 0.6% (20.2%); Rumelt (1991) 44.2% (48.2%); Roquebert et al. (1996) 55.0% (65.2%); McGahan és Porter (1997) 31.7% (50.4%); Hawawini et al. (2003) 35.8% (43.9%); Misangyi et al. (2006) 43.8% (51.4%). These authors tried to include other factors above the corporate ones as: industrial, macro-economic, institutional, so that a better explanation of performance trend can be provided.

CONCLUSIONS

The analysis of competitiveness of SMEs is at most important if the goal of policy makers is to generate real sector-development results with optimal resource allocation. These results of these researches should be taken into consideration while making economic- and social policies. Our knowledge is limited in this field, because the bulk of the research is concentrated on the competitiveness on big internationally successful corporations, industries and clusters. In regards to SMEs, the focus is on fast growing gazelles that are responsible for the most of the new workplaces in the business sector. This doesn't substitute the research of

a bigger number of SMEs. The SME researches of Szerb (2010) and Szerb et al. (2014) are aiming at filling the gap. At the same time, their SMECI model at the determination of competitiveness – paradoxically – validates the bottleneck effect that are usually the source of competitive disadvantages. Beside the relevant literature review a methodological alternative was built in this study. This takes into consideration the core-competences in examining competitiveness. The original goal was to enhance the correlation between the competitiveness index and the complex performance indicator, thus making it able to give a better explanation to the financial performance of SMEs. Even with a new financial factor, the competitiveness indicators calculated with the penalty- and reward-functions were able to explain only 40% of the standard deviation of the financial performance. This explanatory power is weak, although it is in line with the explanatory powers of other mentioned researches from the literature review. According to the cited researchers, the industrial factors are influencing the financial performance on a 4-20% basis. These viewpoints have to be incorporated to the research and methodology of Szerb et al. (2014). The correlation of the competitiveness indexes calculated with the penalty- and reward-function and robust, thus according to the present research nor the harmonisation of the pillars, nor the core-competence theory based research can be given a definite priority. In regards to this question as a development direction the following can be defined: deeper, sector, activity, life-cycle, and size based analysis with cross-variable breakdown; accompanied by a sub-sample analysis is needed. This can yield more sophisticated results.

REFERENCES

- ACS, Z. J. (2011). High-impact firms: gazelles revisited. In Fritsch, M. (ed.) *Handbook of Research on Entrepreneurship and Regional Development: National and Regional Perspectives*, 133-174.
- ARAGÓN-SÁNCHEZ, A., & SÁNCHEZ-MARÍN, G. (2005). Strategic orientation, management characteristics, and performance: A study of Spanish SMEs. *Journal of Small Business Management*, 43(3), 287-308.
- BARNEY, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- BARNEY, J. B. (1995). Looking inside for competitive advantage. *The Academy of Management Executive*, 9(4), 49-61.
- BARNEY, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of management*, 27(6), 643-650.
- CERRATO, D., & DEPPERU, D. (2011). Unbundling the Construct of Firm-Level International Competitiveness: A Conceptual Framework. *Multinational Business Review*, 19(4), 311-331.
- CHIKÁN, A. (2006). A vállalati versenyképesség mérése. *Pénzügyi Szemle*, 51(1), 42-56.
- COLLIS, D. J., & MONTGOMERY, C. A. (1995). Competing on Resources: Strategy in the 1990s. *Knowledge and Strategy*, 25-40.
- CZAKÓ, E., & CHIKÁN, A. (2007). Gazdasági versenyképességünk vállalati nézőpontból – 2004-2006. *Vezetéstudomány*, 38(5), 2-8.
- CSIKÁNY, F.-NÉ, & TAKÁCS, I. (2015). A gazellák húzzák a magyar gazdaságot? – avagy a gyorsan növekvő KKV-K jellemzői, hazai helyzetük. *Acta Carolus Robertus*, 05(2), 69-80.
- DELGADO, M., KETELS, C., PORTER, M. E., & STERN, S. (2012). *The determinants of national competitiveness* (No. w18249). National Bureau of Economic Research.
- DEUTSCH, N., DRÁVAVÖLGYI, T., & RIDEG, A. (2013). Note on the development of sustainable supply chain strategy. *Chemical Engineering Transactions*, 35, 655-660.

- DHOLAKIA, R. R., & KSHETRI, N. (2004). Factors impacting the adoption of the internet among SMEs. *Small Business Economics*, 23(4), 311-322.
- EUROPEAN COMMISSION (2012, 795 final), Vállalkozás 2020 cselekvési terv – a vállalkozói szellem felélénkítése Európában, Brüsszel
- GOLDRATT, E. M. (1994). *The Goal: A Process of Ongoing Improvement*. Great Barrington, MA: North River Press.
- GRANT, R. M. (1991). Toward the resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review Spring*, 33(3), 114-135.
- GRANT, R. M. (2010). *Contemporary Strategy Analysis* (7th ed.). John Wiley & Sons Ltd. UK
- HAWAWINI, G., SUBRAMANIAN, V., & VERDIN, P. (2003). Is Performance Driven by Industry or Firm-Specific Factors? A New Look at the Evidence, *Strategic Management Journal*, 24, 16.
- HENREKSON, M., & JOHANSSON, D. (2010). Gazelles as job creators: a survey and interpretation of the evidence. *Small Business Economics*, 35(2), 227-244.
- KÁLLAY, L. (2012). KKV-szektor: versenyképesség, munkahelyteremtés, szerkezetátalakítás. Műhelytanulmány (working paper). Vállalatgazdaságtan Intézet. Budapest.
- LENGNICK-HALL, C. A. (1992). Innovation and competitive advantage: What we know and what we need to learn. *Journal of Management*, 18 (2), 399-429.
- LENGYEL, I. (2001). Iparági és regionális klaszterek. Tipizálásuk, térbeliségük és fejlesztésük főbb kérdései. *Vezetéstudomány*, 32(10), 19-43.
- MAN, T. W. Y., & LAU, T., CHAN, K. F. (2002). The competitiveness of small and Medium enterprises. A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17, 123-142.
- MÁRKUS, G. (2015). A számviteli adatokra alapuló pénzügyi mutatók elemzési nehézségei. *Számvitel-adókönyvvizsgálat*, Megjelenés alatt.
- MCGAHAN, A. M. (1999). Competition, Strategy and Business Performance. *California Management Review*, 41(3), 74-101.
- MCGAHAN, A. M., & PORTER, M. E., (1997). How much does industry matter, really?. *Strategic Management Journal*, 18, 15–30.
- MILLER, D. (1996). Configurations revisited. *Strategic Management Journal*, 17(7).
- MILLER, D., & WHITNEY, J. O. (1999). Beyond strategy: Configuration as a pillar of competitive advantage. *Business Horizons*, 42(3), 5-17.
- MISANGYI, V. F., ELMS, H., GRECKHAMER, T., & LEPINE, J. A. (2006). A New Perspective on a Fundamental Debate: A Multilevel Approach to Industry, Corporate and Business Unit Effects. *Strategic Management Journal*, 27, 571–90.
- NEMZETGAZDASÁGI TERVEZÉSI HIVATAL (2013), Kis- és középvállalkozások stratégiája 2014-2020, Bp
- PENROSE, E. T. (1959). *The Theory of the Growth of the Firm*. Oxford, UK, Oxford University Press.
- PETERAF, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic management journal*, 14(3), 179-191.
- PORTER, M. E. (1998). *On competition*. Boston, Harvard Business School Press.
- PRAHALAD, C. K., & HAMEL, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68(May-June), 79-91.
- RAPPAI, G., & SZERB, L. (2011). Összetett indexek készítése új módon: a szűk keresztmetszetekért történő büntetés módszere. Közgazdaságtudományi és Regionális Tudományok Intézete, Pécsi Tudományegyetem Közgazdaságtudományi Kar Műhelytanulmányok 2011/1, 2011 március.
- RAY, G., & BARNEY, J. B., & MUHANNA, W. A. (2004). Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view. *Strategic Management Journal*, 25(1), 23–37.
- ROQUEBERT, J. A., PHILLIPS, R. L., & WESTFALL, P. A., (1996). Markets vs. Management: What ‘Drives’ Profitability?. *Strategic Management Journal*, 17, 653–64.
- ROSENZWEIG, E. D., ROTH, A. V., & DEAN, J. W. (2003). The influence of an integration strategy on competitive capabilities and business performance: An exploratory study of consumer products manufacturer. *Journal of Operation Management*, 21, 437-456.

- RUGMAN, A. M. & VERBEKE, A. (2001). Location, Competitiveness, and the Multinational Enterprise, in: Rugman, A.M., & Brewer, T.L. (eds). *The Oxford Handbook of International Business*. Oxford University Press, Oxford, 146-180.
- RUGMAN, A. M., & VERBEKE, A. (2002). Edith Penrose's contribution to the resource-based view of strategic management. *Strategic Management Journal*, 23(8), 769-780.
- RUMELT, R. P. (1984). *Towards a strategic theory of the firm*. in: Lamb, R.B. ed, *Competitive Strategic Management*, Prentice Hall, Englewood Cliffs, New York, 556-570.
- RUMELT, R. P., (1991). How much does industry matter?. *Strategic Management Journal*, 12, 167-85.
- SCHMALENSEE, R., (1985). Do markets differ much?. *American Economic Review*, 75, 341-51.
- SINGH, R. K., GARG, S. K., & DESHMUKH, S. G. (2007). Interpretive structural modelling of factors for improving competitiveness of SMEs. *International Journal of Productivity and Quality Management*, 2(4), 423-440.
- STAMATIS, D. H. (2004). *Six Sigma Fundamentals: A Complete Guide to the System, Methods, and Tools*. New York, New York, Productivity Press.
- SZERB, L. (2010). A magyar mikro-, kis és középvállalatok versenyképességének mérése és vizsgálata. *Vezetéstudomány*, 41(12), 20-35.
- SZERB, L., CSAPI, V., DEUTSCH, N., HORNYÁK, M., HORVÁTH, Á., KRUSZLICH, F., LÁNYI, B., MÁRKUS, G., RÁCZ, G., RAPPAL, G., RIDEG, A., SZÜCS, P. K., & ULBERT, J. (2014). Mennyire versenyképesek a magyar kisvállalatok? A magyar kisvállalatok (MKKV szektor) versenyképességének egyéni-vállalati szintű mérése és komplex vizsgálata. *Marketing & Menedzsment, XLVIII. évfolyam, 2014/Különs.*, 3-21.
- TEECE, D. J. (1984). Economic Analysis and Strategic Management. *California Management Review*, 26(3), 87-110.
- TÖRÖK, Á. (1989). Komparatív előnyök, versenyképesség, piacműködés. *Ipargazdasági Szemle*, 1989/3, 23-34.
- WANG, H. (2014). Theories for competitive advantage. In: Hasan, H. (eds.). *Being practical with theory: a window into business research*, 33-43.
- WERNERFELT, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5(2), 171-180.
- WERNERFELT, B. (1995). The resource-based view of the firm: ten years after. *Strategic Management Journal*, 16(3), 171- 174.