Strategické aliance a výkonnost podniku v Jihomoravském kraji v průběhu finanční krize

Strategic Alliances and Firm Performance in the South Moravian Region During the Financial Crisis: The Analysis of the Results of Pilot Research

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Abstract:
Purpose of the article: The objective of the article is to determine the impact of the financial crisis on South Moravian firms' performance and find evidences of inter-firm alliances between firms.
Methodology/methods: The article is based on primary research conducted among SMEs in the South Moravian Region and secondary data acquired from firm database Amadeus and expertise literature. The methods are applied within the framework of pilot research.
Scientific aim: The scientific aim of the article is to investigate the effect of financial and economic crisis on firm performance and explore the relevance of alliance formation during the period of 2007–2012.
Findings: Current results show that in spite of the sharp decrease in firm revenue during the crisis, the creation of value added on contrary, after stagnation in the most difficult period, rose slightly. Despite the crisis, 71% of firms claim that they are following growth strategy and the half of these firms is engaged in cooperation in a form of strategic alliance.
Conclusions: Strategic alliances are present in the South Moravian manufacturing firms' practise and – according to findings of earlier research papers – their impact on firm performance is of great importance. This research is a first step toward systematic investigation of firm performance in relation to inter-firm alliances in the South Moravian Region. In order to assess the impact of strategic alliances on firm performance, more comprehensive further research is needed. The findings conclude that alliance formation is a strategy for sustaining firm performance in extraordinary economic conditions.

Keywords: firm performance, productivity, strategic alliance, manufacture industry, small and medium enterprises

JEL Classification: L24, L25, L60

Introduction

The past few years have passed in terms of the global financial crisis, which influenced economies of the world regardless their size. Neither the Czech Republic was an exception; the small open economy suffered the consequences of decrease in overall production first of all in international trade. In 2009 compared to the previous year, export fell by 10.9%, import by 12%, and GDP by 4.5% in the Czech Republic (Czech Statistical Office, 2013-10-12). The sovereign debt crisis in the EU with the continuous negotiations and attempts of stabilization led to a decrease in investments and consumption in the Czech Republic. Thanks to this trend, after positive tendencies of growth in 2010 and 2011, GDP in 2012 decreased by –1.3% and according to current data for the 3rd quarter, GDP decreased on year-on-year basis by 1.6% (Czech Statistical Office, 2013-6-28).

According to Cravens, Shipp,Cravens (1993) independent organizations cooperate in order to increase their competitive advantage individually. Strategic alliance is one form of inter-firm relationships and it is a mean to gain competitive advantage when environmental turbulence is high (1993, p. 55). This conclusion comes from the analysis of a set of indicators containing among other indicators of firm performance. The authors of recent publication analyzing firm performance raised the question: if the strategic alliances have proven their positive impact on firm performance in other countries, are they also present in everyday practise between the firms in the Czech Republic after perhaps the most demanding years of the decade?

The paper is based on primary research conducted among firms in the South Moravian Region and secondary data acquired from firm database Amadeus and relevant literature. It investigates the effect of financial and economic crisis on firm performance and explores the relevance of alliance formation during 2007–2012. The objective of the paper is to determine the impact of the crisis on South Moravian firms' performance and find evidences of strategic cooperation between firms as a strategy of gaining competitive advantage.

1. Strategic alliances and firm performance

1.1 Strategic alliances

Strategic alliances are sets of long-term inter-firm relationships, which are formed on voluntary basis with a joint focus on exchange, share or joint development of products, technologies or services (Gulati, 2007, p. 1). One can find more detailed definition in the research paper of Buzády and Tari (2005, p. 6), who consider an alliance such cooperation, that lasts longer than one year, the partners share the risk and integrate certain economic and functional areas (p. 6).

In spite of integrated strategic areas, firms remain independent on institutional level and also in the field of decision making. Child (2005, p. 222) points out that the reason for such cooperation is the achievement of strategic goals in a way which is more advantageous with a partner or several partners than alone. This fact is especially important in case of small and medium enterprises, which are, in comparison to large firms, more vulnerable and sensitive to the changes in their environment.

Dyer and Singh (1998) note that firms earn relational rents through cooperation and the sources of such rents are relation-specific assets, knowledge-sharing, complementary resource endowments and the governance practices (p. 676). Similarly, Vodáček and Vodáčková (2009) differentiate alliances according to the reason of cooperation, which can be: the pooling of resources, the pooling of activities; and the creation, transformation, and exploitation of knowledge.

From the viewpoint of structural design, strategic alliances are organization forms lying between markets and hierarchies (Williamson, 1985). They are more than the arm's-length contracts ensuring buying and selling for the negotiated price under market conditions, on the other hand they are less bounding than hierarchies in integrated firms which have clearly defined structure, processes and competencies. Forming strategic alliances and advocating changes in the created structures as a reaction to the dynamics of the environment, require the consideration of the impact on firm performance.

1.2 Measuring firm performance in alliance research

In spite of an abundance of research on strategic alliances, there are no single, jointly used measures of performance. The problem lies in the definition of performance and the ways of its measurement. In relation to strategic alliances, performance has been studied from different aspects: alliance structure (Reuer, Zollo, 2000), alliance partner selection (Lin, Yang, Arya, 2009), organizational learning (Jiang, Li, 2008), trust (Cullen, Johnson, Sakano, 2000), *etc*.

Olk and Arino (2003) in their working paper investigate empirically five assumptions made by alliance researchers and find that one should be careful in evaluating alliances and deriving assumptions. According to the authors, there is significant room for researchers to contribute to the strategic alliance understanding by using multiple measures of alliance performance evaluation.

Álvarez *et al.* (2009, p. 419) have conducted research on representative sample of 134 firms in Spanish manufacturing industries. They measured performance by the firms' market share and found that "cooperation would enhance the greater efforts of domestic firms to maintain and even to improve their position in the market". They confirmed the role that cooperation plays in firm performance. (Short, K*et*-*c*hen Jr., Palmer, Hult, 2007) used a sample of 1165 selected, both large and small firms from the manufacturing industry, and applied several measures to capture performance, especially: return on assets (ROA) to indicate financial performance; Tobin's Q to reflect long-term, market-based performance and Altman's Z to capture the chance of firm survival. The authors also assessed performance on strategic group level and relied among others on research and development intensity, on the number of patents granted to the firm to capture the competitive scope, they measured capital intensity to measure resource deployment and the current ratio to measure financial resources. Their research showed that strategic groups were depending on firm-level performance. Moreover, the effects of strategic group membership were stronger than the effect of industry resulting in a conclusion that strategic groups may be an important factor of firm performance.

1.3 Strategic alliances and firm performance in turbulent economic circumstances

Only a few papers have investigated the interrelation between strategic alliances as strategic tool in turbulent economic circumstances. Laperche, Lefebvre, and Langlet (2011) have studied innovation strategies of industrial groups during the global crisis and found an evidence of more intensive reliance on collaborative strategies in the period of the crisis. The authors shed light on the recent tendency of joint creation of knowledge-capital in different sectors and note, that firm rely not only on "resources into which they invest, but also on the resources shared or produced through collaboration with other enterprises and institutions" (Laperche *et al.*, 2011, p. 1322). Álvarez, Marin, and Fonfría (2009) note that due to the complexity of technology and uncertainty which surrounds innovation, external agents are increasingly considered as a source of R&D. Guellec and Wunsch-Vincent (2009) in its policy response to the crisis states, that with considerable certainty the established situation will accelerate among others *"the increasing reliance on open innovation strategies that rely on partnerships and collaboration to share costs and spread risks"* (p. 15). The authors of this paper found relevant to investigate inter-firm alliances in the Czech Republic, too, as the strategies described above represent the path of recent development and come from foreign experiences. By measuring firm performance and other indicators, one can get an answer to the question, how suitable these strategies have been in longer run.

2. Objective and methods

The objective of the paper is to determine the impact of the crisis on South Moravian firms performance and find evidences of strategic cooperation between firms as a multifaceted strategy applicable even in turbulent times. The paper is based on primary research conducted among firms in the South Moravian Region and secondary data acquired from firm database Amadeus and relevant literature.

The conducted research is a pilot one attempting to interconnect the areas of cooperation strategies and firm performance toward a more comprehensive research framework applicable in the future.

In order to investigate the influence of the financial crisis on firms situated in the South Moravian Region, a smaller population was pointed out from the category of manufacturing firms. The reason for accomplishing selection from this category is due to the dominant position of this branch of industry in the region. Firms from the population were divided into categories according to the classification of the European Commission nr. 2003/361EC, excluding

Table 1. EU definition of enterprises.

Company category	Employees	Turnover	Balance sheet total
Micro	<10 employees	<2 mil. EUR	<2 mil. EUR
Small	<50 employees	<10 mil. EUR	<10 mil. EUR
Medium-sized	<250 employees	<50 mil. EUR	<43 mil. EUR
Large		above limits	

Source: European Commission.

micro-firms.

The company category was determined on the basis of annual turnover and total assets, as the number of employees cannot be a reference alone. The secondary research was built on data from the international firm database Amadeus, where the following categories were closer investigated within manufacture industry (classification of economic activities according to CZ-NACE, with the former classification, OKEČ, valid until 31. 12. 2007 in brackets):

22 – Manufacture of rubber and plastic products (DH);
24 – Manufacture of basic metals (DJ);
26 – Manufacture of computer, electronic and optical products (DL);
27 – Manufacture of electrical equipment (DL);
28 – Manufacture of machinery and equipment n.e.c. (DK)

Table 2. Financial ratios applied in the research.

Financial ratios
Revenue / Employee (thousand CZK)
Value added / Employees (thousand CZK)
Value added / Revenue *100 (%)
ROA using P/L before tax (%)

Source: authors.

The chosen time period has been divided into two shorter periods:

- 2007–2009, the period before the most powerful effect of the global financial crisis reached the Czech Republic;
- 2010–2012, the period when the global financial crisis culminated and the process of slow recovery started.

From the large scale of firm performance measures a smaller set of financial ratios has been chosen (see Table 2). According to Dluhošová (2010), the measure of all basic areas of firm's financial situation is an important goal of financial analysis and in this case it is eligible to use only a limited number of indicators.

The reason for applying ratios as measures of performance is due to the fact that they can provide useful analysis by numerical data over a period of time, improve understanding of financial results, and uncover the strengths and weaknesses of organization's performance Dluhošová (2010). Thanks to their almost universal applicability, they allow for comparison of firms of different sizes, so they can be used as a tool for benchmark. Applying financial ratios encounter also some disadvantages, so the authors put en effort to overcome them, especially the following ones (Knápková, Drahomíra, Šteker, 2013):

- Financial ratios rely on historical data and they describe the "past" – in this paper the goal is the examination of the past period, therefore this aspect is not relevant.
- Financial ratios have limited ability to give information about some evolution in certain field of firm finances if they are examined only for a short period – in this paper a six years period is investigated in order to grasp the evolution of the indicators values in longer time.
- There is lack of comparability between companies from different branches and countries – within research this threat was overcome by sampling firms from one region and from one narrow branch within manufacture industry, therefore they apply the same accounting standards and they operate under the same law and regulations.

Financial ratios in recent paper were calculated for both of the reference periods, 2007–2009 and 2010–2012. Subsequently the results were compared between the two periods and the existence of significant differences was investigated. In order to detect the evolution of chosen indicators in time, several statistical indicators were applied, like simple arithmetic mean, Winsorized mean, Grubbs' test, median, 1% and 99% quantiles, lower quartile and upper quartile, and standard deviation. As the calculated values contained outliers, the Winsorized mean has been pick out from indicators to be the most appropriate for data analysis, in order to reduce the effect of these extreme values in the sample (Howell, 2010).

Winsorized mean is based on replacement of a given percentage of the smallest and highest values from the sample by their nearest values (Meloun, Militký, 2002). From these replaced values the simple arithmetic mean was used to calculate the Winsorized mean. The advantage of Winsorized mean compared to arithmetic mean is its robustness to the outlying values. The Winsorized mean is calculated as:

$$\bar{x}_w(\vartheta) = \frac{1}{n}\left[(M+1)\left(x_{(M+1)} + x_{(n-M)}\right) + \sum_{i=M+2}^{n-M-1} x_{(i)}\right], \quad (1)$$

where:

$M = \mathrm{int}(\vartheta n/100)$,
ϑ is the percentage of trimmed values in the line,
$x_{(i)}$ are the order statistics,
n number of values in the sample.

Within the primary research project "*Networks of small and medium-sized enterprises in the South Moravian Region*" (Reg. No. FP-J-11-5) the existence of strategic alliances was explored in the South Moravian Region and the conditions for participation in inter-firm alliances were analyzed in the period of 2010 and 2011. The sample consisted of 401 firms that carry on research and development as a part or alongside their main economic activity. The sample database originates from the national database (Register of Economic Subjects) and was generated by the Czech Statistical Office on request. The number of received responses was 132. 60% of companies represented the manufacturing industry. The research methodology was based on enquiry and in--dept semi-structured interviews with managers of selected firms. Firms were contacted by phone and e-mail and at least once by each manner. Interviews were face-to-face with an approximate length of 1.5 hour.

3. Results and discussion

The South Moravian Region with its area, population and economic activity is one of the largest regions in the Czech Republic. In 2011, its proportion on GDP was 10.4% and it was ranked third after the capital City of Prague and the central Bohemian Region. The impact of the global crisis on the region is reflected in increased unemployment and in negative course of indices besides manufacturing, also in tourism industry (Jihomoravský kraj, 2013).

3.1 Firm performance evaluation

The following tables and a graph demonstrate the evolution of the certain financial ratios over the selected reference periods. The period, when the effect of the global economic and financial crisis was the most powerful, is clearly seen from the trendlines. Table 3 and Figure 1 demonstrate productivity measured by the revenue generated and value added per employee.

The highest value of revenue per employees ratio was reached in 2008, but in 2009 there is a sharp fall by 19.38% due to the effect of the economic crisis. In 2011, in spite of some positive prognosis, there was a second decrease by 7.40% against 2010. Value added is a measure of wealth created in course of a year. The creation of value added was further analyzed in relation to revenue representing an important indicator of profitability. Table 4 shows the trend of value added per revenue during the investigated time period.

In spite of fall in the values of revenue per employees ratio, the investigated firms managed to

Table 3. Productivity ratios in 2007–2012 (thousand CZK).

Years	2007	2008	2009	2010	2011	2012
revenue / employees	2072.996	2467.857	1989.464	2002.938	1854.819	1845.534
value added / employees	528.574	553.291	534.092	507.170	508.885	523.163

Source: Amadeus, data processed by authors.

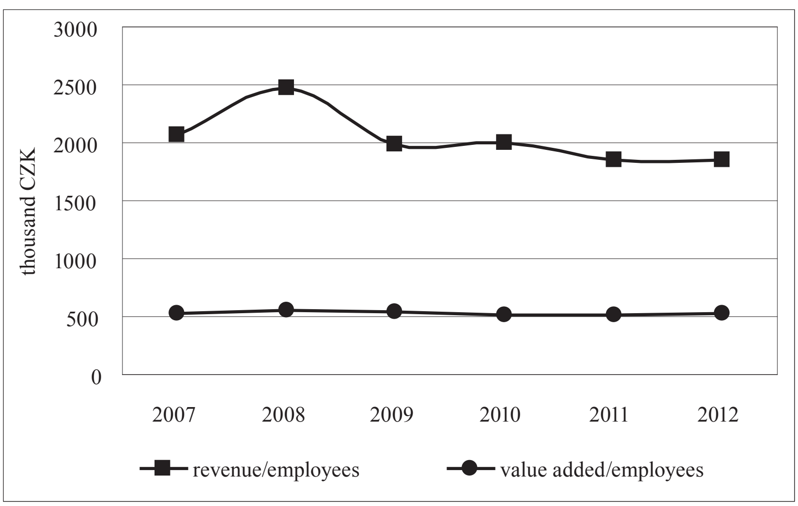

Figure 1. Productivity ratios in 2007–2012 (thousand CZK). Source: Authors.

Table 4. Value added per revenue in 2007–2012.

Years	2007	2008	2009	2010	2011	2012
Value added / revenue (%)	29.099	28.968	31.911	31.175	31.611	32.977

Source: Amadeus, data processed by authors.

Table 5. ROA using P/L before tax in 2007–2012.

Years	2007	2008	2009	2010	2011	2012
EBIT / total assets (%)	10.157	9.291	6.408	7.107	7.771	8.519

Source: Amadeus, data processed by authors.

maintain productivity measured by value added on a stable level. The decrease in average value added generated by each employee per year was by 1% in comparison 2007 to 2012. Calculated values in Table 4 demonstrate that value added has rising tendency to revenue.

Indicator return on assets demonstrates the negative effect of the economic crisis in the most powerful way (see tab 5). The slump in the value of this indicator was by 31% in 2009 against 2008. In the following years a slight increase is noticeable, although the level of ROA before crisis is still far from the value measured in 2012. This indicator shows also, how efficiently the firms have been using all their assets, and that how quickly they managed to conduct changes in this area in order to response to the actual conditions. According to the data, this process has a form of gradual adaptation in slow pace, depending also on the impulses from broader firm environment.

3.2 Strategic alliance formation in the South Moravian Region

On the level of the South Moravian Region, only limited number of resources investigates the formation of strategic alliances and the forms of inter-firm cooperation. One can find information especially in strategic documents, where the support of cooperation among firms, research centres and universities is one of the priorities within sustainable development strategies of knowledge economy in the region (Jihomoravský kraj, 2012).

From the strategic point of view innovation is a key strategy in turbulent times and innovating firms are key in future development of the South Moravian Region (Jihomoravské inovační centrum, 2009). Within previous research the existence of cooperation in one of the main strategic areas was detected in case of 72% of firms (Estélyiová, Žižlavský, 2012). The current research shed light on alliance formation practices of firms, especially the ones which carry on R&D as main or beside main activity in the South Moravian Region. Investigation of data showed that firms have experiences with strategic cooperation in the following areas:

- pool of resources – 28%,
- pool of activities – 25%,
- creation, transformation, and exploitation of knowledge – 31%,
- other – 16%.

Nearly a year after the most difficult months of the crisis, surveyed firms had to determine their ultimate strategy for the next three years. According to this 71% of them wished to conduct strategy of growth, 26% preferred the sustainment of the recent state and 3% chose other possible strategy. With further investigation the following pair strategies were explored (see tab 6):

The results show that 52% of firms follows the growth strategy and is engaged in strategic cooperation. 20% of firms declared that they were doing efforts to sustain the recent state and cooperates with a strategic partner.

Table 6. Strategies of South Moravian firms.

	Strategic cooperation	
Ultimate strategy in the next 3 years	Yes	No evidence
Growth	52%	19%
Sustainment of recent state	20%	6%
Other	2%	1%

Source: authors. The numbers represent percentages of the total number of enterprises.

Conclusions

The conducted research with an aim to investigate the effect of financial and economic crisis on firm performance and explore the relevance of allinace formation during the period of 2007–2012, brought several conclusions which can be further investigated within primary and secondary researches in the future. First of all, in spite of the decline in certain measures of firm performance due to the global financial crisis, firms in the South Moravian Region were able to react to turbulences in their environment and achieve increase in generating value added.

Second, the empirical research has shown that firms' prefer further growth to sustainment of recent state, which can be understood as a positive signal of recovery. Moreover, a significant number of firms (73% from the first one and 77% from the latter) do business with a strategic partner, so strategic alliances can be considered a strategy applicable in non-stable economic circumstances with evidences from the South Moravian Region. Thanks to this strategy, firms can transfer knowledge and utilize it in R&D activities, in production processes and management of joint projects.

This research is a pilot one, and undoubtedly, more exploratory work is needed to be done to acquire more precise data and grasp the paths of stronger interconnection between strategic alliances and firm performance based on the experiences of firms from the South Moravian Region. The further research should be a connection of a quantitative one, supplemented with qualitative data in form of case studies, in order to let a deeper insight into concrete firm experiences.

In the future, one can benefit from the results of both quantitative and qualitative researches not only on academic level, but the findings could be utilized in practice in the field of sustainable development and alliance management.

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