

DYNAMIC STRATEGY AND SUSTAINABLE BUSINESS DEVELOPMENT: LESSONS LEARNED FROM THE CRISIS

Jarmila Šebestová, Kateřina Nowáková

Received: April 11, 2013

Abstract

ŠEBESTOVÁ JARMILA, NOWÁKOVÁ KATEŘINA: *Dynamic strategy and sustainable business development: lessons learned from the crisis*. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 2013, LXI, No. 7, pp. 2827–2833

Each adaptation in business is an impulse to change and may cause unexpected behaviour inside or outside the company. This article aims to present an innovative thinking bond and investment success in overcoming the crisis, based on the results of the research carried out. From knowledge of current methods of management and business management services in general it can be inferred that the enterprise can develop an open system that is capable of rapidly adapting to positive and negative external influences. Which interactions support the dynamics and adaptability of the strategy in a positive way? As a contribution to the literature, the paper will highlight which elements have the biggest influence on the flexibility of business and which items are the most important for sustainable behaviour in an uncertain and turbulent environment. In this survey (twice observed groups), the main aim is to identify the effect of investment on innovation, strategy preparation and the relationship between financial ratios and company performance. The survey of this study was conducted with owners and managers of small and medium size businesses in the Czech Republic (under 250 employees) operating between the years 2007–2012. The main goal of this paper is, based on the literature review, to provide a practical model of adaptation. Research methodology, analyses results and research models will take place in the second section. The results of the analyses will be discussed and recommendations will be provided in the last section. The QRBITS analysis is presented as a special tool for analyzing the business environment and resources. Finally, a model of dynamic entrepreneurship is presented as a combination of factors which generate the final effectiveness of strategy implementation.

adaptability, strategy, innovations, QRBITS, sustainable business

Recent literature and research studies focus significantly on measuring turbulence in the industry (Baptista and Thurik, 2007; Stacey, Griffin, and Shaw, 2000) based on the start up and exit rate of emerging companies and the relationship between GDP growth and company ownership (Carree and Thurik, 2008; Močnik, 2009). The last few decades brought more opportunities to use strategic and creative thinking and apply its flexible implementation on market failures, which come not only from final customers but from threats within new technologies and these factors together apply pressure on adaptable business behaviour (Evans, 1991; Grewal and Tansuhaj, 2001; Drucker, 2008).

Turbulence in a business environment could be defined according to Baptista and Karaöze (2007) as a developmental process, where organizations are depicted in the market in two ways: (1) New organizations coming into the market to fill a gap created by companies which closed down or were in crisis because of the strategy of displacement, (2) New competitors appearing when a “niche” arises in the old market and this behaviour replaces the power of the main competitors in the market. The basis of maintaining adaptability to environmental changes, growth, business competitiveness and long-term business growth is the ability of firms to innovate. Just as innovative organizations differ, the

innovations themselves will be different from each other (at the scope, nature, extent of originality, etc.). Each sector has different characteristics and priorities – some are sensitive to the scale of production, others to scientific research or the range of or sensitivity to demographic changes.

Therefore, an analysis of the strategic elasticity of small and medium-sized businesses could help to find an answer to the question of how this business segment could deal with challenges from the external environment and what type of strategies they might use to achieve their goals. This brings about weak results in strategy implementation and the adaptability process, because 90% of businesses cannot realize their goals according to their vision. This means that they learned lessons from their business strategy failures. Since the manager is an agent of a business and not a passive observer (Stacey, Griffin, Shaw, 2000), he is required to develop a strategy. This approach can be expanded with the resource-based approach of managing a company (Barney, 1991) by adding components of knowledge to provide strategic flexibility. The successfulness of each strategy depends on behavioural models, but all models need the below stated four significant steps (Tidd *et al.*, 2007; Rylková, Chobotová, 2011): (1) Copy main goals from strategy, (2) Effective internal and external linkage with other subjects in the market, (3) Support for conducting changes in an organization, (4) Supportive environment.

Theoretical Background

Strategy versus sustainability

Practice in the business area allows becoming familiar with problems and avoiding a turbulent and non-dynamic decisional spiral. Traditional models of skills cover only a few variables such as the structure of an organization, climate, processes and leadership without dynamic points such as the behaviour of other elements (Burke and Litwin, 1992; Damanpour, 1991; Kimberly and Cook, 2008). Equations are often used to evaluate strategy structure models and to describe dependent values in strategy behaviour or to describe successful business theories. We should mention the research of managerial choices and strategy components in reaction to the external environment as equations (Bourgeois, 1984). Others connect strategy positions and business performance in one equation. His evaluation and models are especially developed for industrial organizations (Keeley, Roure, 1990).

Excessive inner dynamics, as an affect of egocentric uncertainty, when proprietors have difficulty in understanding or anticipating how the changes in the entrepreneurial environment will influence them, shows the opposite side of the excessive dynamics of strategy, or in other words what can happen when a small size business misinterprets impulses coming from outside, and invests its time and energy at the wrong time. This behaviour may easily lead to the collapse of an

enterprise, because it has succumbed to the *lure of relying only on marketing tools* (Aragon-Corea and Sharma, 2003, p. 77). The application of dynamic strategy for sustainable business development does not depend solely on the skills of the individual, who is the strategy creator, but also the ability of the entire business to learn new things, creativity and innovations, including activities leading to response to changes (Teece, Pisano and Shuen, 1997). However, if the changes occur, the process may be referred to as an improvisation, which is directly dependant on the previous experiences and skills of the strategy creator, because mostly the strategy is not in written form. Subsequently, enterprises, particularly small businesses, where the non-formal manner of the strategy development prevails, will also have a non-formal manner of progress and control monitoring (March, 1991; Nelson 1991). The possibility of predicting the response to changes is supported by Brown and Eisenhardt (1998) by stating that the complexity of a strategy is connected with the speed of changes in an organisation. Sustainability means finding a new combination of sources and opportunities in a way as to adapt to new conditions as quickly as possible.

METHODS AND RESOURCES

In this survey we aim to identify the effect of investment on innovation, strategy preparation and the relationship between financial ratios and the performance of the company. To test the propositions, a field survey using questionnaires was conducted. The questionnaire survey was conducted with owners and managers of small and medium size businesses in the Czech Republic (under 250 employees) operating between the years 2007–2010 and a second round in 2009–2011. The companies fulfilled the criteria of (1) being designated as small and medium sized companies by their number of employees – fewer than 250, and (2) agreeing to a personal visit. The questionnaire had six sections to describe dynamic factors, which influence company behaviour; these were strategy performance, crisis and risk management, personnel policy, production and innovation, grants and supporting policy and environmental policy. Data obtained from questionnaires (663 companies, second round 529) will be analyzed through the SPSS statistical packet program. The analysis is based on the statistical data analysis of multidimensional statistic methods in the qualitative research area, using Principal Components Analysis (PCA). All collected data were processed in SPSS for Windows, ver. 18. To achieve more sophisticated results and to identify dominant tendencies, we used PCA with a VARIMAX rotation (factor loading minimization); the applicability of data was examined by Bartlett's test of sphericity with the values of the presented results being under $P < 0.05$ and for all of the data we used the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) with a recommended minimum

value of 0.6 (Sharma, 1996). We obtained 38 items in seven different sections for comparison, which should be used as a platform for a business model as follows: Identity (I); Strategy management (S); Crisis and risk management (C); Personnel management (P); Innovations and Production (IP); Grants and Projects (G); Environmental management (E). It is very significant, for a future analysis, divided by company size, that the share of respondents in each group is approximately the same (see Tab. I).

Results were graded using the Likert scale (1–5 for non-numerical data) so as to be comparable with other sections of the questionnaire (61 items). Next, factor analysis was used to obtain a group of adaptability factors. As a supporting analysis, cross-tabs were used to identify significant and non-significant values. In the next stage we provide analysis of data reliability, presented by Cronbach α and with a recommended value above 0.5 (Nunnally, 1978), other items were deleted.

RESULTS

According to the literature review, the first part of the analysis is dedicated to innovative behaviour in relationship to the market and innovation type. Does a relationship between these items really exist? Did the crisis period change the behaviour of business minds? These reactions can help to form changes in the behaviour of individual actors in the market and thus contribute to a better understanding of the importance of strategic planning and innovative thinking in the process of adaptability of SMEs. In contrast to being prepared for business with a plan, many units choose a strategy of innovation to survive in the market in a crisis environment – many of these businesses not only survived, but also mentioned undergoing development.

In the first round of research “non-innovators” stood at 19.4%, but in the second round the situation changed dramatically. Innovative companies had an 80.6% share. The share of services and products was significant, in first phase 61%;39%; second phase 75% to 25% (see Tab. II). We observed significant development in the area of technology transfer and

quality care which could bring about a competitive advantage.

As can be seen from the investigations carried out, only a high degree of adaptability and employee, quality, and technology participation in business operations along with a strong corporate culture saved them, which are important features of these types of businesses.

The challenge for the next stage of the analysis was to find a metric to measure the adaptability and the impact of strategic decisions and delays on the behaviour of companies. This could enrich theoretical and practical crisis scenario preparation, content strategies, as well as simplifying forms of entrepreneurship so that in the case of a crisis they were adaptable to changing conditions.

Furthermore, the time delay is an obvious reaction to the crisis that came, also meaning that if there is confusion between strategic and operational management, problems and difficulties are addressed immediately so that not so major crises could occur from a business perspective. The barometer survey, which is made annually by the Economic Chamber, included, inter alia, assessments of the economic situation and was compared with our results (see Fig. 1).

By contrast, in September 2008 when the crisis started knocking at the door of the global economy, economic development was negatively expressed by only 9.1% of enterprises. If we evaluate both studies, our sample is somewhat more optimistic, but still follows the general trend. This corresponds to the development of personnel policies, which mirrors the result of questions about the phase of the business cycle, when 46% of companies interviewed had not registered any change in the four-year period, only 26% of companies had dismissed up to 30% of their employees and only 3% of firms laid off more than 30% of their employees.

On the contrary, it showed that 25% of companies in “crisis” took on other employees. By comparison, we obtained the same reaction in the “decrease” period (green line in Fig. 1). On the other hand, the evaluation of the growth stage was postponed (see red and blue reactions in Fig. 1). As can be seen

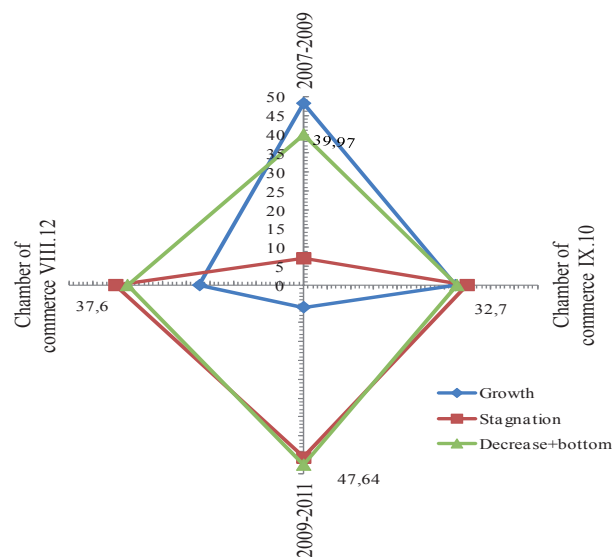
I: *Research Sample*

	self employed	1–10	11–50	51–100	101–250	251 +	Total
1 st round (2007–2009)	13%	51%	17%	8%	5%	7%	100%
2 nd round (2009–2011)	9%	42%	25%	6%	6%	12%	100%

II: *Types of innovations*

	Non innovation	Company main Product*	Company main Product* with Technology	Services, Quality	Quality	Quality, Technology	Design	Technology
2007–2009	72.7	19.3	1	1.1	2.1	0.5	1.1	2.1
2009–2011	19.4	42.7	4.5	7.4	14.4	2	2	7.6
change	–73%	121%	350%	573%	586%	300%	82%	262%

* Product or service



1: Business cycle evaluation

III: Factor analysis for sustainable business

		Round 1		Round 2		Round 2	
F1 Financial performance (-.311) ^A	Turnover* .878	F2 Crisis management (-.636) ^A	Crisis Plan .886	F3 Investments for Innovations (-.490) ^A	Turnover for Innovation** .791	F4 Environmental management (-.610) ^A	Energy savings .836
Profit* .836	Risk Analysis .852	**Turnover For R & D .770	Energy Audit .788	F5 Strategy management (-.730)	Strategy Frame .856	F6 Personnel management (-.861) ^A	Back-Hiring .781
Investment s* .715	Crisis plan in use .819	Innovated Products .764**	Form of strategy .730	F7 Project management (.362) ^A	Project EU/other .920	working Hours Change .709	
Costs* .644							
Life Cycle .614							
Quantity* .659							
a7 size in last 3 years, .647	F0 Stability Care (-.407) ^A	Turnover* .919	Innovated Products** .876	F3 Investments for Innovations (-.830) ^A	Turnover for Innovation** .865	F4 Environmental management (1.26) ^A	Recycled inputs 0.851
a8 Turnover per year .649	Profit* .922					F6 Personal management (.315) ^A	Employee benefits .812
Crisis Plan .900						working Hours Change 0.892	Structure of employees .793
Crisis plan in use .868							

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.*In average change, in examined period, ** percentage share on turnover, light rise = same factor component, Δ value of "mode"

from the investigations carried out, it was only the high level of adaptability (annual plans; 32.8% from our sample), employee participation in business operations and a strong corporate culture that saved them.

Finally, we made a factor analysis to find significant items as sources of sustainability. A comparison has

been made for both surveys. In the first phase seven factors were extracted (F1-F7), with KMO above 0.7 and in the second round five factors (F1-F5). Four factors are the same in both analysis, but the new phenomenon, which is different from the analysis in phase one is the existence of factor "stability care", focused on long-term sustainability (see Tab. III).

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.*In average change, in examined period, ** percentage share on turnover, light rise = same factor component, Δ value of “mode”.

A full list of regression coefficients (for each respondent) was saved for future use to fit a general model in order to explain the causality between the research variables. To obtain a model of dynamic behaviour (named *General sustainability ratio*) we used Bartlett's factor scores saved from each analysis to produce scores (for each company) which were akin to true factors and presented high quality estimates (DiStefano *et al.*, 2009). The value of the “mode” was used as a general weighted value for each factor in the research sample in the model – to be suitable for all situations (included in Tab. III). This general equation describes the causal relationship between managerial decisions in a crisis environment as the General Sustainability ratio (GSR) and it is presented as (according to previous factorial analysis) this equation:

$$GSR_{\min[\text{round } 1]} = -0.311 \times F1 - 0.636 \times F2 - 0.49 \times F3 - 0.61 \times F4 - 0.73 \times F5 - 0.86 \times F6 + 0.362 \times F7 \quad [1]$$

$$GSR_{\min[\text{round } 2]} = -0.407 \times F0 + 0.027 F1 - 0.83 \times F3 + 1.26 \times F4 + 0.315 \times F5 \quad [2]$$

In the first case only one positive linkage was established – external support is needed to eliminate external risk. Investments into research and development as well as innovation are positive factors for the future (Tidd, 2007), but

they bring a higher level of risk. The owner must give preference to long-term planning due to the investment involved. The financial area means, that higher rates signal problems with standard financial ratios. If we divide these regression coefficients as a percentage share of the total score, we find that 7.7% of sustainability is based on financial rationale, 15.7% on risk and crisis decisions, 12.3% can be attributed to innovation activities, 15.3% is the important area of “green” behaviour – environmental management; the rest is cooperation within grants and projects (9%, in round 2 N/A). A significant part, which we could call the “core of dynamic behaviour” of each company, is personnel management (21.65%). In many cases it is mentioned as social capital development. It is a source of change and dynamic behaviour (Charney and Libecap, 2000).

In the second case, three positive relationships were established, especially in the area of environmental management (F4) showing 44.4% as a core of dynamic behaviour. In contrast to this positive factor, the businesses have to deal with risk in investments in innovations (29.23%) and the new phenomena of “stability care”, which is a mixture of financial and non-financial information (14%).

DISCUSSION

Rules and standards can be a part of a strategy to have value-driven management (Hornsby *et al.*, 1994). Finally, Diers *et al.* (2009) discovered an elasticity dependence on three main factors which are knowledge, skills and attitude. In his research he described 33 knowledge elements, 35 skill elements and 26 attitude elements in 6 areas, which

IV: QRBITS analysis scheme with factors

Internal factors	External Factors
(Q) Quality H5 Quality of production H7 Longevity of products G4 Recycling B10 Modern method using (ISO, TQM...) D6 Qualification growth	(I) Interpretation (environment) H2 Environmental responsibility B10b Modern Methods (SWOT, PESTLE) C13 Business conditions
(R) Resources B3 Strategy Frame D9 Productivity of work per employee E4 Turnover per Innovations E8 Type of Innovations	(T) Team (external) Business network (lobbying) Customer Base C14 Export F3 Projects EU/others E6 Form of Innovative cooperation
(B) Bridge E7 Innovated products/services A3 Size in last 3 years D1 Employees benefits H3 Optimization of process	(S) Sustainability Feedback for service Dynamics for change (based on GSR equation)

Source: Diers *et al.* (2009), factors: own research data

could provide entrepreneurial dynamics. Each area covers internal factor areas (Quality, Resources, and Bridge) and external factor areas (Interpretation, Team, Sustainability), which have an influence on the overall dynamics (see table IV). This method we abbreviated (analogy with traditional SWOT analysis) and could be interpreted as "QRBITS" and should make a strategic profile of each business unit.

In this part of the analysis important areas from the questionnaires were added which are significant for testing overall dynamics. All of our work is limited by the intervals of company evaluation and the availability of data which is a common problem among other studies (von Stein, Ziegler, 1984), but further research must be conducted to improve the quality and predictive power of the presented models to avoid bias.

CONCLUSION

Companies which developed a plan or were innovation-oriented during unstable economic conditions were more dynamic in their behaviour and were proactive in their strategy development

as opposed to being merely reactive (Phillips, Kirchoff, 1989). They created value for the company even during dire times for businesses. Secondly, factors, which generate sustainability in the long term period, should be evaluated as a supporting decision making tool, because they create a long-term competitive advantage in business. In line with our analysis, we supported the fact that innovations, made in a non-stable economic environment were risky and slowed down the flexibility of strategy implementation. Double changes, such as changes in innovations (in processes, services – as a part of a plan) and operative changes in strategy such as the reaction towards impulses from the external environment, speed up the growth of the risk rate. The practical value of the non-financial information regarding the correlation between significant factors for business success within social innovation implementation is very important for predicting and evaluating current and potential situations and would be helpful when working with the causalities of failures in the health care sector, because each innovation process needs a good business plan and must be evaluated (Altman *et al.*, 2008).

SUMMARY

The main goal of this paper was to evaluate the current situation in the area of small businesses in the Czech Republic. To complete the task, the paper is divided into two main parts. In the first part, the literature review in the area of sustainable and dynamic strategy is made. Furthermore the main results from the conducted surveys are evaluated with official statistics from the Economic Chamber of the Czech Republic. Finally, own contributions could be found in the area of causal analysis between business behaviour, innovations and dynamics in a crisis environment. In contrast with the commonly recommended analysis – SWOT, a less common method is used, called QRBITS.

Acknowledgement

The research behind this paper was supported by the Student Grant System of the Silesian University within the project SGS SU 9/2012.

REFERENCES

- ALTMAN, E., SABATO, G., WILSON, N., 2010: The value of non-financial information in small and medium-sized enterprise risk management. *Journal of Credit Risk*, 6, 2: 95–127. ISSN 1744-6619.
- ARAGÓN-CORREA, J. A., SHARMA, S., 2003: A Contingent Resource-Based View of Proactive Corporate Environmental Strategy. *Academy of Management Review*, 28, 1: 71–88. ISSN 0363-7425.
- BAPTISTA, R., KARAÖZ, M., 2007: Turbulence in High Growth and Declining Industries. *Jena Economic Research Papers*, 1, 43: 1–44. ISSN 1864-7057.
- BAPTISTA, R., THURIK, R., 2007: The relationship between entrepreneurship and unemployment: Is Portugal an outlier? *Technological Forecasting & Social Change*, 74, 1: 75–89. ISSN 0040-1625.
- BARNEY, J. B., 1991: Firm Resources and Sustained Competitive Advantage, *Journal of Management*, 17, 1: 99–120. ISSN 0149-2063.
- BOURGEOIS, L. J., 1984: Strategic Management and Determinism. *Academy of Management Review*, 9, 4: 586–596. ISSN 0363-7425.
- BROWN, S. L., EISENHARDT, K. M., 1998: *Competing on the edge: strategy as structured chaos*. Boston: Harvard Business School Press, 299 p. ISBN 08-758-4754-4.
- BURKE, W. W., LITWIN, G. H., 1992: A causal model of organizational performance and change. *Journal of Management*, 18, 3: 523–545. ISSN 0149-2063.
- CARREE M. A., THURIK, A. R., 2008: The Lag Structure of the Impact of Business Ownership on Economic Performance in OECD Countries. *Small Business Economics*, 30, 1: 101–110. ISSN 0921-898X.
- CHARNEY, A., LIBECAP, G. D., 2000: The Impact of Entrepreneurship Education: An Evaluation of the Berger Entrepreneurship Program at the University of Arizona, 1985–1999 – FINAL REPORT. Available online: ebr.eller.arizona.edu/research/entrepreneurship.pdf.

- DAMANPOUR, F., 1991: Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34, 3: 555–590. ISSN 0001-4273.
- DIERS, T., MONTAUK, S. L., VAUGHN, L. M., LEHMANN, C., KIESLER, J. SCHUBERT, CH., J., SMUCKER, D., VOLCK, B., 2009: Competencies for the Adaptable Physician: Training Residents to Care for Vulnerable Populations. *Open Medical Education Journal*, 2, 1: 26–35. ISSN 1876-519X.
- DiSTEFANO, CH., ZHU, M., MÎNDRILĂ, D. 2009: Understanding and Using Factor Scores: Considerations for the Applied Researcher. *Practical Assessment, Research & Evaluation*, 20, 14: 1–11. ISSN 1556-8180.
- DRUCKER, P. F., 2008: *The age of discontinuity: guidelines to our changing society*. 8th ed. New Jersey: Harper & Row, 402 p. ISBN 978-1-56000-6183.
- EVANS, S. J., 1991: Strategic Flexibility for High Technology Maneuvers: A Conceptual Framework. *Journal of Management Studies*, 28, 1: 69–89. ISSN 0022-2380.
- GREWAL, R., TANSUHAJ, P., 2001: Building Organizational Capabilities for Managing Economic Crisis: The Role of Market Orientation and Strategic Flexibility. *Journal of Marketing*, 65, 2: 67–80. ISSN 0022-2429.
- HORNSBY, J. S., KURATKO, D. F., NAFFZIGER, D. W., LAFOLLETTE, W. R., HODGETTS, R. M., 1994: The Ethical Perceptions Of Small Business Owners: A Factor Analytic Study. *Journal of Small Business Management*, 32, 4: 9–16. ISSN 1540-627X.
- KEELEY, R. H., ROURE, J. B., 1990: Management, Strategy, and Industry Structure As Influences on the Success of New Firms: A Structural Model. *Management Science*, 36, 10: 1256–1267. ISSN 0025-1909.
- KIMBERLY, J., COOK, J. M., 2008: Organizational Measurement and the Implementation of Innovations in Mental Health Services. *Administration and Policy in Mental Health and Mental Health Services Research*, 35, 1: 11–20. ISSN 0894-587X.
- MARCH, J. G., 1991: Exploration and Exploitation in Organizational Learning. *Organization Science*, 2, 1: 71–87. ISSN 1047-7039. DOI: 10.1287/orsc.2.1.71.
- MOČNIK, D., 2009: The Impact of Slovenian Entries on Economic Performance. In: Širec, K., Rebernik, M. (ed.), *Dynamics of Slovenian Entrepreneurship: Slovenian Entrepreneurship Observatory 2008*. Maribor: University of Maribor, pp. 47–62. ISBN 978-961-6354-87-5.
- NELSON, R. R., 1991: Why do firms differ, and how does it matter? *Strategic Management Journal*, 12, S2: 61–74. ISSN 1097-0266. DOI: 10.1002/smj.4250121006.
- NUNNALLY, J. C., 1978: *Psychometric Theory*. New York: McGraw Hill, 701 p. ISBN 00-704-7465-6.
- PHILLIPS, B. D., KIRCHHOFF, B. A., 1989: Formation, growth and survival; Small firm dynamics in the U.S. Economy. *Small Business Economics*, 1, 1: 65–74. ISSN 0921-898X.
- RYLKOVÁ, Ž., CHOBOTOVÁ, M., 2011: Přizpůsobování organizací na změny v konkurenčním prostředí. *Periodica Academica*, 6, spec. is.: 65–82. ISBN 978-80-86710-48-8.
- SHARMA, S., 1996: *Applied Multivariate Techniques*. New York: John Wiley & Sons, 701 p. ISBN 04-713-1064-6.
- STACEY, R. D., GRIFFIN, D., SHAW, P., 2000: *Complexity and management: Fad or radical challenge to systems thinking?* London, UK: Routledge, 224 p. ISBN 0-415-24761-6.
- TEECE, D. J., PISANO, G., SHUEN, A., 1997: Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 7: 509–534. ISSN 1097-0266.
- TIDD, J., BESSANT, J., PAVITT, K., 2007: *Řízení inovací*. Brno: Computer Press, 549 s. ISBN 80-251-1466-X.
- von STEIN, J. H., ZIEGLER, W., 1984: The prognosis and surveillance of risks from commercial credit borrowers. *Journal of Banking and Finance*, 8, 2: 249–268. ISSN 0378-4266.

Address

Ing. Jarmila Šebestová, Ph.D., Ing. Kateřina Nowáková, Silesian University in Opava, School of Business Administration in Karvina, Department of Management and Business, Univerzitní nám. 1934/3, 733 40 Karviná, Czech Republic, e-mail: sebestova@opf.slu.cz