“How does strategic flexibility make a difference for companies? An example of the Hungarian food industry”

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HOW DOES STRATEGIC FLEXIBILITY MAKE A DIFFERENCE FOR COMPANIES? AN EXAMPLE OF THE HUNGARIAN FOOD INDUSTRY

Abstract

Nowadays, strategic flexibility and its effect on organizational performance are crucial to discuss. Moreover, organizations, especially industrial companies, should estimate how flexibility as a mechanism can improve organizational performance. The Hungarian food industry is highly significant in the industrial sector of the Hungarian economy. Therefore, the aim of this paper is to evaluate how the performance of the Hungarian food industry is affected by strategic flexibility, using supply and demand uncertainty as moderators. It is a quantitative and causal study. A survey was conducted to collect the primary data from a proposed sample of managers at the target companies. As a result, 301 valid responses have been analyzed in SPSS. Regression analysis, correlation, and moderation analysis are used as well. The results indicated that strategic flexibility generally enhances the performance of the target companies, and 20.3% of changes in companies' performance are related to strategic flexibility. The flexibility of resources affects only the operational performance, while the flexibility of coordination positively affects company performance; it has a 44.2% influence. The findings also showed that uncertainty does not moderate the relationship between strategic flexibility and target firms' performance. Thus, strategic flexibility is considered as one-effect mechanism in a stable business environment. In all cases, strategic flexibility should be applied in addition to other managerial techniques to enhance company performance.

Keywords strategic flexibility, resource flexibility, coordination flexibility, uncertainty, company performance, Hungarian food industry, management practices

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INTRODUCTION

Businesses must stay current with changes in the marketplace, establish strategies to address altering customer preferences, and discover ways to respond to market alterations. Flexibility is one of the techniques firms employ to handle unanticipated situations and suspicious states the best they can; it can be strategic or operational based on the managerial level. According to Sanchez (1993, 1995), strategic flexibility is connected to resource and coordination flexibility. An organization is considered flexible, according to Tiwari et al. (2015) and Chahal et al. (2018), when it can cope with or redesign its structure or processes following challenges or uncertainties, as well as use all opportunities to create sustained competitive advantage. More specifically, strategic flexibility refers to an organization's capacity to adapt efficiently to substantial challenges that affect its performance (Aaker & Mascarenhas, 1984). Since strategic flexibility comprises flexibility of resources and coordination, adequate resource allocation and utilization help firms improve operational performance (Daniels et al., 1996, 2004). Therefore, strategic flexibility affects company per-

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formance, especially in environments of fierce competition (Yuan et al., 2010). However, flexible companies under unchangeable conditions may incur more significant financial expenses (Pagell & Krause, 2003). Strategic flexibility enhances corporate success by merging with other managerial techniques, like good communication and synchronization of production and marketing plans (Miles et al., 1978). In addition, the flexibility of resources affects the diversity of production and product options offered by a company, which, from the perspective of client contentment, encourages consumers to spend money on goods and services (Chod & Rudy, 2005).

Strategic flexibility can be a good management technique for companies to improve their performance, especially industrial ones. Therefore, it can be a fundamental strategic tool for the Hungarian food industry, which is one of the most crucial sectors in the Hungarian economy. It accounts for more than 10% of industrial production, making it the second-largest employer and third-largest producer in the manufacturing sector. The food business provides 2.2% of Hungary's GDP, according to the information from the Federation of Hungarian Food Industries (Flanders investment & Trade, 2020), making it the third-largest industrial sector in the nation. The food and agricultural industries significantly contributed to the economic growth surplus in 2019 (Flanders investment & Trade, 2020). The food industry was designated as a key sector in Hungary's reindustrialization strategy, raising output, enhancing competitiveness, and bolstering market position. Recently, companies in the food industry sector have significantly benefited from government assistance to achieve this, which is available and desirable to help small and large businesses become more competitive. However, the critical problem lies in those companies whose performance is still not good enough to achieve a competitive advantage. Official statistics for 2019 (Flanders investment & Trade, 2020) showed that reaching a high level of performance for the Hungarian food sector remains a problem. The Hungarian food industry cannot compete in international markets or even with foreign products in the Hungarian market, and the income in Hungary is also considered low compared to other European countries. Furthermore, Hungarian food manufacturers still face fierce competition from international companies or foreign products and lose out on consumers who have enough money and can buy non-Hungarian products.

Therefore, the paper aims to analyze the effect of strategic flexibility on the Hungarian food industry's performance. Moreover, it assesses the extent to which strategic flexibility as a strategic method contributes to enhancing the performance of target companies and obtaining a competitive advantage as the next step after reaching a high level of performance. Finally, the study investigates how supply and demand uncertainty may affect the strategic flexibility and performance of the Hungarian food industry.

1. LITERATURE REVIEW AND HYPOTHESES

Businesses are coping with an environment that is more difficult than ever, filled with uncertainty and continual change. These include changes in consumer preferences and power dynamics, globalization, new management techniques, technological upheavals, economic crises (Dreyer & Grønhaug, 2012; Hitt et al., 1998; Thomas, 2014; Combe, 2012; Brozovic, 2018), and changes in corporate environments and legal frameworks. As a result, businesses must adapt to new challenges and create plans for coping with mutating customer preferences. The ability to be flexible is used by companies facing unanticipated occurrences and willing to handle changes efficiently and effectively.

Although it is perceived as a straightforward word, flexibility is a complex and multifaceted notion (Sushil & Stohr, 2013). Flexibility as a concept was first introduced by Hart (1937). Later it was discussed in organizational design (Ackoff, 1977), economics (Backman, 1940), military strategy (Eppink, 1978), IT (Bahrami & Evans, 2011), and decision analysis (Koopmans, 1962). More precisely, strategic flexibility at the highest level ena-

bles a company to have a variety of alternatives for future visions (Shalender & Yadav, 2019).

This study considers strategic flexibility (SF) (comprising resource flexibility and coordination flexibility) using a resource-based view (RBV).

1.1. Resource flexibility (RF)

Numerous academics contend that large organizations' superior resources enable them to exhibit greater strategic flexibility (Nordin et al., 2013). On the other side, it was claimed that small businesses, particularly those in the manufacturing sector, might take advantage of these resource constraints by expanding their strategic flexibility and employing the proper techniques (Santos-Vijande et al., 2012). Similarly, SMEs need to develop effective resource management techniques to increase their strategic flexibility (Brinckmann et al., 2019).

Applying RBV, flexibility, according to Wright and Snell (1998), is a company's capacity to create resources and procedures swiftly. This is needed to transform own structure and processes following unpredictable occurrences. The capability of resource allocation throughout production stages in response to altering restrictions also enables organizations to manage production turbulence. Therefore, businesses can deliver new items and create current products faster (Chauhan & Singh, 2014). Sanchez (1995) used the RBV paradigm to offer his strategic flexibility (SF) model. He made it clear that a company must be able to acquire the resources and then plan how to use them in different ways. As a result, SF was split into resource flexibility (related to the available resources) and coordination flexibility.

Daniels et al. (2004) found that the link between resource flexibility and performance may improve operational performance by effectively allocating and using resource flexibility. However, resource flexibility does not affect customer perceptions in a long perspective (Oke, 2005).

In this regard, Chauhan and Singh (2011) stated that resource flexibility (RF) may be suitable for carrying out several tasks that will favorably affect business performance. For example, advantages may be offering the newest goods entirely, diversifying the production mix, and promptly satisfying customer preferences.

As a result, customer satisfaction will naturally result from what was previously discussed by enhancing resource flexibility, and good performance will be an inevitable consequence. In addition, utilizing existing resources in a different way will reduce time and cost while also making it easier to meet new production goals.

1.2. Coordination flexibility (CF)

Generally, coordination means the ability to organize and link the elements to get a clear vision of something. In the context of SF, coordination flexibility focuses on the multi-ways in which a company may efficiently use present resources to reach its goals. This aligns with the concept of SF as a dynamic organizational capability composed of pro-activeness, resource reconfiguration, and market sensing (Arunachalam et al., 2021). CF focuses on the ways in which a company may use its integrative capabilities to foster partner relationships (Bag & Gupta, 2017; Wilson & Platts, 2010; Sezen & Yilmaz, 2007).

Companies may use CF to adapt to alterations in a dynamic environment, seize opportunities, and provide services to potential customers (Yuan et al., 2010; Cetindamar et al., 2009), all of that by using, organizing, and linking the available resources in a relevant way. CF enables businesses to effectively integrate their internal and external resources and use them to achieve better performance (Shimizu & Hitt, 2004). Additionally, it permits the business to restructure and reconfigure the typical managerial procedures and implement them in a new way to save the time and expenses associated with production processes and, as a result, increase and improve the production methods used (Sanchez, 1995, 1997). Yuan et al. (2010) found that applying CF enables the companies to achieve:

1) Use of current resources or dependency on outside resources;

2) Use of current resources or recombination of internal resources;

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3) Efficient resource sharing and usage for an efficient response; and

4) Efficient reaction to pressing concerns.

Thus, this would enhance company performance. Coordination flexibility relates to sourcing, demand management, coordination, and physical distribution that affect the performance of a pivotal company (Singh et al., 2019). However, organizations must understand that their ability to coordinate their resources effectively depends on company size. Generally, large companies have a lot of resources and different usage, so applying coordination flexibility may be challenging. On the other hand, small firms are more competitive when they have CF since the bureaucracy is low; thus, the coordination process will be more efficient and effective.

1.3. Environmental uncertainty (EU)

Multi-sourcing has received a lot of attention in recent years. Supply uncertainty presents significant issues to supply chain managers, who frequently decide to multi-source to lessen the adverse effects of uncertain yield (Wu et al., 2019). Furthermore, many researchers highlighted that since it results from fluctuating demand or inaccurate estimates, uncertainty in client demand is frequently seen as the most damaging type (Simangunsong et al., 2012; Gupta & Maranas, 2003). Businesses will consequently either see a rise in demand or a decrease in demand.

Demand uncertainty is associated with client preferences and price sensitivity, evolving product demands, forecasting challenges brought on by inaccurate estimations, and erratic purchases (Patel, 2011; Davis, 1993). Similarly, Hu and Feng (2017) stated that it is difficult to estimate demand amounts given the uncertainty of customer preferences.

On the other hand, supply uncertainty affects the whole supply chain, in addition to customers and suppliers. Moreover, the supply chain with SU will undoubtedly encounter problems like poor revenues and a reduction in the number of products (Hu & Feng, 2017). Therefore, collecting relevant data makes it possible to know enough about supply and demand to reduce uncertainty. In this case, the best way to collect the data is through market research and supplier evaluation.

1.4. Company performance

Corporate performance can be financial or non-financial and can be measured subjectively or objectively.

1.4.1. Financial performance

To measure financial performance, companies apply a thorough analysis of a business structure and all its items, including assets, revenue, costs, liabilities, overall profitability, and equity. Many tools and measures are used to obtain a detailed analysis of the prospective effectiveness of a firm. Specific financial formulae and ratios are produced through financial performance analysis. When compared to historical data and industry benchmarks, they offer insight into the health and performance of company finances. Financial performance can be measured objectively or subjectively. In this study, financial performance was measured subjectively.

1.4.2. Non-financial performance measurements

Operational performance (OP) is used to communicate the outcomes of operational activities as supplied by operational metrics, a critical performance indicator for enterprises (Sánchez & Perez, 2005). According to Voss et al. (1997), operation performance is correlated with the quantifiable daily results, inventory components, and production cycle. Dora et al. (2013) assert that the following factors are connected to operational performance: stock/inventory reduction comes first, followed by quality enhancement, productivity increase, production cycle, and effective delivery.

Due to client loyalty, organizations with high customer satisfaction levels are better able to both attract and keep customers (Sethi et al., 2007). Consumer preferences are erratic and regularly change (Shepetuk, 1991). Businesses should thus always be able to comprehend their customers' demands and offer what they want. Organizations typically need to forecast and anticipate what their customers desire, then adjust their operations ac-

cordingly (Takeuchi & Quelch, 1983). Adapting to shifting consumer expectations and consumption trends is critical for growth in all businesses (Chan et al., 2017).

After a careful review of existing relevant studies, the aims of this study are as follows. First, it analyzes the impact of adopting strategic flexibility as a management technique to improve company performance. Second, it assesses whether strategic flexibility can provide more beneficial results only in case of uncertainty in supply and demand or can be considered as a dual mechanism to improve company performance in a stable business environment.

Accordingly, the following hypotheses are developed:

H1: SF positively affects the performance of the Hungarian food industry.

H1a: RF positively affects the performance of the Hungarian food industry.

H1b: CF positively affects the performance of the Hungarian food industry.

H2: The link between SF and the Hungarian food industry is moderated by uncertainty.

2. METHODOLOGY

This study attempts to evaluate flexibility and corporate performance by considering environmental uncertainty as a moderating variable to test the presumptions. Therefore, data were gathered using questionnaires. Primary and secondary data are the two main categories of data. A questionnaire was created using the literature review and distributed to food-related firms in Hungary (to obtain primary data). 113 firms were the focus, and 300 managers participated in the poll. The study used moderation analysis, linear regression analysis, and descriptive analysis (Hayes, 2013).

It is explanatory/causal study, and cross sectional one, reliability and validity have been tested.

This study employs many linear models. The linear equation of this model is:

$$Y = \beta 0 + \beta 1 \cdot X1, \quad (1)$$

where Y – Companies Performance (CP); $X1$ – Strategic Flexibility (SF). ß0: the fixed part of the equation (the constant), ß1: the value of the constant of strategic flexibility.

In the first phase of this study, primary data was collected between 2020 and 2021 because it is a cross-sectional study, the process had done by emails and phone due to COVID-19 restrictions (Bilenko et al., 2022), and the literature was updated and written by reviewing the articles related to the topic and the chosen variables.

For the next stage, methods were selected like loadings factors to find out the correlated variables in terms of a potentially lower number of unobserved variables called factors. Reliability and validity of the used measurement, Cronbach's alpha have been used to test the reliability of the measurement in the Hungarian business environment. Descriptive analysis by applying the mean and standard deviation, correlation analysis by applying spearman rank-order correlation to measure the strength and direction of association that exists between the variables, linear regression analysis to test the hypotheses and predict the values of companies` performance based on the value of strategic flexibility.), then data analysis was performed, and the results were verified by the authors, for the final step, the article was completed by closure and discussion based on the table temporal.

3. RESULTS AND DISCUSSION

3.1. Reliability test

Cronbach's alpha is employed in order to determine the consistency and reliability of the questionnaire. The Cronbach's alpha values in this study ranged from 0.70 to 0.826. This shows that the questionnaire is reliable and consistent (Santos, 1999). Additionally, loadings factor, which indicates the relevance of the measurement's components, is between 50 and 84.1% for all of its components (Table A1).

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3.2. Descriptive analysis

This paper determined the mean and standard deviation for the descriptive analysis.

Table 1. Descriptive analysis

Source: Authors' elaboration in SPSS.

Variables	Min	Max	Mean	Std. deviation	N
SU	1	4.71	2.66	0.697	301
DU	1	4.13	2.23	0.647	301
RF	1	5	2.72	0.906	301
CF	1	5	3.89	0.584	301
FP	3	5	4.09	0.498	301
OP	1.38	5	3.67	0.658	301
CS	2.29	5	4.09	0.498	301

The standard deviation is a statistic that expresses how much variance or dispersion there is in a group of numbers. While a high standard deviation suggests that the values are dispersed over a larger range, a low standard deviation suggests that the values tend to be near to the mean (also known as the anticipated value) of the collection. Based on it, the variables' range of values will be determined as Mean –/+ Std. {M – Std, M + Std}.

(SU): (M = 2.66, SD = 0.697), the values range is (1.96; 3.356). There is a consensus among the respondents that the target firms do not experience supply uncertainty.

(DU): (M = 2.23, SD = 0.647), the values range is (1.58; 2.88), indicating that the respondents generally believe that the target firms do not experience DU.

(RF): (M = 2.72, SD = 0.906), the values range is (1.81; 3.62). There is a disagreement among the respondents on whether the target firms use (RF) as a strategy.

(CF): (M = 3.89, SD = 0.584), the values range is (3.31; 4.47), indicating that the respondents generally concur that the target organizations apply CF.

(FP): (M = 4.09, SD = 0.498), the values range is (3.61; 4.58), indicating that the respondents generally think that the target firms' financial performance is strong.

(OP): (M = 3.67, SD = 0.658), the values range is (3.01; 4.32), and the respondents generally agreed that the target firms' operational performance was good.

(CS): (M = 4.09, SD = 0.498), the values range is (3.6; 4.59), and the respondents all agreed that CS was assessed as good.

3.3. Correlation analysis

This study conducts the correlation analysis to determine the level of connection between the variables. Table 2 demonstrates that all correlation associations were significant even though there was either low or moderate correlation between the variables. The dependent variable (business performance) and independent factors (resource flexibility, coordination flexibility) were all only weakly or moderately connected.

Table 2. Correlation results

Source: Authors' elaboration in SPSS.

Variables	UN	RF	CR	Performance
UN	1	–	–	–
RF	–0.31	1	–	–
CR	–0.054	0.409**	1	–
Performance	–0.162**	0.214**	0.455**	1

Note: ** P < 0.01, * P < 0.05.

3.4. Regression analysis

Next, the study used linear regression analysis. It assesses the causal relationship between SF and company performance, as well as evaluates the hypotheses and pertinent sub-hypotheses.

Table 3. Regression results of different SF dimensions: Total performance

Source: Authors' elaboration in SPSS.

Variables	DV
	Performance
IV	Model 1
Constant	2.064***
RF	0.020 (0.033)
CF	0.415 *** (0.442)
R	0.456
Adjusted R 2	0.203 (20.3%)

Note: Levels of significance: * p < 0.1; ** p < 0.05; *** p < 0.001.

Table 3 shows that SF positively affects corporate performance and accounts for 20.3% of performance variance. Thus, the first main hypothesis (SF positively affects the performance of the Hungarian food industry) is accepted. At the same time, firm performance is unaffected by resource flexibility because P > 0.05. As a result, H1a (RF positively affects the performance of the Hungarian food industry) is rejected.

Coordination flexibility, meanwhile, has a positive and beneficial impact on business success, with 44.2%. The success of food companies in Hungary is positively impacted by CF, which has a 44.2% influence on performance. Thus, H1b (CF positively affects the performance of the Hungarian food industry) is accepted.

The study elaborates the following regression equation based on the findings of the coefficients:

$$Y = 2.064 + 0.415X1, \quad (2)$$

where Y is the dependent variable according to the aforementioned model (company performance). One independent variable is *X*1 (coordination flexibility).

Table 4. Regression analysis of different SF dimensions: Performance dimensions

Source: Authors' elaboration in SPSS.

Variables	DV		
	Performance		
IV	Model 1		
	FP	CS	OP
Constant	1.485***	2.818***	1.913***
RF	–0.034 (–0.039)	–0.043 (0.079)	0.137*** (0.188)
CF	0.530** (0.391)	0.357*** (0.419)	0.358*** (0.318)
R	0.377	0.393	0.430
Adjusted R2	0.136	0.149	0.18

Note: Levels of significance: * p < .05; ** p < .01; *** p < .001.

Following the data in Table 4, the study concludes on the direct effects of SF dimensions and performance dimensions: RF does not affect FP; RF does not affect CS; RF positively affects OP; and CF affects FP, CS, and OP.

Table 5. Regression analysis of total SF: Performance dimensions

Source: Authors' elaboration in SPSS.

IV	DV		
	Performance		
	Model 1		
	FP	CS	OP
Constant	2.349***	3.452***	2.262***
SF	0.326*** (0.260)	0.194*** (0.245)	0.428*** (0.411)
R	0.260	0.245	0.411
Adjusted R2	0.065	0.057	0.166

Note: Levels of significance: * p < .05; ** p < .01; *** p < .001.

Table 5 shows that comprehensive SF favorably affects customer satisfaction, operational performance, and financial performance.

3.5. Moderating effect of uncertainty on the association between SF and performance

Table 6 displays the findings of the moderating effect of uncertainty on the link between SF and the performance of the Hungarian food sector.

Table 6. Moderated regression analysis (uncertainty as a criterion)

Source: Authors' elaboration in SPSS.

	ß	R	R^2	T	P
Constant	3.2001 [2.17, 4.22]	–	–	6.152	0.000
SF	0.2331 [–0.678, 0.5341]	0.3858	0.1488	1.524	0.128
Uncertainty	–2.411 [–0.6987, 0.2165]	–	–	–1.036	0.3007
SF * Un	0.0406 [–0.935, 17.48]	–	0.0010	0.596	0.5516

Note: Levels of significance; * p < .01, ** p < .05, *** p < .001.

Table 6 shows that P values are insignificant: P > 0.000, P > 0.05, and there is (0) value between the lower and higher value in the following ranges: [–0.678, 0.5341], [–0.6987,0.2165], and [–0.935, 17.48]. Therefore, the study found that uncertainty does not influence the association between SF and firm performance; H2 (the link between SF and the Hungarian food industry is moderated by uncertainty) is rejected.

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Generally, the success of the food industry in Hungary was favorably impacted by SF. It was found that CF has a positive and beneficial effect on company performance. On the contrary, RF has no impact on firm performance, which matches the results provided by Suárez et al. (1991) and Pagell and Krause (2003). Thus, SF is seen as a prerequisite for improving OP.

Furthermore, implementing SF is not regarded as a helpful tool for managing uncertainty because the Hungarian business environment is stable. Finally, the findings revealed that RF has a favorable impact only on the OP of the target companies, and CF positively affects all performance dimensions.

The results showed that SF has not always been accepted as a technique for managing environmental uncertainty. This is consistent with the opinion of Ketokivi and Jokinen (2006) that the type and degree of SF used should be related to the extent of the unpredictability of the environment, as seen by managers. This finding supports Sánchez and Pérez (2005) that the flexibility degree depends on how uncertain the condition is. For instance, greater flexibility positively affects and enhances firm performance in uncertain environments. On the other hand, a great degree of flexibility has a detrimental effect in more stable contexts since it is an expensive option.

Furthermore, the results do not support Yousuf et al. (2021). The Hungarian business environment is stable, unlike the Iranian business environment. Here, it can be good to highlight that strategic flexibility could be used to reduce uncertainty's adverse effects or enhance company performance.

Generally, the results support Daniels et al. (2004), Chauhan and Singh (2011), and Oke (2005). SF enhances company performance. However, the results partially agree with those of Daniels et al. (2004), where resource flexibility affects only OP but does not affect other dimensions of performance. Furthermore, the results do not match Cetindamar et al. (2009) and Yuan et al. (2010), who stated that CF explicitly has no effects on target companies' performance.

CONCLUSION

This study aimed to assess the correlation between strategic flexibility and the performance of Hungarian food companies, considering the moderating role of environmental uncertainty.

SF can be a valuable strategic technique for managing particularly uncertain situations in unstable business environments. On the contrary, in stable business environments, applying initiation flexibility can be useful for improving performance rather than avoiding uncertainty's adverse side effects. This proves that SF is not a magic tool and key to improving performance because it is very costly when a company wants to change from one plan to another. Strategic choices can be costly and dangerous, especially for large companies.

This paper offers several recommendations for companies. To be successful, businesses should elaborate on a method to improve their performance when facing new customer demands and unpredictable occurrences (e.g., unstable supply of raw materials or demand fluctuations). Organizations must pay attention to uncertainties caused by external or internal reasons, particularly in the constantly changing environment. This means they should not wait for the problem to occur but rather prepare proactive scenarios to deal with unexpected conditions or supplier delays.

Moreover, companies should consider incorporating flexibility with other management techniques, such as good financial performance, strategic marketing, focus on sustainable resource use, and being market-oriented. It will also be good for the companies to consider applying SF in different stages. Thus, organizations may control production turbulence by having the flexibility to allocate resources at different production phases in response to changing constraints. Furthermore, coordination as a process is related to management capabilities and the degree to which the management style is not central (decen-

tralization), so managers should be aware of this fact and take appropriate action. However, companies should be aware that the ability to coordinate their resources in an effective way depends on company size because there are typically many resources and varied uses of them in large companies.

For the future research direction, it is advised to consider the differences between companies based on their size due to their limited resources. Since larger organizations find it more difficult to quickly adapt to changing business situations, smaller ones can better establish meta-flexibility.

AUTHOR CONTRIBUTIONS

Conceptualization: Allam Yousuf, Jomana Mahfod Leroux, Janos Felfoldi.
Data curation: Janos Felfoldi.
Formal analysis: Allam Yousuf.
Funding acquisition: Allam Yousuf.
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REFERENCES

1. Aaker, D. A., & Mascarenhas, B. (1984). The need for strategic flexibility. *Journal of Business Strategy, 5*(2), 74-82. https://doi.org/10.1108/eb039060
2. Ackoff, R. L. (1977). Towards flexible organizations: A multidimensional design. *Omega, 5*(6), 649-662. https://doi.org/10.1016/0305-0483(77)90046-9
3. Arunachalam, S., Ramaswami, S. N., Patel, P. C., & Chai, L. (2021). Innovation-based strategic flexibility (ISF): Role of CEO ties with marketing and R&D. *International Journal of Research in Marketing.* https://doi.org/10.1016/j.ijresmar.2021.11.005
4. Backman, J. (1940). Flexibility of Cheese Prices. *Journal of Political Economy, 48*(4), 579-582. https://doi.org/10.1086/255589
5. Bag, S., & Gupta, S. (2017). Antecedents of sustainable innovation in supplier networks: A South African experience. *Global Journal of Flexible Systems Management, 18*(3), 231-250. https://doi.org/10.1007/s40171-017-0158-4
6. Bahrami, H., & Evans, S. (2011). Super-flexibility for real-time adaptation: perspectives from Silicon Valley. *California Management Review, 53*(3), 21-39. https://doi.org/10.1525/cmr.2011.53.3.21
7. Bilenko, D., Kozlovskyi, S., Ivanyuta, N., Baidala, V., Lavrov, R., & Kozlovskyi, V. (2022). Efficiency Assessment of Tax Measures in the European Countries Against the Effects of COVID-19. *Problemy Ekorozwoju – Problems of sustainable development, 17*(1), 16-22. https://doi.org/10.35784/pe.2022.1.02
8. Brinckmann, J., Dew, N., Read, S., Mayer-Haug, K., & Grichnik, D. (2019). Of those who plan: A meta-analysis of the relationship between human capital and business planning. *Long Range Planning, 52*(2), 173-188. https://doi.org/10.1016/j.lrp.2018.01.003
9. Brozovic, D. (2018). Strategic flexibility: A review of the literature. *International Journal of Management Reviews, 20*(1), 3-31. https://doi.org/10.1111/ijmr.12111
10. Celuch, K., & Murphy, G. (2010). SME Internet use and strategic flexibility: the moderating effect of IT market orientation. *Journal of Marketing Management, 26*(1-2), 131-145. https://doi.org/10.1080/02672570903574296
11. Cetindamar, D., Phaal, R., & Probert, D. (2009). Understanding technology management as a dynamic capability: A framework for technology management activities. *Technovation, 29*(4), 237-246. https://doi.org/10.1016/j.technovation.2008.10.004

http://dx.doi.org/10.21511/ppm.20(3).2022.30

12. Chahal, H., Gupta, M., & Lonial, S. (2018). Operational flexibility in hospitals: Scale development and validation. *International Journal of Production Research, 56*(10), 3733-3755. https://doi.org/10.1080/00207543.2018.1442941
13. Chan, A. T., Ngai, E. W., & Moon, K. K. (2017). The effects of strategic and manufacturing flexibilities and supply chain agility on firm performance in the fashion industry. *European Journal of Operational Research, 259*(2), 486-499. https://doi.org/10.1016/j.ejor.2016.11.006
14. Chauhan, G., & Singh, T. P. (2011). Lean manufacturing through management of labor and machine flexibility: a comprehensive review. *Global Journal of Flexible Systems Management, 12*(1-2), 59-80. https://doi.org/10.1007/BF03396599
15. Chauhan, G., & Singh, T. P. (2014). Development and validation of resource flexibility measures for manufacturing industry. *Journal of Industrial Engineering and Management, 7*(1), 21-41. http://dx.doi.org/10.3926/jiem.655
16. Chod, J., & Rudi, N. (2005). Resource flexibility with responsive pricing. *Operations Research, 53*(3), 532-548. https://doi.org/10.1287/opre.1040.0191
17. Combe, I. A. (2012). 'Marketing and flexibility': debates past, present and future. *European Journal of Marketing, 46*(10), 1257-1267. https://doi.org/10.1108/03090561211248116
18. Daniels, R. L., Hoopes, B. J., & Mazzola, J. B. (1996). Scheduling parallel manufacturing cells with resource flexibility. *Management Science, 42*(9), 1260-1276. http://dx.doi.org/10.1287/mnsc.42.9.1260
19. Daniels, R. L., Mazzola, J. B., & Shi, D. (2004). Flow shop scheduling with partial resource flexibility. *Management Science, 50*(5), 658-669. https://doi.org/10.1287/mnsc.1040.0209
20. Davis, T. (1993). Effective supply chain management. *Sloan Management Review, 34,* 35-35. Retrieved from https://sloanreview.mit.edu/article/effective-supply-chain-management/
21. De Toni, A., & Tonchia, S. (1998). Manufacturing flexibility: a literature review. *International Journal of Production Research, 36*(6), 1587-1617. https://doi.org/10.1080/002075498193183
22. Dora, M., Kumar, M., Van Goubergen, D., Molnar, A., & Gellynck, X. (2013). Operational performance and critical success factors of lean manufacturing in European food processing SMEs. *Trends in Food Science & Technology, 31*(2), 156-164. https://doi.org/10.1016/j.tifs.2013.03.002
23. Dreyer, B., & Gronhaug, K. (2004). Uncertainty, flexibility, and sustained competitive advantage. *Journal of Business Research, 57*(5), 484-494. https://doi.org/10.1016/S0148-2963(02)00315-6
24. Dreyer, B., & Grønhaug, K. (2012). Coping with unpredictable supply: the role of flexibility and adaptation. *European Journal of Marketing, 46*(10), 1268-1282. https://doi.org/10.1108/03090561211248026
25. Eppink, D. J. (1978). Planning for strategic flexibility. *Long Range Planning, 11*(4), 9-15. https://doi.org/10.1016/0024-6301(78)90002-X
26. Flanders investment & Trade. (2020). *Marktstudie Food sector in Hungary*. Retrieved from https://www.flandersinvestmentandtrade.com/export/marktstudie/food-sector-hungary
27. Fynes, B., De Búrca, S., & Marshall, D. (2004). Environmental uncertainty, supply chain relationship quality and performance. *Journal of Purchasing and Supply Management, 10*(4-5), 179-190. https://doi.org/10.1016/j.pursup.2004.11.003
28. Gupta, A., & Maranas, C. D. (2003). Managing demand uncertainty in supply chain planning. *Computers & Chemical Engineering, 27*(8-9), 1219-1227. https://doi.org/10.1016/S0098-1354(03)00048-6
29. Hart, A. G. (1937). Anticipations, business planning, and the cycle. *The Quarterly Journal of Economics, 51*(2), 273-297. https://doi.org/10.2307/1882089
30. Hayes, A. F. (2013). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.* New York: The Guilford Press.
31. Hitt, M. A., Keats, B. W., & DeMarrie, S. M. (1998). Navigating in the new competitive landscape: Building strategic flexibility and competitive advantage in the 21st century. *Academy of Management Perspectives, 12*(4), 22-42. https://doi.org/10.5465/AME.1998.1333922
32. Hu, B., & Feng, Y. (2017). Optimization and coordination of supply chain with revenue sharing contracts and service requirement under supply and demand uncertainty. *International Journal of Production Economics, 183,* 185-193. https://doi.org/10.1016/j.ijpe.2016.11.002
33. Ketokivi, M., & Jokinen, M. (2006). Strategy, uncertainty and the focused factory in international process manufacturing. *Journal of Operations Management, 3,* 250-270. https://doi.org/10.1108/17410380910936792
34. Koopmans, T. C. (1962). *On the Flexibility of Future Preferences* (Cowles Foundation Discussion Papers No. 379). Retrieved from https://elischolar.library.yale.edu/cowles-discussion-paper-series/379/
35. Lieberman, M. B., & Montgomery, D. B. (1998). First-mover advantages: Retrospective and Link with The Resource-Based View. *Strategic Management Journal, 19,* 1111-1125. Retrieved from https://www.anderson.ucla.edu/faculty/marvin.lieberman/publications/FMA2-SMH1998.pdf
36. Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman Jr, H. J. (1978). Organizational strategy, structure, and process. *Academy of Management Review, 3*(3), 546-562. https://doi.org/10.2307/257544
37. Nordin, F., Brozovic, D., & Holmlund, M. (2013). Disintermediation in business-to-business service channels: Mechanisms and challenges. *Journal of Business-to-*

Business Marketing, 20(4), 179-192. https://doi.org/10.1080/10517122X.2013.813717

38. Oke, A. (2005). A framework for analysing manufacturing flexibility. *International Journal of Operations & Production Management, 25*(10), 973-996. http://dx.doi.org/10.1108/01443570510619482

39. Pagell, M., & Krause, D. R. (2003). Re-examining the relationship between operational flexibility and environmental uncertainty. *Academy of Management Proceedings, 2003*(1), 1-5. http://dx.doi.org/10.5465/AMBPP.2003.13792441

40. Patel, P. C. (2011). Role of manufacturing flexibility in managing duality of formalization and environmental uncertainty in emerging firms. *Journal of Operations Management, 29*(1-2), 143-162. https://doi.org/10.1016/j.jom.2010.07.007

41. Sánchez, M. A., & Pérez, P. M. (2005). Supply chain flexibility and firm performance: a conceptual model and empirical study in the automotive industry. *International Journal of Operations & Production Management, 25*(7), 681-700. https://doi.org/10.1108/01443570510605090

42. Sanchez, R. (1993). Strategic flexibility, firm organization, and managerial work in dynamic markets: A strategic options perspective. *Advances in Strategic Management, 9*(1), 251-291.

43. Sanchez, R. (1995). Strategic flexibility in product competition. *Strategic Management Journal, 16*(S1), 135-159. Retrieved from https://www.jstor.org/stable/2486773

44. Sanchez, R. (1997). Preparing for an uncertain future: Managing organizations for strategic flexibility. *International Studies of Management & Organization, 27*(2), 71-94. Retrieved from https://www.jstor.org/stable/40397372

45. Santos, J. R. A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of Extension, 37*(2), 1-5. Retrieved from https://www.scienceopen.com/document?vid=3fab25a1-df8a-4dd8-bf2e-f9d836158974

46. Santos-Vijande, L., Sanzo-Pérez, M., Gutiérrez, J. T., & Rodríguez, N. (2012). Marketing capabilities development in small and medium enterprises: implications for performance. *Journal of CENTRUM Cathedra: The Business and Economics Research Journal, 5*(1), 24-42. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2018367

47. Sawhney, R. (2006). Interplay between Uncertainty and Flexibility across the Value-Chain: Towards a Transformation Model of Manufacturing Flexibility. *Journal of Operations Management, 24*(5), 476-493. https://doi.org/10.1016/j.jom.2005.11.008

48. Sethi, S. P., Yan, H., Zhang, H., & Zhou, J. (2007). A supply chain with a service requirement for each market signal. *Production and Operations Management, 16*(3), 322-342. https://doi.org/10.1111/j.1937-5956.2007.tb00262.x

49. Sezen, B., & Yilmaz, C. (2007). Relative effects of dependence and trust on flexibility, information exchange, and solidarity in marketing channels. *Journal of Business & Industrial Marketing, 22*(1), 41-51. https://doi.org/10.1108/08858620710722815

50. Shalender, K., & Yadav, R. K. (2019). Strategic flexibility, manager personality, and firm performance: The case of Indian Automobile Industry. *Global Journal of Flexible Systems Management, 20*(1), 77-90. https://doi.org/10.1007/s40171-018-0204-x

51. Shepetuk, A. J. (1991). Is your product development process a tortoise or a hare? *Management Review, 80*(3), 25-28. Retrieved from https://link.gale.com/apps/doc/A10543440/AONE?u=googlescholar&sid=bookmark-AONE&xid=cd0c1679

52. Shimizu, K., & Hitt, M. A. (2004). Strategic flexibility: organizational preparedness to reverse in effective strategic decisions. *Academy of Management Executive, 18*(4), 44-59. http://dx.doi.org/10.5465/AME.2004.15268683

53. Simangunsong, E., Hendry, L. C., & Stevenson, M. (2012). Supply-chain uncertainty: a review and theoretical foundation for future research. *International Journal of Production Research, 50*(16), 4493-4523. https://doi.org/10.1080/00207543.2011.613864

54. Singh, R. K., Modgil, S., & Acharya, P. (2019). Assessment of supply chain flexibility using system dynamics modeling. *Global Journal of Flexible Systems Management, 20*(1), 39-63. https://doi.org/10.1007/s40171-019-00224-7

55. Suárez, F. F., Cusumano, M. A., & Fine, C. H. (1991). *Flexibility and performance: a literature critique and strategic framework* (Working Paper 3298-91-BPS). Sloan School, Massachusetts Institute of Technology. Retrieved from https://dspace.mit.edu/bitstream/handle/1721.1/2359/SWP-3298-24063228.pdf

56. Sushil, & Stohr, E. A. (Eds.) (2013). *The Flexible Enterprise*. Springer Science & Business Media.

57. Takeuchi, H., & Quelch, J. A. (1983). Quality is more than making a good product. *Harvard Business Review, 61*(4), 139-145. Retrieved from https://www.hbs.edu/faculty/Pages/item.aspx?num=16388

58. Thomas, E. F. (2014). Platform-based product design and environmental turbulence: the mediating role of strategic flexibility. *European Journal of Innovation Management, 17*(1), 107-124. https://doi.org/10.1108/EJIM-06-2013-0055

59. Tiwari, A. K., Tiwari, A., & Samuel, C. (2015). Supply Chain Flexibility: A Comprehensive Review. *Management Research Review, 38*(7), 767-792. https://doi.org/10.1108/MRR-08-2013-0194

60. Tolstoy, D. (2014). Differentiation in foreign business relationships: A study on small and medium-sized enterprises after their initial foreign market entry. *International Small Business Journal, 32*(1), 17-35. https://doi.org/10.1177/0266242612456571

http://dx.doi.org/10.21511/ppm.20(3).2022.30

61. Verdú-Jover, A. J., Lloréns-Montes, F. J., & García-Morales, V. J. (2006). Environment–flexibility coalignment and performance: an analysis in large versus small firms. *Journal of Small Business Management, 44*(3), 334-349. https://doi.org/10.1111/j.1540-627X.2006.00175.x

62. Voss, C. A., Åhlström, P., & Blackmon, K. (1997). Benchmarking and operational performance: some empirical results. *International Journal of Operations & Production Management, 17*(10), 1046-1058. Retrieved from https://asset-pdf.scinapse.io/prod/2076886506/2076886506.pdf

63. Wilson, S., & Platts, K. (2010). How do companies achieve mix flexibility? *International Journal of Operations & Production Management, 30*(9), 978-1003. https://doi.org/10.1108/01443571011075074

64. Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of Management Review, 23*(4), 756-772. https://doi.org/10.2307/259061

65. Wu, J., Wang, H., & Shang, J. (2019). Multi-sourcing and information sharing under competition and supply uncertainty. *European Journal of Operational Research, 278*(2), 658-671. https://doi.org/10.1016/j.ejor.2019.04.039

66. Yousuf, A., Lorestani, V. Z., Oláh, J., & Felföldi, J. (2021). Does Uncertainty Moderate the Relationship between Strategic Flexibility and Companies' Performance? Evidence from Small and Medium Pharmaceutical Companies in Iran. *Sustainability, 13*(16), 9157. https://doi.org/10.3390/su13169157

67. Yuan, L., Zhongfeng, S., & Yi, L. (2010). Can strategic flexibility help firms profit from product innovation? *Technovation, 30*(5-6), 300-309. https://doi.org/10.1016/j.technovation.2009.07.007

68. Zhang, X., Ma, X., Wang, Y., & Wang, Y. (2014). How can emerging market small and medium-sized enterprises maximise internationalisation benefits? The moderating effect of organisational flexibility. *International Small Business Journal, 32*(6), 667-692. https://doi.org/10.1177/0266242613503356

APPENDIX A

Table A1. Reliability test

No.	Scale	Cronbach's Alpha	Loadings
1	Demand Uncertainty – DU	0.695	–
1.1	It is impossible to make a reasonable demand forecast for our products.	–	.521
1.2	The demand for our products varies highly week by week.	–	.718
1.3	It is our direct customers' business behavior that enhances uncertainty.	–	.632
1.4	The unpredictable customer preferences drive the demand uncertainty for our products.	–	.698
1.5	The demand uncertainty for our products is driven by our natural environment (e.g., seasonality, weather conditions).	–	.500
1.6	The demand for our products is entirely unpredictable.	–	.730
2	Supply Uncertainty – SU	0.780	–
2.1	Our direct suppliers' business behavior enhances uncertainty (e.g., they fail to meet terms of business and agreements).	–	.751
2.2	The rejection rate of the main inputs supplied is too high.	–	.669
2.3	The supply uncertainty for the inputs needed is driven by national economy issues (e.g., taxation and other rules).	–	.624
2.4	In our industry environment, there are not enough companies ready to deliver who would be able to provide our raw material supply with the right level of service.	–	.761
2.5	The supply uncertainty for the inputs needed is driven by our natural environment (e.g., seasonality and weather conditions).	–	.671
2.6	Our company faces high uncertainty in terms of procurement of important inputs.	–	.796
3	Resource Flexibility – RF	0.779	–
3.1	Our primary resources may be put to a wide variety of different applications.	–	0.665
3.2	The transition between one use of our main resources and another use is not difficult.	–	.0564
3.3	The transition to an alternate resource use just takes a short time, so we can do it rather quickly.	–	.748
3.4	Our primary resources may be used in various ways at relatively moderate costs.	–	.727
3.5	A varied line of items may be developed, produced, and delivered with the majority of resources.	–	.648
3.6	Our company has the capability (assets and knowledge) to change the current use of main inputs to an alternative way.	–	.618
4	Coordination Flexibility – CF	0.796	–
4.1	Our production plan is aligned with the resources available.	–	.640
4.2	We can precisely plan our demand for resources.	–	.729
4.3	We can optimize our set of resources matched with our production plan.	–	.758
4.4	Finding new uses for internal resources is a common practice among internal units.	–	.647
4.5	We can use and apply our resources available according to the production plan.	–	.786
4.6	The availability of alternative resources offers the opportunity to use them for various production purposes.	–	.701
4.7	We can rethink the use of available resources and redesign the use of existing resources based on this.	–	.597
4.8	We can manage and coordinate the resources available.	–	.754
5	Financial Performance – FP	0.826	–
5.1	This is a definitely profitable company.	–	.789
5.2	Our sales are increasing.	–	.758
5.3	Our company's investments can produce a return over the projected period.	–	.793
5.4	We can always meet the stockholders'/owners' financial expectations.	–	.793
5.5	Our company's financial performance is higher than those of our competitors.	–	.717
6	Customer satisfaction – CS	0.803	–
6.1	Our retention rate is high. Our customers continue to do business with us.	–	.586
6.2	Our customers consider our prices as reasonable values when comparing prices and product functions.	–	.633
6.3	Our customers realize the value of their money when buying our products.	–	.590
6.4	We have high customer satisfaction.	–	.655
6.5	Our company has a good reputation for its products.	–	.541
6.6	Our company's market share grows.	–	.690
6.7	We can meet the customer needs better than the leading competitors.	–	.740
7	Operational performance – OP	0.814	–
7.1	Our business may easily alter items to satisfy the needs of our main clients.	–	.841
7.2	New items may be promptly released on the market by our firm.	–	.833
7.3	Our business can react to changes in consumer demand very fast.	–	.728
7.4	Our business has a stellar track record of delivering on schedule to our main client.	–	.513
7.5	The lead time for completing client orders, or the period between receiving an order and delivering the items, is minimal.	–	.556
7.6	Its business offers our main client a high standard of customer care.	–	.559

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