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Strategic flexibility, environmental dynamism, and innovation performance: An empirical study

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Abstract

A new competitive landscape requires businesses to adapt quickly to changeable conditions. In other words businesses need strategic flexibility. Strategic flexibility refers to an ability of firms to respond and adapt to environmental changes. Strategic flexibility enables firms many advantages. For example, it may improve to innovation performance and develop the competitive advantage of a firm in a dynamic environment. Innovation can be either explorative or exploitative innovations. In this study, we examined the relationship among strategic flexibility, environmental dynamism, and innovation performance, using a sample of 69 firms from Kayseri (Turkey). We found empirical support for the positive relationships among strategic flexibility, innovation performance, and environmental dynamism.

Keywords: Strategic Flexibility, Innovation Performance, Environmental Dynamism

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1. Introduction

In recent years, business environment has become more complex due to the changing customers' needs and demands, intense competition, globalization, crises, and technological development. Businesses should have different strategies and policies to confront environmental uncertainty and changes. In this context, strategic flexibility can allow businesses to adapt such conditions. Therefore, strategic flexibility has been begun to study as an important research area.

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Strategic flexibility refers to an ability of firms to respond and adapt to environmental changes. To develop strategic flexibility organizations should exercise strategic leadership, build dynamic core competence, focus and develop human capital, effectively use new manufacturing and information technologies, implement new organization structure and, have innovative culture (Hitt et al., 1998). Especially, organization should prefer flat and horizontal structures that enhance innovation and speed of strategic actions. Also, firms choose ambidexterity as a strategic alternative to become more flexible. Ambidexterity broadly refers to an organization's ability to pursue two disparate things at the same time-such as manufacturing efficiency and flexibility, standardization and innovation, differentiation and low-cost strategic positioning, or global integration and local responsiveness (Gibson and Birkinshaw, 2004; Lin et al., 2007). Ambidextrous firms are capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity (Lubatkin et al., 2006: 647). Ambidexterity may help businesses to adapt changeable environmental conditions by enabling characteristics of horizontal organization structure.

Strategic flexibility provides many advantages to businesses. Flexible firms rapidly shift from one strategy to another. So, they can realize different strategic actions in the competitive arena. Also, strategic flexibility enables businesses to obtain sustainable competitive advantage by making businesses become more proactive. Proactive firms can analyze their environment and determine the external opportunities and threats better than other firms. Thus, they can take advantage of opportunities while protecting themselves against the environmental threats. Furthermore, empirical evidences have suggested that strategic flexibility effects business performance positively (Nadkarni and Narayanan, 2007). In addition to this, strategic flexibility may improve to innovation performance of a firm in a dynamic environment. Strategic flexibility can influence innovation performance by providing more flexible processes and structure. Innovation is the most important source of competitive advantage. Since, innovation can result in new products that better satisfy customer needs, can improve the quality of existing products, or can reduce the costs of making products that customers want (Hill and Jones, 2004). Therefore, organizations that want to become more innovative in their processes, products, or services must consider strategic flexibility as an alternative.

Our objective in this study is to explain strategic flexibility, environmental dynamism, and innovation performance in a theoretical way and to determine the relationships among strategic flexibility, innovation performance, and environmental dynamism. Recent researches of strategic flexibility have focused on firm performance and product innovation as outputs (Sanches, 1997; Worren et al., 2002; Gomez-Gras and Verdu-Jover, 2005; Nadkarni and Narayanan, 2007; Li et al., 2010; Zhou and Wu, 2007). There are limited studies dealing with how strategic flexibility effects on innovative performance of firms (Tamayo-Torres et al., 2010). Therefore, this study will become very useful to fill in this gap that is determined literature.

2. Literature review

Managers face uncertainty in terms of rapidly changing economic and political trends, increasing global competition, shortening technology cycles, transformations in societal values, and shift in customer demands (Hitt et al., 1998; Skordoulis, 2004; Reddy, 2006; Hitt et al., 2007). To compete effectively in such conditions, firms have to create innovative products and services of high quality and at low prices to satisfy their customer (Hitt et al., 1998). Be able to make change in the products, services, and business processes depends on the ability to adapt quickly to environmental changes. In other words, a firm's ability to adapt quickly to such conditions is crucial to its success in obtaining and maintaining sustainable competitive advantages. So, firms need to strategic flexibility.

In a stable environment, traditional management concept helps organizations to attain success. But it is limited to prepare organizations for uncertainty. As an alternative approach to managing for an uncertain future, new management theory and practice have begun to focus on developing an organization's strategic flexibility (Sanchez, 1997). Flexibility can be seen as a characteristic of an organization that makes it less vulnerable to unforeseen external changes or puts it in a better position to respond successfully to change (Gomez-Gras and Veru-Jover, 2005; Roberts and Stockport, 2009). So, flexible firms exhibit both diversity in strategic responses and rapid shifts from one strategy to another (Nadkarni and Narayanan, 2007). There are various definitions of strategic flexibility. Strategic flexibility is the capability of the firm to proact or respond quickly to changing competitive conditions and environment (Sanchez, 1997; Hitt et al., 1998; Zhang, 2006; Tamayo-Torres et al., 2010).

Strategic flexibility is about a company's ability to restructure itself internally as well as its relationship with the external environment (Roberts and Stockport, 2009). According to this definition, strategic flexibility is a concept that include in both internal and external conditions. So, firms that want to achieve strategic flexibility should consider all the factors that are related to organizational environment. Sanchez stated that (1995), strategic flexibility refers to respond more quickly than ever before to changing technological and market opportunities by producing more new products, offering broader product lines, and improving products more rapidly. Since, new competitive landscape requires becoming faster than other firms to survive in flux market.

Strategic flexibility is a concept that is associated with environmental dynamism. Strategic flexibility can be defined as a firm's ability to adapt to substantial, uncertain, and rapidly chaining environmental conditions (Nadkarni and Herrmann, 2010). One of the most important factors that effects on strategic flexibility is environmental dynamism. Environmental dynamism describes the rate and the unpredictability of changes in a firm's external environment (Zhang, 2006). Dynamic market or business environment are characterized by high level of uncertainty (Sanchez, 1995). In this context, firms that operate in a dynamic and rapidly changing environment must create strategic flexibility to obtain sustainable competitive advantage. Furthermore, businesses must be more flexible if the environmental dynamism and uncertainty are high.

Hypothesis 1: Environmental dynamism is positively related to strategic flexibility.

Being flexible may create some advantages for the companies. Firms with strategic flexibility tend to effectively and successfully manage economic and political risks by responding in a proactive manner to market threats and opportunities (Ussahawanitchakit and Sriboonlue, 2011). Strategic flexibility is a critical organizational competency that makes the firms more proactive. Therefore, flexible firms can analyze environmental changes. Thus, they can take advantages of opportunities that are created by dynamic and flux conditions.

Capacity of firms to proact and respond quickly to changing competitive conditions develops and maintains competitive advantage (Zhang, 2006; Ussahawanitchakit and Sriboonlue, 2011). Since, flexibility gives firms the ability to control outside environment effectively. The assumption is that the more control firms have over their competitive landscape, the better their competitive position (Reddy, 2006). Furthermore, strategic flexibility is necessary for the firm's growth. Long-term growth is supported by a continuous process of acquiring new sources and capacities that generate competitive advantage (Tamayo-Torres et al., 2010).

Strategic flexibility enables firms to achieve superior performance in dynamic and competitive business environment (Zhang, 2006; Nadkarni and Herrmann, 2010). Also, strategic flexibility may

increase innovation performance of a firm. Innovation is the most important source of competitive advantage. This is because innovation can result in new products that better satisfy customer needs, can improve the quality of existing products, or can reduce the costs of making products that customers want (Hill and Jones, 2004). Innovation can be defined as the adoption of an idea or behavior that is new to organizations (Tamayo-Torres, 2010). Innovation can be either explorative or exploitative innovations. Exploitation is defined as the used and refinement of existing knowledge and skills in product development, whereas exploration refers to the search and pursuit of new knowledge and skills in product development (Zhou and Wu, 2010). The intent of exploitation is to respond to current environmental conditions by adapting existing technologies and further meeting the needs of existing customers (Lubatkin et al., 2006). In contrast, exploration includes things such as search, variation, risk taking, experimentation, flexibility, and discovery (He and Wong, 2004). Developing new technological or marketing methods are very important for exploration. Exploitative and explorative innovations require different set of organizational structures and processes (Zhou and Wu, 2010). In general exploitation is associated with mechanic structure, routinization, control, and bureaucracy. Exploration is associated with organic structure, autonomy, and chaos (He and Wong, 2004). So, strategic flexibility is more important for exploration that includes risk taking, experimentation, and flexibility. However, it is less necessary for exploitative innovation because exploitative innovation can be made in mechanic structure and stable conditions. Strategic flexibility can influences explorative innovation performance by providing more flexible processes and structure. Therefore, organizations that want to make explorative innovation in their processes, products or services must consider strategic flexibility as an alternative.

Hypothesis 2: Strategic flexibility is positively related to explorative innovation performance.
Hypothesis 3: Strategic flexibility is positively related to exploitative innovation performance.

3. Methodology

3.1. Research goal

In this survey we aim to examine the relationship among strategic flexibility, innovation performance, and, environmental dynamism. To access this aim a field survey was conducted using questionnaires.

3.2. Sample and data collection

Data was obtained from one of the top managers of 69 businesses operating in Kayseri (Turkey). Firms are selected from different sectors. Sector of firms is generally furniture (23.2%). 13% of firms are in textile sector. 13% of firms are in metal sector. 45% of businesses employee range from 10 to 50 workers. 33.3% of businesses employee range from 51 to 250 workers. 11.6 % of businesses employee range from 501 to 1000 workers. Average age of businesses that were participated in survey is 16.20.

3.3. Measures

Structured questionnaire form was used in this survey. Strategic flexibility (α = .72) was measured by the degree of firms respond quickly to changing environmental conditions. A five-item scale that assesses a firm's ability to respond to environmental variations was used. This scale has been adapted from Grewal and Tansuha's scale by Nadkarni and Herrmann (2010). We examined innovation performance with dimensions of exploitation and exploration. Exploitative and explorative innovation performances were assessed using the 12-item scale that was developed by Lubatkin et al. (2006). Cronbach's Alpha score of this scale is 0.83 (Exploitative innovation's score is 0.76. Explorative innovation's score is 0.73). All items were scored on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Finally,

environmental dynamism (α = .71) was assessed by means of a scale that was used by Zhang (2006). Respondents indicated their agreement with these items on a 5-point Likert scale from 1, "no change" to 5, "very frequent change".

3.4. Analyses and results

Table 1. Descriptive statistics and correlations

Variables	Mean	s.d.	1	2	3
1. Strategic Flexibility	3.79	0.535			
2. Explorative İnnovation	3.81	0.572	.643**		
3. Exploitative Innovation	3.70	0.620	.436**	.652**	
4. Environmental Dynamism	3.50	0.750	.085*	.115*	.178*

*** p<0.01, * p<0.05*

Means, standard deviations, and correlations among the variables are presented in Table 1. According to our analysis, level of strategic flexibility (3.79), explorative innovation (3.81), exploitative innovation (3.70), and environmental dynamism (3.30) are above average in these organizations. Also, all of the research variables are positively and significantly correlated with each other. In the literature, it is argued that, exploitative and explorative innovations require different set of organizational structures and processes (Zhou and Wu, 2010). In general exploitation is associated with mechanic structure, routinization, control, and bureaucracy. Exploration is associated with organic structure, autonomy, and chaos (He and Wong, 2004). So, strategic flexibility is more important for exploration that includes risk taking, experimentation, and flexibility. However, it is less necessary for exploitative innovation because exploitative innovation can be made in mechanic structure and stable conditions. Results of analyses may provide support for these viewpoints. Correlation score between explorative innovation and strategic flexibility (r= 643, p<0.01) is high than explorative innovation's. It can be seen that level of strategic flexibility increases, levels of explorative and exploitative innovation also increase. Also, strategic flexibility is positively related to environmental dynamism. But the correlation score is very low. The reason for this is mean score of environmental dynamism. Mean score of this variable is close to average (3.50). Generally, managers that participated in survey were undecided about items of environmental dynamism. Furthermore, businesses that participated in survey operate in different sectors. Consequently, managers' perceptions of environmental dynamism may change. Since, environmental dynamism is high in some sectors while it is low for certain sectors. Accordingly, first research hypothesis is supported. However as mentioned before correlation between variables is very week.

Regression analysis was used to examine the relationship between strategic flexibility and innovation performance. Regression analysis results are presented in Table 2.

Table 2. Results of Regression Analyses

Dependent Variables	Independent Variable: Strategic Flexibility	
	R^2	Adjusted R^2
1. Explorative Innovation Performance	.414	.405
1. Exploitative Innovation Performance	.190	.178

**p <.01

According to the results of regression analysis, the relationship between the explorative innovation performance and strategic flexibility is statistically significant (R^2= .414). Strategic flexibility explains the changes on explorative innovation performance on 41.4%. Therefore, second hypothesis is supported (strategic flexibility is positively related to explorative innovation performance). That is, strategic flexibility has positive and significant affects explorative innovation.

At the same time, strategic flexibility and exploitative innovation performance are positively and significantly correlated with each other (R^2= .190). Strategic flexibility explains the changes on exploitative innovation performance 19%. Thus, third hypothesis (strategic flexibility is positively related to exploitative innovation performance) is supported too.

4. Conclusion

Organizations can use strategic flexibility to struggle the market uncertainties proactively. Strategic flexibility refers to an ability of firms to respond and adapt to environmental changes. One of the most important factors that effects on strategic flexibility is environmental dynamism. Firms that operate in a dynamic and rapidly changing environment must create strategic flexibility to obtain sustainable competitive advantage.

Strategic flexibility may improve to innovation performance of a firm in a dynamic environment. Strategic flexibility can influences innovation performance by providing more flexible processes and structure. Innovation can be either explorative or exploitative innovations. The intent of exploitation is to respond to current environmental conditions by adapting existing technologies and further meeting the needs of existing customers (Lubatkin et al., 2006). In contrast, exploration includes things such as search, variation, risk taking, experimentation, flexibility, and discovery (He and Wong, 2004). Strategic flexibility can influence explorative innovation performance by providing more flexible processes and structure. In this study we examined the relationships among strategic flexibility, innovation performance, and environmental dynamism. We found empirical support for the positive relationships among strategic flexibility, innovation performance and, environmental dynamism. All of the research variables are positively and significantly correlated with each other. In this context, some recommendations should be given businesses that want to become more innovative by developing strategic flexibility.

In a highly uncertain and changing environment, managers need to have the strategic flexibility to respond the changes. However, maintaining strategic flexibility is not the easy task for the managers on a dynamic and volatile environment. There are some barriers for strategic flexibility such as organizational inertia, high age and size of organization and, weak governance, organizational and social culture that is harsh on mistakes (Shimizu and Hitt, 2004). Managers that build strategic flexibility consider some actions. They should develop new organizational structure and have innovative culture. Especially, they

should prefer flatter and more horizontal structure because they enhance innovation and provide ability to move fast. If the firms want to be successful and to obtain superior performance in dynamic environmental conditions they should solve these problems and built a flat organizational structure. Traditionally, the most of the organization structures are vertical and rigidly hierarchical. As a hierarchy becomes taller, problems that make organization's structure less flexible and manager's response to changes in the organizational environment may result (Hill and Jones, 2004). Horizontal organizations can take and implement decisions quickly. Also, small firms are more likely than large companies to launch competitive actions and tend to do it more quickly. Small firms' flexibility and nimbleness allow them to develop variety in their competitive actions; large firms tend to limit the types of competitive actions used (Hitt et al., 2007). Moreover, firms choose ambidexterity as a strategic alternative to become more flexible. Ambidextrous firms are capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity (Lubatkin et al., 2006: 647). Ambidexterity may help businesses to adapt changeable environmental conditions by enabling characteristics of horizontal organization structure. Results of this research are restricted with the sample. More different findings could be obtained from broader samples.

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