Ambidexterity and Firm Productivity Performance: The Mediating Effect of Organizational Learning Capacity

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Abstract
Ambidexterity is emphasized as provides high firm performance. Additionally, so many researcher found that organizational learning capacity affects ambidexterity and firm performance. Lastly, it is emphasized that organizational learning capacity has highly relationship both ambidexterity and firm productivity performance. In this study, we aimed that a better understanding of that relationship by organizational learning capacity has a mediating effect on the relationship between ambidexterity and firm productivity performance. The survey of this study is conducted on 107 SME of 214 mid-level and high level managerial employees in metalworking industry in Turkey. The obtained data from the questionnaires are analyzed through SPSS. In consequence, we have reached that organizational learning capacity helps to explain the effect of ambidexterity on firm productivity performance.

Keywords: Ambidexterity, Organizational Learning Capacity, Firm Productivity Performance.

1. Introduction

As competition intensifies and pace of change accelerates, firm need to renew themselves by both exploiting existing competencies and exploring ones. The nation of exploration and exploitation has emerged as an underlying theme in research on organizational learning (Jansen, Van den Bosch and Volberda, 2006). But exploratory what is defined as exploring new knowledge, talents and processes and exploitative what is defined as developing the current knowledge, ability and processes need to become ambidextrous and develop firm productivity performance simultaneously (March,1991). In addition to

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organizational learning capacity has a key role on increasing the effect (Teo and Wang, 2005; Hult and Ferrell, 1997; Hult et al., 2002; Nevis et al., 1995).

Depending on this, we aim to research how ambidexterity affects firm productivity performance and how organizational learning capacity affects the effect between ambidexterity and firm productivity performance.

2. Literature Review

2.1. Ambidexterity

The organizations may use different ways for learning activity. The organizational memory is sometimes redesigned to take in the new knowledge. In addition, they may explore new ways to learn new knowledge (Cheryl, 1997). There exist two different innovations as the result of organizational learning; these are exploitative and exploratory innovation. Exploitative innovation is defined as developing the current knowledge, ability and processes (March, 1991). The basis of exploitative innovation consists improving the current technology and ideas. Some basic modifications on previously used methods cover exploitative innovation (Jansen et al., 2006; Cheryl, 1997). Exploratory innovation is defined as exploring new knowledge, talents and processes (March, 1991). Accommodating to current position requires exploratory innovation. Unused techniques, processes, products, and designs come into prominence in exploratory innovation. Therefore, the radical change just explains the exploratory innovation (Cheryl, 1997; Henrich, 2007).

The need for an appropriate balance between exploration and exploitation has been crystallized by Tushman and O’Relly’s conceptualization of the ambidextrous organization (He and Wong, 2004). They argued that an ambidextrous firm that is capable of operating simultaneously to explore and exploit is likely to achieve superior performance that firms emphasizing one at the expense of the other (Tushman and O’Relly’s, 1996). According to Katila and Ahuja, exploitation of existing capabilities is often needed to explore new capabilities, and exploration of new capabilities also enhances a firm’s existing knowledge base (Katila and Ahuja, 2002). Finally, According to the findings exploratory innovation and exploitative innovation are highly related to each other so firms should strike a balance exploratory and exploitative innovation. If the balance isn’t striked, firms may fall into a success trap or fail trap. A Success trap may be defined as each successful exploitative innovation forces organizations making new other innovations. Some exploitative innovations may be outdated after an exploratory innovation (Levinthal and March, 1993). Therefore, exploitative innovation may be useless when suddenly an exploratory innovation comes into prominence (Shekhar, 1996; Levinthal and March, 1993). When organizations may assume themselves as unsuccessful upon they are disappointed by the exploratory innovation which they applied. They take more risk for saving of the organization, therefore the organization easily apply exploratory innovation in order not to fail any more. Moreover, the organization may make exploratory innovation sequentially. The sequential fail is named as “fail trap. The organization which may focus only on exploratory innovation may later be disappointed. Since this organization may only apply exploratory innovation, the rectifying activities may be omitted. Besides, other organizations may imitate these inventions and this may cause losing the competition advantage (Shekhar, 1996; Levinthal and March, 1993; Henrich, 2007; March, 1991). Because of traps and
necessary of balance between exploratory and exploitative innovation, firms should use two of them and strike a balance between them (He and Wong, 2004).

2.2. Organizational learning capacity

Organizational learning capacity is ability both to develop new knowledge and to improve current knowledge (Hult et al., 2002, Nevis et al., 1995). According to Teo and Wang, Organizational learning capacity can be improved by focusing on system orientation, climate for learning orientation, knowledge acquisition and utilization orientation, information sharing and finally, dissemination orientation (Teo and Wang, 2005)

Systems orientation is knowledge integration and has been developed in the past fifty years. It may be defined as seeing the big picture. This means, the relationships between the parts should be analyzed. Senge stated that, seeing the relationship between the parts composes a leverage effect (Senge, 1990). Therefore, the events should be analyzed from a wide view. System orientation makes us see the events totally and helps us change these events effectively when needed (Teo and Wang, 2005). System orientation shows the relationship between the organization variables and affects them (Nevis et al., 1995; Hult and Ferrell, 1997).

Climate for learning orientation is a measure that encourages the learning in the organization (Marquardt, 1996). It reveals the unimportant ideas in organizational culture (Teo and Wang, 2005). Hereby, organizational climate orients average learning and adaptation of the organization that affects individual and group learning behaviors (Hult and Ferrell, 1997). They stated that a successful organization is measured not only by its outcomes depending on its performance, but also its cultural structure. The dynamic values are acquiring new skills and analyzing these skills with organizational change and organizational learning. Actually, organizational learning comes true in the organizations where the learning is strongly encouraged by the leaders (Garvin, 1993). The organizational learning culture provides organizational development and increases the organizational capabilities where the members come and decide together (Teo and Wang, 2005).

Knowledge acquisition and utilization orientation is ability about innovativeness, technology and continuous improvement. In this context, acquiring the knowledge and usage of it is the part of learning culture and they should be thought together (Nevis et al., 1995; Marquardt, 1996; Teo and Wang, 2005). First, the organization should specify which knowledge is necessary and should be ensured. Besides, acquire of the knowledge should be a continuous process. Huber et al. also stated that the continuous improvement of knowledge is the key point for the organization (Huber, 1991). Nonaka and Takeuchi specified that acquiring knowledge has a loop effect and increasing the total knowledge of the organization (Nonaka and Takeuchi, 1995). Getting the new knowledge into organization and storing it, will facilitate acquiring new knowledge (Huber, 1991; Argote, 1999).

Information sharing and dissemination orientation is defined as the degree of reaching the knowledge in the organization (Hult and Ferrell, 1997). Sinkula stated the communication with other departments is necessary for generating the knowledge and also pointed out that; it is one of the important dimension of learning capacity (Teo and Wang, 2005; Sinkula, 1994). Huber, at the same time, stated that reaching the information from different sources will spread the organizational learning concept (Huber, 1991).
Disseminating the knowledge is one of the fundamentals, which makes that knowledge valuable for the organization (Nonaka and Takeuchi, 1995). The organizational culture should also allow to share the knowledge. Unless Information sharing and dissemination orientation, the organization will not be able to absorb the knowledge. Information sharing and dissemination will ensure being adapted to new technologies and other environmental conditions which will then become the culture of the organization (Huber, 1991; Nevis et al., 1995; Teo and Wang, 2005; Hult and Ferrell, 1997).

2.3. Development of Hypotheses

In literature, it is highly accepted that there is a relationship between ambidexterity and firm performance in terms of marketing, innovation, quality, financial, productivity, or customer performance. In addition to that, Organizational learning capacity has a relationship both ambidexterity and firm performance. Teo and Wang (2005) has revealed that organizational capacity improves technological innovation activities. Jansen et al. (2006) found that innovation affects organizational learning. Lastly, Henrich (2007) stated the innovation affects firm performance in positive manner.

In the light of the previous surveys and literature, we argue that better understanding of that relationship by organizational learning capacity has a mediating effect on the relationship between ambidexterity and firm productivity performance.

H1: Organizational Learning Capacity will mediate the relationship ambidexterity and firm productivity performance

3. Methodology

3.1. Sample, procedure and measures

The survey of this study is conducted on 199 middle senior managers of 107 firms operating in metalworking industry in the Marmara region of Turkey. 300 firms fulfilling the criteria that (1) being at least SME that referring to firm with fewer than 500 employees, (2) having process(es) to produce a new crop have accepted to participate in our survey. However, only 107 of those firms have filled out our survey form completely in appointed time. Two managers per a firm are asked to fill out the questionnaires. To reach a reliable data set, we have used the average of two surveys.

Figure 1: Ambidexterity and Firm Productivity Performance: The Mediating Effect of Organizational Learning Capacity
3.2. Demographics

Survey respondents had worked for their organizations for an average of 8.75 years (standard deviation of 7.83) and a range from 1 month to 29 years. %95 of the respondents were at least high school graduates. The detail descriptive analysis results are shown in Table 1.

Table 1. The demographics of the sample

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
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<td><strong>Level</strong></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>162</td>
<td>81.41</td>
<td>Mid Level</td>
<td>119</td>
<td>59.8</td>
</tr>
<tr>
<td>Female</td>
<td>37</td>
<td>18.59</td>
<td>High Level</td>
<td>80</td>
<td>40.2</td>
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<tr>
<td><strong>Total</strong></td>
<td>199</td>
<td>100</td>
<td><strong>Total</strong></td>
<td>199</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Education</strong></th>
<th>f</th>
<th>%</th>
<th><strong>Department</strong></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School</td>
<td>10</td>
<td>5.0</td>
<td>Production</td>
<td>67</td>
<td>33.7</td>
</tr>
<tr>
<td>High School</td>
<td>37</td>
<td>18.6</td>
<td>Managerial</td>
<td>56</td>
<td>28.1</td>
</tr>
<tr>
<td>University</td>
<td>118</td>
<td>59.3</td>
<td>Human Resource</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>Master</td>
<td>28</td>
<td>14.1</td>
<td>Marketing</td>
<td>22</td>
<td>11.1</td>
</tr>
<tr>
<td>Doctorate</td>
<td>6</td>
<td>3.0</td>
<td>Quality</td>
<td>42</td>
<td>21.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>199</td>
<td>100</td>
<td><strong>Total</strong></td>
<td>199</td>
<td>100</td>
</tr>
</tbody>
</table>

3.3. Factor analysis

The scales were submitted to exploratory factor analysis. The best fit of the data was obtained with a principal component analysis with a varimax rotation. The exploratory factor analysis for organizational learning capacity, ambidexterity, and firm productivity performance displayed a seven-factor structure as expected. After eliminating seven items showing weak loading, thirty-item has produced a seven-factor structure namely, system orientation, climate for learning orientation, knowledge acquisition and utilization orientation and information sharing and dissemination orientation, exploratory innovation, exploitative innovation and firm productivity performance. Three items for system orientation, three items for climate for learning orientation, five items for knowledge acquisition and utilization orientation, five items for Information sharing and dissemination orientation, six items for exploratory innovation, five items for exploitative innovation and three items for firm productivity performance are used in survey. The factor loadings of organizational learning capacity, ambidexterity, and firm productivity performance are seen in Table 2.

Table 2. Factor analysis

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>My staffs have a good sense of my firm’s business processes as whole and the interconnectedness of all components of these processes.</td>
<td>.609</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>All activities that take place in business transaction processes are clearly defined.</td>
<td>.707</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Parts of each business process are dependent to form a value chain.</td>
<td>.709</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We basically agree that our ability to learn is the key to improvement of our firm.</td>
<td></td>
<td>.653</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our basic values of any change in the business process include learning as a key to improvement.</td>
<td></td>
<td>.662</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning n my firm is seen as a key to guarantee the firm’s existence in its sector.</td>
<td></td>
<td>.784</td>
<td></td>
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</tbody>
</table>
My firm regularly does research on the trend in technology pertinent to the way our business operates.

My firm regularly assesses the potential influence of new technology on its operations.

My firm is susceptible to new technology and/or method to do business

My firm has specific mechanisms to do environmental scanning on technology.

My firm starts to apply new technology and method immediately.

Pertaining to technological issues, When a staff finds out something of importance to my firm, he or she is quick to alert others.

Pertaining to technological issues, my staff is willing to influence me with his or her information to let me make a better decision.

Pertaining to technological issues, it is my firm’s policy that valuable insights or methods should be shared and used across the organization.

Pertaining to technological issues, there is a good deal of organizational conversation which keeps alive the lessons learned from history.

Pertaining to technological issues, my firm has specific mechanisms for sharing knowledge, which can enhance the firm’s competitiveness.

Acquired manufacturing technologies and skills entirely new to the firm

Learned product development skills and process entirely new to the industry

Acquired entirely new managerial and organizational skill that are important for innovation

Learned new skills in areas such as funding new technology, staffing R&D function for the first time

Strengthened innovation skills in areas where it had no prior experience

Acquired manufacturing technologies and skills entirely new to the firm

Upgraded current knowledge and skills for familiar products and technologies

Invested in enhancing skills in exploiting mature technologies that improve productivity of current innovation operations

Enhanced competencies in searching for solutions to customer problems that are near to existing solutions rather than completely new solutions

Strengthened our knowledge and skills for projects that improve efficiency of existing innovation activities

Rate of firm productivity

Workers efficiency

Use of capital efficiency

Explained total variance: 68.1%; 1: System orientation, 2: Climate For Learning Orientation, 3: Knowledge Acquisition And Utilization Orientation, 4: Information Sharing And Dissemination Orientation, 5: Exploratory innovation 6: Exploitative innovation 7: firm productivity performance
3.4. Correlation analysis

We have applied correlation analysis with the factor analysis results. The results can be seen on Table 3. As it has been seen on Table 3, all relations between the variables are significant.

<table>
<thead>
<tr>
<th></th>
<th>Correlation analysis</th>
<th>μ</th>
<th>δ</th>
<th>α</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organizational Learning Capacity</td>
<td>3.92</td>
<td>.62</td>
<td>.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ambidexterity</td>
<td>16.84</td>
<td>4.32</td>
<td>.90</td>
<td>.620**</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Firm Productivity Performance</td>
<td>3.82</td>
<td>.72</td>
<td>.82</td>
<td>.558**</td>
<td>.576**</td>
</tr>
</tbody>
</table>

**P<0.01

3.5. Regression analysis

In the beginning, we have applied regression analysis as being: ambidexterity is independent variable and firm productivity performance is dependent variable. Regression analysis results revealed the positive effect of ambidexterity (P<0.01 and β=0.576) on firm productivity performance are significant (Model 1). Thus, the first requirement that ambidexterity needs to be affected positive to firm productivity performance was met. In next step, we included organizational learning capacity, ambidexterity, and firm productivity performance in the same regression model. The results revealed that organizational learning capacity affects significantly firm productivity performance (P<0.01 and β=0.328) in positive manner. Similarly, the effect of ambidexterity on firm productivity performance remained significant (P<0.01 and β=0.373). When compared with model 1 (P<0.01 and β=0.576 and model 2 (P<0.01 and β=0.373), it is revealed that β whose the effect of ambidexterity on firm productivity performance was decreased from 0.576 to 0.373 in model 2. The effect of ambidexterity on firm productivity still remain positive and significant but weak than model 1. Thus, partial mediation effect was found in this study. Hypothesis 1 was supported; Organizational learning capacity partially mediated the effect of ambidexterity on firm productivity performance. The regression analysis results can be seen on Table 4.

<table>
<thead>
<tr>
<th></th>
<th>Firm Productivity Performance (Model 1)</th>
<th>Firm Productivity Performance (Model 2)</th>
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<tr>
<td></td>
<td>Beta</td>
<td>t</td>
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<tr>
<td></td>
<td>,576</td>
<td>9,881</td>
</tr>
<tr>
<td>Ambidexterity</td>
<td>Organizational Learning Capacity</td>
<td>-</td>
</tr>
<tr>
<td>R²</td>
<td>,331</td>
<td></td>
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<tr>
<td>F</td>
<td>97.629</td>
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*P<0.01 **Partial mediation effect
4. Conclusion

In this study, we aimed to find out how organizational learning capacity affects the relationship between ambidexterity and firm productivity performance. The regression models concluded important findings which been constructed to test the hypotheses.

Our study claimed that, in metalworking industry, organizational learning capacity, the mediating variable affected relationship between ambidexterity and firm productivity performance in positive manner. The technological improvements—in high competitive environment—force the organization to work efficiently. Because of success, the focus customer group should be analyzed. The new products may be appealing for new customer groups. This may also cause to revise the distribution channels. Therefore, all these new development will require ambidexterity which the organizations should apply in their processes. In addition to that, organizations should give attention to organizational learning capacity that was found to affect the relationship between ambidexterity and firm productivity performance. For increasing effects of ambidexterity on firm productivity performance, each process of the organization should be understood by members. Additionally, the members should know that the processes are related with each other. It is not enough that the members should know which the processes are related each other. The members must be sure that the processes are necessary and add value to the organization. The unnecessary processes will be costly to the organization. Besides, the organizations must accept that learning is obligatory in competitive environment. Therefore, the organizations should direct their members on learning activities. The investment on learning activities shouldn’t be seen as cost point in the organizations. the organization members should follow the technological changes in their industry and disseminate these to their colleagues. In addition, the members had better apply this information on their job activities. If the members do not share this information, they will not be able to create synergy and this information will not add value to this organization. To reveal this, the organizations should provide appropriate environment and encourage the members.

Finally, we didn’t study on environmental factor. But, our framework with environmental factor may give better result. Because of that, future studies may add environmental factor to our study (H1 hypothesis).

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