The Empirical Study in the Pathways Perspective of Dynamic Capabilities of Taiwanese Companies

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Abstract

In the past, this study has pointed out that the composition of dynamic capability. However, most Taiwanese enterprises are mainly small and medium-sized enterprises. Compared with large global companies with resources, they must absorb, innovate and adapt. It is the dynamic path view.

Therefore, in this study, Taiwanese companies were used as the research objects, and verify the relationship between the path perspective and competitive advantage of dynamic dynamics of the organization. This study found that the absorptive capacity influences innovative capability, which affects the adaptive capability. In addition, it also confirms that organizational absorptive capacity affects adaptive capability, which affects competitive advantage. That is, this study confirms the dynamic energy-resistance path perspective of Taiwanese companies.

Key Words: dynamic capability, competitive advantage, pathways perspective

JEL Classification:
1. Introduction

In recent years, the rapid changes in the market and increasing market competition have caused companies to face enormous challenges in formulating strategies. In this highly competitive environment, companies must think about how to predict and analyze the future trend, and how to make adjustments in response to changes in the environment in order to have the long-term competitive advantage.

In the past, many scholars explored the source of the competitive advantage. For example, Barney (1991) mentioned that an organization could gain competitive advantage as long as it was valuable, scarce, inimitable, and irreplaceable resource. Organizational capabilities were the main direct source of corporate competitiveness, and that the internal stability of the organization was considered as the source of the competitive advantage (Grant, 1996). In recent years, scholars proposed the concept of organizational dynamic capability to maintain the competitive advantage in response to changes in the environment. It refers to how to use the adaptive capability of the organization to survive in the competitive environment.

In addition to the resources of the organization or the organizational capability, living in a highly competitive environment requires the capability to adapt to the environment. Among them, most of the Taiwanese enterprises are mainly small and medium-sized enterprises. Compared with large enterprises that have many resources, the adaptive capability of the organization is even more important. We must innovate before large enterprises and adapt to the environment in order to survive in a highly competitive environment. This study calls it the dynamic capability path perspective.

This study brought together the above-mentioned scholars’ literatures on the organizational dynamic capability and combined the viewpoint of the Social Cognitive Theory. Environment affects attitudes, while attitudes affect behaviors. Organizations may be affected by external information, and then it may affect the formulation of organizational strategies. This ultimately leads to the implementation of the organization. Moreover, it inferred that the organizational dynamic capability was not the single feature perspective of past literatures but a set of path perspectives. This study also incorporated the literature discussion of Wang and Ahmed (2007), and sorted out the components of the organizational dynamic capability, namely the absorptive capability, the innovative capability and the adaptive capability. It believes that the relationship between the absorptive capability, the innovative capability and the adaptive capability is the path relationship.

2. Literature Review

1. Organizational dynamic capability

Teece (1994) stated that “dynamic” referred to the changing characteristics of the environment, while “capability” emphasized appropriate adjustments, and it was the
organizational capability of integrating and reconfiguring internal processes to adapt to the market. The definition of the dynamic capability means that it may become unpredictable with the future market and competition. Therefore, it needs the capability to adjust internal capabilities in time to accord with market changes. In addition, this capability is considered to be the organizational dynamic capability. Among them, Wang and Ahmed (2007) pointed out that the organizational dynamic capability was composed of the following components: the absorptive capability, the innovative capability and the adaptive capability. In this study, literatures on the organizational dynamic capability were roughly divided into the following three types.

(1) absorptive capability aspect: Zollo and Winter (2002) defined the organizational dynamic capability as the collective learning activity to adjust the operation processes of the organizational so as to maintain its organizational performance. Giniunienea and Jurksiineb (2015) emphasized the importance of organizational learning and they believed that organizational learning was the basic condition for maintaining the competitive advantage. What’s more, the dynamic capability was defined as the capability to analyze the organization and make innovations and adjustments in the uncertain environment.

(2) Innovation aspect: Winter (2003) divided the capability into two parts, namely the general capability (the skills that the organization depends on for the living), and the capability to change its general capability, that is, the dynamic capability defined in this literature. In the literature of Winter (2003), the dynamic capability was defined as the capability to adjust its general capability in time with changes in the outside world so as to maintain the long-term competitive advantage and to survive.

(3) Adaptation aspect: Eisenhardt and Martin (2000) defined the dynamic capability as the decision-making process perspective of the major decision-makers. They believed that the organization itself may also be affected by external information, which in turn may affect the strategy of the organization and ultimately affect whether the organization's behavior may be consistent with the environment. Therefore, they inferred that the organizational dynamic capability was the path perspective.

2. Organizational competitive advantage

Aaker (1984) defined the competitive advantage as holding the leading position in assets or technologies when compared with the competitor, and Aaker also proposed that there were three conditions to maintain the sustainable competitive advantage: (1) key success factors; (2)
value of market differences; (3) conditions of withstand environmental changes and competitors' attacks.

This study adopts the competitive advantage concept described by Porter. The competitive advantage can be extended from Porter's concept of “five forces analysis”, which considers from the perspective of industrial economics. Therefore, it focuses on the competitive advantages in production and market during the market competition.

Kerin, Varadarajan and Peterson (1992), as well as Shankar, Carpenter and Krishnamurthi (1998), this study determined the competitive advantage in the market aspect and used the market share and differentiation as the measuring criteria for the organizational competitive advantage in the market aspect. As for the competitive advantage in the production aspect, the technological innovation (Gopalakrishnan & Damanpour, 1997).

3. Methodology
3.1 Hypothesis and Theoretical Framework

The resource foundation theory is difficult to respond to the organization survival problems of Taiwanese companies in the volatile environment because these organizations face the lack of possession of organizational competitive advantages. However, emerging perspectives turn to use the organizational dynamic capability to explain and respond to organizational dilemmas in the turbulent times. Among them, the components of the dynamic capability include the absorptive capability, the innovative capability and the adaptive capability. Therefore, this article attempts to use the organizational dynamic capability to observe its effects on the competitive advantage. In the arrangement process of the aforementioned literatures, all the viewpoints of different scholars were conceptualized. Based on different scholars’ definition of the organizational dynamic capability, this paper used the dynamic capability components (absorptive, innovation and adaptation) and the operational characteristic axis (process, system, resources) to construct all the viewpoints of different scholars. In addition, in conjunction with Zahra, Sapienza, and Davidsson (2006) decision-making process perspective, this paper argued that organizations may be influenced by new information to change the formulation of strategies, and then may change the organization's behavior to maintain the competitive advantage, thus inferring the organizational dynamic capability as the path perspective. Based on the literature review, this study divided the competitive advantages into the market aspect and the production aspect for discussion.

The purpose of this study was to investigate the effects of the organizational dynamic capability (the absorptive capability, the innovative capability and the adaptive capability) on the organizational competitive advantage (the market aspect and the production aspect), and to verify that the organizational dynamic capability is the path theory. In addition, this study also developed a research framework (Figure 1) and proposed five hypotheses:
H$_{1.1}$: The impact of the absorptive capability on the competitive advantage in the market aspect is affected by the adaptive capability medium

H$_{1.2}$: The impact of the absorptive capability on the competitive advantage in the production aspect is affected by the adaptive capability medium

H$_{2.1}$: The impact of the innovative capability on the competitive advantage in the market aspect is affected by the adaptive capability medium

H$_{2.2}$: The impact of the innovative capability on the competitive advantage in the production aspect is affected by the adaptive capability medium

H$_3$: The impact of the absorptive capability on the adaptive capability is affected by the innovative capability medium

Figure 1. Conceptual Framework

This study predicted the effects of the organizational dynamic capability on the organizational competitive advantage. In addition, this study indicated that some factors (age, gender, etc.) may affect the experimental results and therefore set them as the control variables.

3.2 Data Collection Procedure

This study collected questionnaires through systematic sampling and convenient sampling. In the systematic sampling section, industries with large GDP changes in recent years (electronic industry, computer peripheral industry, chemical industry and textile fiber industry) were selected. About 374 manufacturer questionnaires were issued and 49 copies were collected. In the convenience sampling section, questionnaires in electronic forms were issued to those who met the sample qualifications and a total of 281 copies were collected. A total of 330 copies were collected in questionnaires of the systematic sampling and convenient sampling. After the questionnaires were collected, they were first collated with Excel formulas, and the questionnaires that were not in line with the basic conditions of the study samples (non-
serving employees or state agencies) were filtered out, and the questionnaires were confirmed to have no missing values, and they were all effectively filled out. After screening, the effective paper-based questionnaire was 42 and the effective recovery rate was 8.9%.

In terms of data analysis methods, this study used the linear regression statistical method to analyze the valid questionnaires. In addition, according to the question items of the questionnaire, this study also conducted descriptive statistics, chi-square analysis, correlation analysis, reliability analysis, multiple regression analysis, and verification of the mediator pattern. The statistical tool was SPSS.

4. Results and Discussion

4.1 Descriptive statistics & Reliability Analysis

Statistical analysis was performed after confirming valid questionnaires. Of the 257 valid questionnaires, 59.9% are men and 40.1% are women. Among them, listed companies account for 47.9%. With respect to academic qualifications, universities and research institutes account for the most, with a ratio of 68.1%. The average educational level of the sample is high. As for the age distribution, the age range of 30-40 years accounts for the most (21.4%), and the age range of 41-45 years has a proportion of 20.6%. 49.4% of them have the total length of service for more than 16 years, and they have a certain understanding of the workplace and the operation of the organization. Companies with the scale of 201 employees or more accounts for the most (21.4%), and the organizational structure is complete. In the categories of gender, work location of the current job, age, and highest education and educational system, it used the Chi-square test analysis. All the groups and categories reached the significant level, which showed that there was a significant difference in the samples. Only in the item of “Whether it is a listed company”, the chi-square value did not reach the significant level, which indicated that there was no difference in the listed company group.

4.2 Correlation Analysis

The correlation analysis is to test the degree of correlation between various variables. Control variables include: Gender, whether it is a listed company, company location, age, total length of service, length of service in the current company, company size, education, current job title. Among them, “gender” and “whether it is a listed company” are the category variables (using -1 and 1 as the statistical figure for analysis). As for other variables, only “total length of service” and “company size” have the correlation. Therefore, it only took “total length of service” and “company size” as the control variables. The organizational dynamic capability was divided into three constructs, namely the absorptive capability, the innovative capability and the adaptive capability.

The correlation coefficient variables of the organizational dynamic capability (learning, innovation and adaptation) are 0.799-0.903, which are highly correlated. The correlation
coefficient variable between organizational competitive advantages is 0.686, which is moderately correlated. The absorptive capability, the innovative capability and the adaptive capability are highly correlated, and they can be used to test the mediating effects between these three constructs. Moreover, the correlation between the adaptive capability and the two constructs of the competitive advantage is high, and it can used to test the mediating effects of the absorptive capability, the adaptive capability and the competitive advantage.

In addition, the correlation coefficient variables between the three constructs of the organizational dynamic capability (the absorptive capability, the innovative capability and the adaptive capability) and the two constructs of the competitive advantage are 0.482-0.639, which is moderately correlated. It can be used to test whether the organizational dynamic capability is the component theory, and test the regression between it and the organizational competitive advantage.

1. Path theory test

This study mainly validated whether the organizational dynamic capability is a path theory, tried to test the path theory of the organizational dynamic capability, and validated the mediating effects between absorptive capability, the innovative capability and the adaptive capability. First, this study verified whether there were mediating effects between the absorptive capability, the innovative capability and the four constructs of the competitive advantage. Second, this study verified whether there were mediating effects between the three constructs of the absorptive capability, the innovative capability and the adaptive capability.

This study assumed that the organizational dynamic capability was a continuous path, which was the path perspective, and tested it with two mediating effects. The first mediation model is whether the impact of the absorptive capability on the organizational competitive advantage is affected by the adaptive capability medium. The results of the study show that the impact of the absorptive capability on the two constructs of the organizational competitive advantage is affected by the adaptive capability medium (both the β value and the p value decreases). This means that the absorptive capability has an impact on the two aspects of the two constructs of the organizational competitive advantage through the absorptive capability, and H1-1, H1-2, H2-1, H2-2 is strongly supported.

The second mediation model is whether the impact of the absorptive capability on the adaptive capability is affected by the innovative capability medium. The results of the study show that, after the impact of the absorptive capability on the adaptive capability is subject to the mediating effects by the innovative capability, although there is no significant change in the significance, the β value changes obviously. It is the partial mediation, and H3 is strongly supported. From the above two mediation models, it can be inferred that the impact of the absorptive capability on the organizational competitive advantage is subject to the mediation of the adaptive capability, and the impact of the absorptive capability on the adaptive capability
is subject to the mediating effects by the innovative capability. Therefore, it can be inferred that the impact model of the organizational dynamic capability on the organizational competitive advantage is the path theory (absorptive capability, innovative capability and adaptive capability - competitive advantage). Table 1 shows the verification result of the mediating effects of absorption - adaptation and the two aspects of the competitive advantage. Table 2 shows the verification result of the mediating effects of absorption, innovation and adaptation.
Table 1: Absorptive Capability, Innovative Capability and Adaptive Capability Regression

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Mode 1</th>
<th>Mode 2</th>
<th>Mode 3</th>
<th>Mode 1</th>
<th>Mode 2</th>
<th>Mode 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.017</td>
<td>0.120</td>
<td>0.904</td>
<td>0.057</td>
<td>1.106</td>
<td>0.270</td>
</tr>
<tr>
<td>Listed company or not</td>
<td>1.173</td>
<td>2.368</td>
<td>0.019</td>
<td>0.004</td>
<td>-0.62</td>
<td>0.951</td>
</tr>
<tr>
<td>Total length of service</td>
<td>0.118</td>
<td>1.918</td>
<td>0.056</td>
<td>0.125</td>
<td>2.455</td>
<td>0.015</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.035</td>
<td>0.477</td>
<td>0.634</td>
<td>0.002</td>
<td>0.033</td>
<td>0.974</td>
</tr>
</tbody>
</table>

| Mediation capability  |        |        |        |        |        |        |
| Absorptive capability | Пропуск | Пропуск | Пропуск | Пропуск | 0.582  | 10.790 |
| Adaptive capability   | Пропуск | Пропуск | Пропуск | Пропуск | 0.534  | 6.777  |

| R²                     | 0.055  | 0.345  | 0.455  | 0.043  | 0.252  | 0.382  |
| Adj R²                 | 0.040  | 0.341  | 0.441  | 0.028  | 0.237  | 0.367  |
| ΔR²                    | Пропуск | Пропуск | 0.1    | Пропуск | Пропуск | 0.000  |
| F                      | 3.655  | 27.548 | 34.720 | 2.819  | 16.945 | 25.738 |
| P                      | 0.006  | 0.00   | 0.00   | 0.026  | 0.00   | 0.00   |
Table 2: Dynamic Capability Regression to Competitive Advantage

<table>
<thead>
<tr>
<th>Dependent Variables - adaptive capability</th>
<th>Mode 1</th>
<th>Mode 2</th>
<th>Mode 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>t</td>
<td>p</td>
<td>β</td>
</tr>
<tr>
<td>Control</td>
<td>.061</td>
<td>.991</td>
<td>.129</td>
</tr>
<tr>
<td>Gender Listed</td>
<td>.267</td>
<td>3.693</td>
<td>.022</td>
</tr>
<tr>
<td>Listed company or not total length of service</td>
<td>.030</td>
<td>.484</td>
<td>.039</td>
</tr>
<tr>
<td>Firm size</td>
<td>-.019</td>
<td>-.271</td>
<td>-.065</td>
</tr>
<tr>
<td>Mediation capability</td>
<td>---</td>
<td>---</td>
<td>.804</td>
</tr>
<tr>
<td>Independen variables</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>R²</td>
<td>0.076</td>
<td></td>
<td>0.649</td>
</tr>
<tr>
<td>Adj R²</td>
<td>0.061</td>
<td></td>
<td>0.642</td>
</tr>
<tr>
<td>△R²</td>
<td>---</td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>F</td>
<td>5.148</td>
<td></td>
<td>92.620</td>
</tr>
<tr>
<td>p</td>
<td>0.001</td>
<td></td>
<td>0.00</td>
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</table>

5. Conclusions and Recommendations

5.1 Conclusion

This study examined the effects of dynamic capabilities on organizational competitive advantages. A review of the literature on this topic showed that dynamic capabilities can be divided into three component factors, namely, absorptive capability, innovative capability, and adaptive capability (Wang & Ahmed, 2007), which serve the constructs to be measured. The study proposed the acquisition of dynamic capabilities as a path (to gaining competitive advantages) and tested their mediational effects.

With regard to whether absorptive capability has a mediating effect on the relationship between competitive advantage and adaptive capability, and the establishment of these two constructs of competitive advantage, this study verified that absorptive capability has a mediating effect on the relationship between adaptive capability and innovative capability. Thus, the study proposed the acquisition of dynamic capabilities as a path (to gaining competitive advantages).
Against the backdrop of a 21st century characterized by strong competition and an ever-changing landscape, businesses are increasingly placing a greater emphasis on their organizational adaptability. They believe that an organization must possess strong adaptive capability in order to maintain its competitive advantages, and that this is an era in which businesses will be managed via a diverse range of structural formats. Generational and environmental changes have led to the emergence of complex and volatile environments, which now exist alongside stable industrial environments. As a result, an organization must now focus not only on internal organizational factors (e.g. land, finance, and manpower), but also elements such as globalization and internationalization. Thus, in a landscape occupied by large bureaucratic organizations that traditionally focused on functionality and departments, the flat organizational structure was developed. Given the environmental changes and the trends in organizational development that were discussed above, the 21st century organization will be moving beyond structures in its development. The business structures can generally be categorized into two types, with the first consisting of businesses that control many resources and leverage their sizes to become even bigger, and the second comprising businesses that are "elegantly" small. Most Taiwanese businesses fall into the second category. In the past, it was commonly believed that businesses had to possess resources if they wanted to gain a competitive edge. But how would resource-poor small and medium-sized enterprises (SME) be able to survive in this environment?

Perhaps businesses have to absorb and innovate to progress. However, would the mere act of absorbing or innovating be enough for a business to gain a competitive advantage if it does not adapt to its environment? This study found that most businesses in Taiwan are small and organized for flexibility. If such businesses (particularly SME that possess relatively limited resources) want to gain competitive advantages, it is necessary for them to not just absorb and innovate, but to also acquire adaptive capability. The study also proposed that these three factors shared a corresponding causal relationship and can serve as a path (to acquiring competitive advantages).

A business model is determined by the business strategies and objectives of the business in question. Business strategies and objectives have to be adjusted and managed by considering external and objective industry changes, as well as market environments, technical support, and cost and profit. In other words, a business must consider the objective environment, technical characteristics, and equipment costs in a market. For a business to gain a foothold in an industry, the most economical model should be adopted in response to industry changes, and resources should be invested in areas that are most likely to be profitable. But considering that Taiwanese businesses are mostly small in scale, how would they be able to gain a foothold in global markets? Taiwanese businesses often promote creativity and innovation internally, encourage their organizational personnel to propose creative ideas, seek to create cultures that emphasize
individual ability, and use performance indicators to measure business performance. However, these businesses have failed to gain advantageous positions within their industries despite these efforts. In addition to innovative capability, a business must look beyond internal organizational boundaries and utilize key talent in an integrated manner. It must establish an information-based system, link-up communication channels, and instill in its employees the mentality of absorbing information externally and consolidating it internally, such that it can be turned into useful knowledge to create a work environment with information symmetry. Employees must also be encouraged to look past the constraints they previously faced, examine problems from different perspectives, and consider the organization's development with the future in mind. The abovementioned points concerning absorptive capability are primary factors that will influence innovative capability. Furthermore, when attempting to change the thinking model of its organizational members, a business has to consider market, technical, cost, and profit factors, monitor market changes and technological and industry developments, and make timely adjustments to its business model. By doing so, the business will be able to operate optimally and maintain its competitive advantages in its industry. However, adaptive capability must be developed from absorptive capability and innovative capability, so as to allow Taiwanese businesses to acquire adaptive capability and, consequently, competitive advantages.

5.2 Research Recommendations and Limitations

In this study, organizational phenomena were examined by observing the changes to the structures of large established organizations in an age when the power of the Internet can fully come into play, such as in the development of flat and virtual organizations. It may therefore be difficult to categorize or consolidate the basic units for processes, systems, and resources. Should other organizational assumptions be applied, it will be necessary to further analyze and define these basic units.

Furthermore, the two scale-based questionnaires (for independent variables and dependent variables, respectively) in this study were filled out by the same respondents; hence, the scores for these two scales may have been influenced by individual factors related to the respondents. This usually increases the correlation between two variables and may in turn alter the relationship between variables, which is a phenomenon referred to as common method variance. The aforementioned points were the limitations of the study.

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