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創業導向與公司績效之關聯：

資源特性之中介效應與環境動態性之調節效應

Relationship between Entrepreneurial Orientation and
Firm Performance: The Mediating and Moderating Effects of
Resources Attributes and Environmental Dynamism

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九月中旬，當鳳凰花仍火紅嬌豔地綻開在臺大管理學院前的鳳凰枝頭時，博士論文的撰寫終於付梓，並順利通過最後的學位口試。回首在臺大求學的近二千個日子裡，蒙受恩露，點滴心頭，其中最要感謝的恩師，也是我的指導教授 朱文儀老師。在朱老師學術與專業涵養雙全的帶領下，讓我一步步走進學術的浩瀚領域，老師治學嚴謹態度，落實在我博士班求學的生涯中。在研究上，老師總給予嚴格的挑戰與評論，斟酌文稿中每句話的用詞遣字；透過老師的指導促使我能在繁瑣的文獻中穿針引線地結合理論發展出研究架構；也縱然我在英文撰寫上癩腳又毫無章法，但老師仍費盡心思指導我撰寫出學女生涯中第一篇可以投稿的文章。今日我能順利畢業，衷心感謝恩師的督促與鞭策，讓我跨出人生重要的階段。

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中文摘要

自 1980 年代，創業導向已經成為創業精神的主要概念與核心，並將其視為公司績效的重要來源之一。本論文主要是依據由外而內與由內而外的策略邏輯，探討創業導向與公司績效之關聯性，進而提出並檢測下列兩個主要的議題。

第一，本論文探討並檢測創業導向、資源特性與公司績效之關聯。資源特性區分為資源與能力的價值性和稀有性，這兩種特性也被提出對創業導向與公司績效有其中介效果存在。第二，本論文進一步提出當公司面臨環境高動態時，公司若擁有創業導向是否會影響其利用或培養價值性和稀有性的資源與能力。

本論文以台灣經濟新報公布上市櫃公司為樣本，最後回收 201 份有效問卷進行統計分析。統計結果顯示：(1)公司擁有較強的創業導向真能促使其擁有與利用價值性和稀有性的資源與能力；(2)雖然創業導向無法藉由價值性和稀有性來提升公司的客觀績效 (ROA 與 Tobin's q)，但是創業導向可透過價值性和稀有性來提升公司的主觀績效(滿意度與競爭優勢)，如此，支持創業家神的資源基礎觀點；(3)此外，環境動態的情境會對創業導向與績效的關聯有干擾效果；換言之，當公司座落在環境高動態情境時，公司若擁有強而有力的創業導向，就能提升其擁有與利用價值性和稀有性的資源與能力。

關鍵字: 創業導向、資源、價值性、稀有性、環境動態、公司績效

Abstract

Since 1980, EO (entrepreneurial orientation) that has been a central concept in entrepreneurship theory is viewed as being a critical source of firm performance. This dissertation focuses on the relationship between EO and firm performance from outside-in and inside-out views in the field of strategic management. Therefore, two central issues are proposed and tested in this dissertation as follows.

First, this dissertation examines how entrepreneurial orientation, resource attributes, and firm performance are related. Resource attributes refer to the value and rareness of resource–capability combinations (value and rareness), and are proposed to mediate the relationship between EO and firm performance. Second, this dissertation further proposes whether EO is positively associated with resource attributes when firms face a certain contingency, specifically, the dynamism of external environment.

Based on data collected from 201 public firms in Taiwan, the statistical results show that firms with strong EO are likely to exploit valuable and rare. Although the value and rareness don't mediate the relationship between EO and firm performance (ROA and Tobin's q), they positively mediate the association between EO and firm performance (competitive advantage and satisfaction), supporting the resource-based perspective of entrepreneurship. Moreover, it is found that the EO-resource attributes relationship is further moderated by environmental dynamism. That is, when firms are located in environmental dynamism, EO is likely to exploit valuable and rare resources and capabilities to respond external opportunities.

Key words: EO, resource, value, rareness, environmental dynamism, firm performance.

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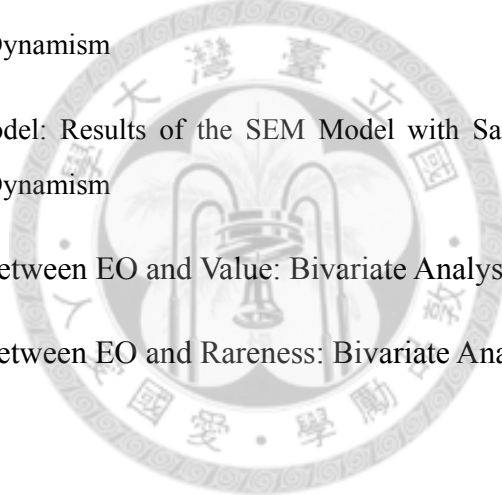
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Chapter 1

Introduction

1.1 Background and Motivations

There is a widely-held view in academic literature that a firm's competitive advantage and abnormal returns stem from its entrepreneurship, which is a factor of production. Implicit in this notion is a prediction that entrepreneurship is positively associated with firm performance. Recently, EO has increasingly become a central concept in the domain of entrepreneurship (Covin, Green, & Slevin, 2006), and especially, in today's highly competitive business environment, an entrepreneurial orientation (EO) is viewed as being a critical source of firm performance. Particularly within enormously complex environments, firms must develop innovative capabilities and exploit market opportunities with aggressiveness, ambition, and a willingness to take risks to sustain their survival (Sadler-Smith, Hampson, Chaston, & Badger, 2003). In other words, firms with EO may be better equipped to face the variations of firm performance.

Prior researchers have adopted several perspectives when studying entrepreneurship, including economics, psychology, and sociology. Although the study

of entrepreneurship has focused on entrepreneurial behavior for more than a century, only a few studies have modified and examined conceptual models of EO. However, over the past two decades, EO has emerged as a construct in strategic management, organization and entrepreneurship literature (Lumpkin and Dess, 1996). Some studies demonstrate that an EO is increasingly important to the economic returns of firms. Although most prior studies have pointed to a positive relationship between EO and firm performance, there have been inconsistencies. These inconsistencies encourage the question of whether the relationship between EO and firm performance is advantageous or more complex.

In the field of strategic management, firm performance is derived from the organization's internal and external environment. In terms of the internal factors, the resource-based view (RBV) highlights the importance of internal factors for firm effects (Barney, 1991; Hansen & Wernerfelt, 1989; McGahan & Porter, 1997; Rumelt, 1991). RBV scholars argue that a firm which possesses and exploits valuable, rare, imitable, and non-substitutable resources can sustain its competitive advantage (Amit & Schoemaker, 1993; Barney, 1991; Newbert, 2007, 2008). EO has become a central concept in the domain of entrepreneurship (Covin, Green, & Slevin, 2006), and entrepreneurship is an intrinsic feature of the resource-based framework (Conner, 1991). Therefore, some scholars argue that EO can be viewed as a type of resource/capability. This means that EO and resources/capabilities are viewed as the same construct (Conner, 1991; Foss, Klein, Kor, & Mahoney, 2008; Lee, Lee, & Pennings, 2001; Stevenson, &

Gumpert, 1985). In contrast, according to Schumpeter (1934), entrepreneurship facilitates unique resource-capability combinations in dynamic and high-risk environments in a manner that distinguishes one firm from another by reducing costs or differentiating products and services. Thus, EO and resources/capabilities represent completely different constructs (Alvarez & Busenitz, 2001; Barney & Arkan, 2001; Ireland, Hitt, & Sirmon, 2003; Lumpkin & Dess, 1996). Recently, some studies claim that the resources and capabilities of firms could act as a bridge or a contingency factor in the relationship between EO and firm performance. However, prior studies may over-simplify the relationship between the role of a specific resource/capability and firm performance, and neglect the conceptual-level approach of the RBV, such as the attributes of value and rareness (Deepphouse, 2000; Newbert, 2007). Therefore, this dissertation examines whether or not the relationship between EO and firm performance can be mediated by the value and rareness of resources.

As to the external environment, environmental factors include environmental dynamism, munificence, complexity, and industry characteristics, all of which can influence the performance of firms with EO. Some scholars argue that the profits of firms are derived from the industry and external environment (Bain, 1956; Mason, 1939; Porter, 1980); in other words, the industry effects matters (Schmalensee, 1985). Because environmental dynamism is associated with the unpredictability of customer tests, competitor actions, product/service shifts, and high rates of change in market and industry innovations, the product or business model lifecycle has been manifestly

shortened in today's competitive environment (Miller, 1983). In such a dynamic environment, firms must continuously introduce products or services no matter they are in developing or developed economies. According to the structure-conduct-performance (S-C-P) model, firms that face high levels of industrial rivalry would be forced to improve their performance above the averaged levels (Porter, 1980). Although Lumpkin and Dess (1996) propose environmental dynamism as a contingency factor that influences the EO-performance relationship, most prior studies seldom include a model that simultaneously considers EO, environmental dynamism, and resource attributes. Therefore, this dissertation examines whether the EO successfully promotes the value or rareness of a resource–capability combination in environmental dynamism.

One contribution of this dissertation may be the development of a theoretical and empirical link between EO, resource attributes, and firm performance. This dissertation challenges the conventional wisdom of the resource heterogeneity approach, which might over-emphasize the relationship between the role of a specific resource/capability and firm performance (Deephouse, 2000). This dissertation argues that EO and resources/capabilities attributes represent different constructs (Ireland et al., 2003; Lumpkin & Dess, 1996). A firm's EO stems from its innovation, proactiveness and risk-taking, which in turn determine the value and rareness of resource-capability combinations. Firms with EO are likely to enhance their performance by reducing costs or differentiating products/services via the combinations of resources and capabilities. Through the analysis of the competing models, this study also clarifies the causal

relationship between EO, resource attributes, and firm performance (Covin & Slevin, 1991; Foss et al., 2008). When value or rareness serves as a mediator of the relationship between EO and firm performance, its model fit satisfactory. Second, contribution of this dissertation may integrate the three main theories, including RBV, entrepreneurship, and external approach: environmental dynamism, and focus on the relationship between EO, environmental dynamism, and resource attributes from outside-in to inside-out.

A review of relevant literature and the theoretical background from an entrepreneurship perspective and resource-based theory provides a foundation for developing specific hypotheses. Although existing studies indicate the relationship between EO and firm performance, previous studies seldom expand this association by examining the possible mediators (such as resource attributes) and moderators (such as environmental dynamism) of EO. Therefore, this dissertation conducts an empirical study to investigate the relationship between EO, resource attributes, external environments, and firm performance in Taiwanese public firms.

1.2 Research Questions

This thesis is based on EO studies with multidimensional perspectives. Research on the EO-firm performance relationship has revealed some critical factors. This study integrates the areas of entrepreneurship and resource-based theory, and aims to examine the association between EO, attributes of resources

and capabilities, environmental dynamism, and firm performance. Although EO that has been viewed as an independent effect creates firm performance (Covin & Slevin, 1991; Lumpkin & Dess, 1996), previous empirical studies report both a positive and negative impact of an EO on firm performance. Therefore, some factors may influence the relationship between EO and firm performance. Thus, the research questions that this research aims to answer are as follows:

1. Does a firm with EO provide impetus to possess the value of resource-capability combinations? Or, does a firm with EO provide impetus to possess the rareness of resource-capability combinations?
2. Does a firm with the value of resource-capability combinations promote firm performance? Does a firm with the rareness of resource-capability combinations promote firm performance?
3. How does an EO influence firm performance? What factors may mediate the relationship between EO and firm performance? Specifically, is the relationship between EO and firm performance mediated by the resource attributes of firms?
4. What factors may moderate the association between EO and resource attributes? How do internal and external factors exist in this association? More specifically, are the relationships between EO and resource attributes moderated by environmental dynamism?

1.3 Research Procedure

This dissertation contains five chapters that can be summarized as follows (see Figure 1-1).

Chapter 1 explains the research background, research motivation, research questions, research procedure, the definition of academic terms, and an overview of this dissertation.

Chapter 2 reviews the literature of entrepreneurship theory, resource-based theory, and environmental dynamism. The relevant literature with an emphasis on the performance/competitive advantage of firms with an EO is reviewed and presented. The main effect of EO on firm performance is discussed. Based on the EO-performance relationship, this dissertation introduces the mediating role of resource attributes and the moderating role of environmental dynamism. Hypotheses are also developed regarding the relationships discussed in the literature review and pilot case study. To develop research hypotheses, this dissertation integrates the primary theories and pilot case to form propositions (see Appendix B).

Chapter 3 proposes a conceptual research framework for this dissertation. The development of this research framework is based on the prior literature review, research purpose, and pilot case (see Appendix B). Moreover, this chapter provides the research methodology, including sample and data collection, several statistical analyses methodology, and the measurements of all variables.

Chapter 4 shows the statistical results of this dissertation. A variety of statistical methods are used, including descriptive statistics, correlation analysis, confirmatory factor analysis (CFA), OLS regression, structural equation modeling (SEM), convergent and discriminant validity, and Sobel tests. All the results are summarized in this chapter.

Finally, Chapter 5 provides the conclusion of the dissertation, including discussions, research limitations, and some recommendations for **future** research directions.



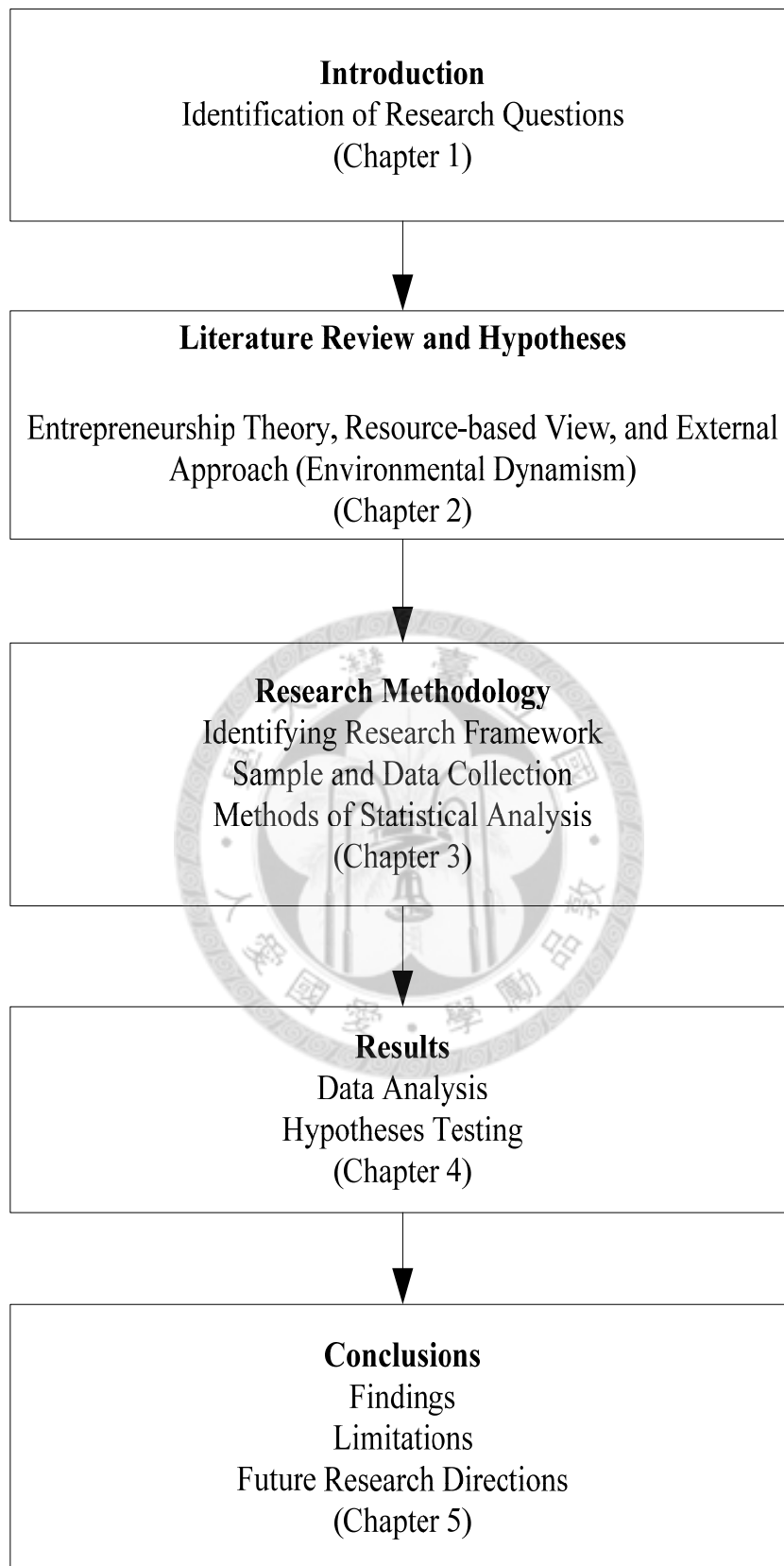


Figure 1-1: Research Procedure of the Dissertation

1.4 Overview of the Dissertation

Past studies have generally found that firms with EO lead to the improved performance. However, the findings on the influence of EO on firm performance have been largely contradictory (Covin & Slevin, 1988, 1989; Smart & Conant, 1994; Stam & Elfring, 2008). This dissertation examines the factors that can influence the EO-firm performance link by answering prior research questions. The traditional model of EO that is proposed by Lumpkin and Dess (1996) is expanded in this dissertation as follows:

First, this research argues that firms with EO can have different insights into valuable and rare resource-capability combinations as compared to their competitors. Such arguments further suggest that EO and resources/capabilities represent different constructs. Therefore, this study examines whether the relationship between an EO and firm performance is mediated by resource/capability attributes.

Second, according to the literature of Lumpkin and Dess (1996) and Hitt et al. (2011), environmental factors can explain the effect of EO on firm performance. Moreover, the influence of EO on enhancing value resource-capability combinations is moderated by high rather than low environmental dynamism.

Therefore, this dissertation concerns the linkage between EO and firm performance by investigating resources attributes and environmental dynamism. Following paragraph briefly describes main variables measurements and the findings of this research.

This study includes four main constructs as follows: (1) EO presents the

integration of multi-dimensions innovation, proactiveness, and risk-taking. (2) Resource attributes refer to the value and rareness of resource-capability combinations and potentially mediate the relationship between EO and firm performance. (3) Environmental dynamism is viewed as a moderating variable that influences the relationship between EO and resource attributes. (4) Firm performance comprises two criteria: subjective and accounting performance. Subjective performance includes competitive advantage and self-reporting performance (performance), and accounting performance includes ROA and Tobin's q . Data on EO, environmental dynamism, resource attributes, competitive advantage, and performance is obtained from a questionnaire survey conducted with members of top management as the respondents. ROA and Tobin's are collected from a secondary database maintained by the Taiwan Economic Journal (TEJ).

Based on data collected from public firms in Taiwan, the statistical results show that firms with a strong EO are likely to exploit valuable and rare resource-capability combinations, improving their subjective performance rather than their accounting performance. The value and rareness of the resource-capability combinations further positively mediate the association between EO and subjective performance, supporting the resource-based perspective of entrepreneurship. Finally, EO has a significant and positive impact on the value or rareness of resource-capability combinations at a high level rather than a low level of environmental dynamism.

1.5 Definition of Academic Terms

1.5.1 Entrepreneurial Orientation

Entrepreneurial Orientation (EO): An EO refers to the processes, practices, and decision-making activities that lead to new entry (Lumpkin & Dess, 1996). EO consists of three dimensions, including innovation, proactiveness, and risk-taking (Covin & Slevin, 1989).

Innovation: Innovation is defined as the new ideas, novel experimentation, and creative processes supported by firms, which result in new products, services, or technological processes (Covin & Slevin, 1989; Lumpkin & Dess, 1996).

Proactiveness: Proactiveness is also defined as the manner in which enterprises attempt to recognize and seize new opportunities, implying a forward-looking perspective that might or might not be related to current operations (Lumpkin & Dess, 1996; 2001; Miller & Friesen, 1982). Proactiveness also involves tracking changes in customer tastes, new products, and innovative technologies (Lumpkin & Dess, 2001).

Risk-taking: Risk-taking is considered to be the degree to which managers are willing to make large and risky resource commitments (Miller & Friesen, 1978). For example, when confronted with decision-making situations involving uncertainty, it is necessary that the firm adopts a bold and wide-ranging act to achieve abnormal profitability by exploiting potential opportunities.

1.5.2 Resource Attributes

Resource attributes

Value of resource-capability combinations (Value): Value of resource or capability enables a firm to reduce costs or respond to environmental opportunities and threats, such resources or capability is valuable (Barney, 1991). However, firms may create economic rents not only by owning better resources than other competing firms, but also by exploiting them more effectively with the appropriate capabilities. Therefore, the value of resource-capability combinations is defined as follows. A resource (or capability) may have tremendous potential value and its value can be realized when it is combined with a corresponding capability (or resource) (Newbert, 2008).

Rareness of resource-capability combinations (Rareness): If the number of firms which possess a resource (or capability) is sufficiently small to prohibit perfect competition in the industry, such a resource (or capability) is rare (Barney, 1991). Thus, the rareness of resource-capability combinations refers to a valuable resource (or capability) that can be possessed by many firms but such resource is paired with the appropriate capability (a resource) by only a few firms (Newbert, 2008). This means that, if a firm possesses some resources and capabilities which are only owned by a few companies in the industry, these resources and capabilities are rare.

1.5.3 Environmental Dynamism

Environmental dynamism is a main factor that can influence EO and internal resources (Lumpkin & Dess, 1996). Environmental dynamism is characterized by the rate of change, innovation in the industry as well as unpredicted actions of competitors and customers (Miller & Friesen, 1983). In general, entrepreneurial firms are often found in environmental dynamism because their top managers usually prefer rapidly growing and changing, which may have high risks and high rewards (Miller & Friesen, 1982).

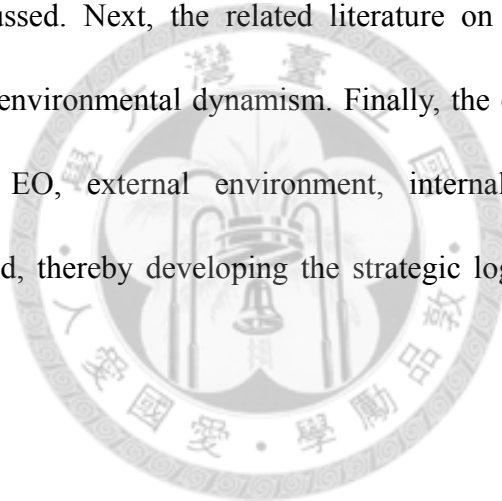
1.5.4 Firm Performance

Firm performance is a multidimensional concept and the relationship between EO and firm performance may depend upon several indicators used to assess performance. Because businesses with EO may invest heavily in long-term growth and profits, this dissertation examines the conceptual argument of the EO–performance relationship by focusing on following several aspects of firm performance, including subjective (such as competitive advantage and satisfaction) and accounting measures (such as ROA and Tobin's q).

Chapter 2

Literature Review and Hypotheses

This chapter reviews the existing literature on entrepreneurship, resource-based view, and external approach: environmental dynamism. Definition of entrepreneurship and EO are first discussed. Next, the related literature on the main two aspects: resource attributes and environmental dynamism. Finally, the existing research on the relationships between EO, external environment, internal resources, and firm performance is reviewed, thereby developing the strategic logic from inside-out and outside-in.



2.1 Definition of Entrepreneurship

The topic of entrepreneurship has been examined, studied, and developed for more than two hundred years. The term “entrepreneur” itself is derived from the French word and was first used in 1755 by Richard Cantillon, who regarded entrepreneurs as specialists in taking risk. Popular notions of entrepreneurship are based on the view of Schumpeter (1934), who viewed entrepreneurs as innovators who create new industries and pursue a change of the industrial structure. The term

“entrepreneurship” has been variously explained by different scholars (see Table 2-1), and is described below.

There are many definitions of entrepreneurship in the literature. According to Schumpeter (1934), firms with entrepreneurship combine production factors and facilitate unique resource-capability combinations in dynamic and high-risk environments in manners that distinguish them from other firms by reducing costs or differentiating their products and services. Entrepreneurship is perceived as introducing new combinations (including resource-capability combinations, new goods, and new methods of production) or as exploiting new markets. Schumpeter (1951; 1976) defined entrepreneurship as involving the conducting of operations not routinely conducted in the operation of a business, a phenomenon that falls under the concept of leadership.

Contemporary definitions of entrepreneurship tend to focus on the pursuit of opportunities. The opportunities-based concept of entrepreneurship originates from Stevenson (1986) and focuses on entrepreneurship as the pursuit and exploitation of opportunity without regard for resource controls. Shane and Venkataraman (2000) also define the domain of entrepreneurship in terms of the recognition and exploitation of opportunities. Recently, Kuratko and Hoggetts (2004) have explained entrepreneurship by identifying four key areas that need to be proposed simultaneously: (1) Unique markets—entrepreneurs identify new market segments. (2) Unique people—entrepreneurial ventures are built on the special talents of one or more

individuals. (3) Unique products—entrepreneurial ventures innovate and create new products or services that capture new or existing markets. (4) Unique resources—entrepreneurs have the ability to exploit resources over long periods of time.

Based on the above-mentioned areas, Curator and Hoggetts (2004) define entrepreneurship as involving entrepreneurs who are capable of recognizing and seizing opportunities and of converting those opportunities into marketable ideas requiring effort to implement, thereby resulting in potential rewards.

During the last decade, management researchers have extended the scope of their interests to encompass entrepreneurship issues. Although Schumpeter (1934) established a link between the entrepreneurial initiatives of individuals and the creation and destruction of industries, organizations are more often able to exploit resources pursuing innovation than individuals are. Entrepreneurship research thus has increasingly transformed the individual level into the organizational level (Brown et al., 2001; Covin & Slevin, 1991; Davidsson & Wiklund, 2001; Stevenson & Jarillo, 1990; Stopford & Baden-Fuller, 1994).

Studies of entrepreneurship are generally classified into three main categories (Stevenson & Jarillo, 1990). First, there are studies that focus on the results of actions taken by entrepreneurs. Second, there are studies that take a psychological/sociological approach and view entrepreneurship as deriving from individuals, where their

backgrounds, environments, goals, and motivations are the objects of analysis. Finally, there is research concerned with the characteristics of entrepreneurial management, analyzing how entrepreneurs are able to achieve their objectives. This view of entrepreneurship can subsequently be applied to the firm-level, and proponents propose that entrepreneurial firms pursue opportunities regardless of the resources they control. For example, Covin and Slevin (1991) outline a model of entrepreneurship as a firm-level phenomenon, which stems from two causes. First, entrepreneurial effectiveness is derived from firm-level operations, which means that entrepreneurial effectiveness can be measured in terms of firm performance. Second, individual-level behavior can impact organizational performance; however, the fact remains that organizational-level behavior is a predictor of entrepreneurial effectiveness.

Indeed, over the past decade, some researchers have changed the level of their analyses of entrepreneurship. Davidsson and Wiklund (2001) review the literature related to entrepreneurship and divide it into five levels: (1) individual-level, (2) firm-level, (3) industry-level, (4) regional-level, and (5) national-level. Table 2-2 shows an increase in the number of firm-level studies, while the number of individual-level studies has gradually declined. Therefore, the apparent trend is towards examining the firm as the level of analysis, including just the firm-level. Compared with 28% of 1988/89 articles, firm-level and individual- and firm-level analysis is conducted in more than 47% of the 1998 articles.

Zahra, Nielsen, & Bogner (1999) suggest that many studies use inconsistent terms

to refer to various aspects or types of entrepreneurship. Previous scholars have used diverse terms, including entrepreneurship, corporate entrepreneurship, entrepreneurial posture, strategic posture, and entrepreneurial orientation.

In summary, definitions of entrepreneurship in the literature are originated from different scholars. In general, most studies on the related issues of entrepreneurship, entrepreneurial posture, or EO usually regard the firm as the level of analysis. Based on the studies of Schumpeter (1934), Stevenson (1986), and Kuratko and Hoggetts (2004), this study mainly follows the definition of entrepreneurship and employs EO that has been a concept in the domain of entrepreneurship. According to prior studies, this dissertation will develop following argument: a firm with entrepreneurship usually facilitates to combine the resource with the capability in rapidly changing environment.

Table 2-1 Definitions of Entrepreneurship

| Author | Definition |
|-------------------|--|
| Schumpeter (1934) | Entrepreneurship is seen as the implementation of new combinations, including (1) the introduction of new goods, (2) the introduction of new methods of production, (3) the exploitation of new markets, (4) the exploitation of new sources of supplies, and (5) the creation of new organizations. |
| Kizner (1973) | Entrepreneurship is the ability to perceive new opportunities. |
| Drucker (1985) | Entrepreneurship refers to acts of innovation that involve combining existing resources with new capabilities. |
| Rumelt (1987) | Entrepreneurship is the creation of new businesses; a new business means that existing businesses are not exactly duplicated; there is an element of novelty. |
| Low & MacMillan | Entrepreneurship is defined as the "creation of new enterprises." |

| | |
|--------------------------------|--|
| (1988) | |
| Gartner (1988) | Entrepreneurship is the creation of organizations and the process by which new organizations come into existence. |
| Stopford & Baden-Fuller (1994) | Entrepreneurship is classified into three stages: (1) Individual entrepreneurship: New businesses are usually associated with individual entrepreneurship. (2) Organizational renewal: Individuals or teams in an organization alter the pattern of resources to respond to threats or opportunities for achieving stronger economic performance. (3) Frame-breaking: Firms change the rules of their competition. |
| Roberts (2007) | Entrepreneurship is the pursuit of opportunities without considering current resources and capabilities. |
| Morris (1998) | Entrepreneurship is the process through which individuals and teams create value by bringing together unique packages of resource inputs to exploit opportunities in the environment. |
| Ireland et al. (2001) | Entrepreneurship is defined as having two orientations: (1) A context-dependent social process: Individuals or teams create wealth by gaining access to a variety of resources, enabling them to exploit market opportunities. (2) A business-related phenomenon: An entrepreneurial firm can improve performance by concentrating on innovation, proactiveness, and risk-taking. |

Source: Summary of this study

Table 2-2 A Comparison of the Analysis Level of Entrepreneurship

| Level | 1988/1989 | 1998 |
|--|------------------|-------------|
| <i>Micro levels</i> | 59.5 % (38) | 77.7 % (49) |
| Individual | 26.6 % (17) | 20.6 % (13) |
| Firm | 26.6 % (17) | 36.5 % (23) |
| Other (single) micro-level | 1.60 % (1) | 1.60 % (1) |
| Individual and firm | 1.60 % (1) | 11.1 % (7) |
| Multiple micro-level units | 3.10 % (2) | 7.90 % (5) |
| <i>Aggregate levels</i> | 21.8 % (14) | 11.2 % (7) |
| Industry | 7.80 % (5) | 3.20 % (2) |
| Region | 6.20 % (4) | 3.20 % (2) |
| Other single- or multiple-aggregate levels | 7.80 % (5) | 4.80 % (3) |
| <i>Micro/aggregate mix</i> | 12.5 % (8) | 11.1 % (7) |
| <i>Other/unclassifiable</i> | 6.20 % (4) | 0.00 % (0) |
| Total | 100 % (63) | 100 % (63) |

Source: Davidsson and Wiklund (2001)

2.2 Dimensions of Entrepreneurial Orientation

Although some scholars have defined entrepreneurship based on the individual characteristics of entrepreneurs (Shook, Priem, & McGee, 2003), most studies follow the concept of classic economics, which considers EO to be a firm-level factor. Lumpkin and Dess (1996) make a distinction between the concept of entrepreneurship and EO. Lumpkin and Dess suggest that entrepreneurship represents a new entry or business venture and corresponds with strategic content; that is, an entrepreneurial firm poses the question, “What business shall we enter?” The answer to this question determines a firm’s domain or product-market. EO, however, refers to the processes, practices, and decision-making activities that improve the new entry. In other words, entrepreneurship refers to what the factors consist of, while EO indicates how those factors are undertaken. Therefore, EO can be viewed as manipulating the process of entrepreneurship. In summary, entrepreneurship is defined as a new venture entered by a firm, and EO describes how the new venture is undertaken and accomplished.

Dess and Lumpkin (2005) assert that corporate entrepreneurship has two aims: the creation of new ventures and strategic renewal. Although firms can grow through mergers and acquisitions as well as through joint ventures and strategic alliances, corporate entrepreneurship is typically focused on developing internal ventures. Corporate entrepreneurship yields above-average returns and contributes to sustainable advantages. However, the strategic leaders and the culture of a corporation together

generate a strong impetus to innovate, take risks, and aggressively pursue new venture opportunities (proactiveness); this concept is referred to as “entrepreneurial orientation” (Dess & Lumpkin, 2005; Miller, 1983). Covin, Green, and Slevin (2006) assert that EO has increasingly become a central concept in the domain of entrepreneurship and has received a substantial amount of theoretical and empirical attention.

With regard to the dimensions of EO, Lumpkin and Dess (1996) assert that the primary dimensions of EO are proposed by Miller (1983), who suggests that a firm with EO will be capable of engaging in product innovation, undertaking risky ventures (risk-taking), and exercising superiority over other competitors (proactiveness).

2.2.1 Innovation

The first dimension that characterizes a firm with EO is innovation. Schumpeter (1934) is the first to highlight the role of innovation in the entrepreneurial process and to view innovation as the most critical factor in entrepreneurship. In addition, the “creative destruction” proposed by Schumpeter refers to the notion that the existing market structures are destroyed by new products or services when firms exploit existing resources and capabilities to create novel products or services; the new market structure then causes these firms to grow.

Innovation is defined as new ideas, novel experimentation, and creative processes supported by firms, which result in new products, services, or technological processes (Covin & Slevin, 1989; Lumpkin & Dess, 1996). Zahra (1996) argues that innovation

is the commitment of a firm to create and introduce products, processes of production, and organizational systems. In today's highly competitive business environment, innovation is recognized as the critical source of competitive advantage. Roberts (1999) suggests that a successful firm repeatedly introduces innovations and thus achieves a sustained competitive advantage. Lumpkin and Dess (1996) classify innovation into two categories: product-market innovation and technological innovation. Product-market innovation refers to product design, market research, and advertising and promotion (Lumpkin & Dess, 1996; Miller, 1983; Miller & Friesen, 1982). Technological innovation achieves shifts in the competencies surrounding the latest technologies, production methods, and the development of manufacturing processes (Lumpkin & Dess, 1996; Miller & Friesen, 1982).

Miller (1983) focuses on innovation in the technological and product-market, and associates innovation with entrepreneurship. More specifically, Drucker (1985) suggests that innovation is regarded as the specific tool of an entrepreneurial firm, and is the means by which such a firm can exploit change as an opportunity to establish a different business or a different service.

As mentioned above, innovation is the specific function of an entrepreneurial orientation, and innovation in this study refers to the process of engaging in creativity by introducing new products or services and technological leadership in manufacturing processes. Therefore, innovation is an important determinant of an entrepreneurial orientation.

2.2.2 Proactiveness

The second dimension that characterizes a firm with EO is proactiveness. Penrose (1959) emphasizes that entrepreneurial firms are capable of seeing and imagining future opportunities to promote their growth. Lieberman and Montgomery (1988) argue that the first-mover advantage, which capitalizes upon market opportunities, is the best strategy for firms. By exploiting a first-mover advantage strategy, firms usually obtain abnormal returns from markets and build brand recognition within their customer bases. Thus, firms that take initiative can anticipate new opportunities in emerging markets.

Proactiveness refers to shaping a new business environment that derives profits from new products, technologies, and administrative techniques rather than by following the business practices of competitors (Miller & Friesen, 1978). Proactiveness is also defined as the manner of enterprises that attempt to recognize and seize new opportunities (Lumpkin & Dess, 1996; Miller & Friesen, 1982), implying a forward-looking perspective that might or might not be related to current operations (Lumpkin & Dess, 1996; 2001). Proactiveness also involves tracking changes in customer tastes, new products, and innovative technology (Lumpkin & Dess, 2001). Based on such manners and information, proactive firms create ideas for novel products that are superior to those of their competitors (Miller, 1983).

Venkatraman (1989) defines the term “proactiveness” as referring to the search

for market opportunities and an experimental response to environmental changes.

Proactiveness is manifested in the following three ways:

- (1) Seeking new opportunities that might or might not relate to the present line of operations.
- (2) Introducing new products and brands ahead of the competition.
- (3) Strategically eliminating operations that are in the mature or declining stages of the life cycle.

Miller (1983) links the association between entrepreneurship and proactiveness through an empirical study, and refers to proactiveness as a characteristic of an entrepreneurial orientation (Lumpkin & Dess, 1996). Although there is a correlation between proactiveness and innovation, proactiveness emphasizes action and initiative more than innovation (Lumpkin & Dess, 1996). Thus, proactiveness is an important determinant of an entrepreneurial orientation.

2.2.3 Risk-Taking

The third dimension of an entrepreneurial orientation is risk-taking. Miller and Friesen (1978) refer to risk-taking as the degree to which managers are willing to make large and risky resource commitments. More specifically, risk-taking involves a willingness to exploit opportunities that have a probability of failure or poor performance as part of business operations (Morris et al., 2008). Baird and Thomas

(1985) define three types of risk, as follows:

- (1) Venturing into the unknown: a sense of uncertainty, such as personal risk, social risk, or psychological risk.
- (2) Committing a relatively large portion of assets: the significant commitment of resources into a venture that carries the possibility of failure.
- (3) Borrowing heavily: high leverage as a result of borrowing, such as incurring heavy debt, investment in unexplored technologies, or the bringing of new products into new markets.

However, Druck (1985) argues that a firm with EO does not make decisions recklessly. These firms have a reasonable awareness of risk, including financial, technical, and market risk and they expect that their CEOs and top management will attempt to manage these risks. Successful enterprises do not represent high risk because successful entrepreneurs know how to exploit the opportunities of innovation in relatively low risk business environments.

Based on the above, it follows that firms with EO are often typified by risk-taking behavior (Lumpkin & Dess, 1996). Based on a sample of 52 firms ranging in size from small to large, Miller (1983) finds that there is a significant relationship between entrepreneurship and risk-taking. Thus, risk-taking is not only regarded as an organization-level concept but is also viewed as a determinant of EO.

In summary, EO has been a central concept in domain of entrepreneurship and viewed as the indication of a firm's strategic posture. In addition, Miller (1983) regards entrepreneurship as firm-level activities and identifies three main dimensions of EO, including innovation, proactiveness, and risk-taking. Measures for the three dimensions are further developed by Covin and Slevin (1986, 1988, 1989, 1991), and are used in this dissertation.



2.3 Resource Attributes

Internal analyses of specific organizational strengths and weaknesses have long received great attention in the management literature (Andrews, 1971; Penrose, 1959; Ricardo, 1817; Selznick, 1957). A century ago, Ricardo (1817) addressed the theory of comparative advantage, which states that each country has a comparative advantage in certain products, which are derived from the specific abundant and idiosyncratic resources within it. For example, when farmers have more distinctive resources or capabilities than their competitors, such as the ability to cultivate new technology or low-cost fertilizer, abnormal returns can be achieved.

Edith Penrose (1959) was one of the first scholars to recognize the importance of resources to a firm's competitive position. In 1959, she published a book entitled "*The Theory of the Growth of the Firm*." She argues that a firm's growth is due to the manner in which its resources are employed, emphasizing that the influence of resources on the degree of competitiveness is important for firms. Penrose makes following contributions to the study of a firm's advantage: (1) She argues that a firm consists of a collection of productive resources. Different firms may be in the same industry, but each of them still has heterogeneous attributes. (2) She argues that entrepreneurs are more versatile than others; for example, entrepreneurs are more flexible in fundraising than others, and they tend to exercise better judgment.

After the mid-1980s, strategic analyses focused on the "inside-out" analytical model, which primarily emphasized internal resources and was subsequently able to fit

the external environment. Some scholars argue that a firm can make a profit if it can control its heterogeneous resources or capabilities (Grant, 1991; Penrose, 1959; Wernerfelt, 1984). The first publication espousing the resource-based view in the field of strategic management was by Wernerfelt (1984), who asserts that firms can be viewed as collections of resources, and emphasizes that resources enable an effective product market strategy.

During the 1990s, the resource-based view was formed by ideas pertaining to the role of resources and capabilities as the principal basis of a firm's strategy and its primary source of profitability, and an attempt was made to identify standouts in the field of strategic management. Barney (1991) and other scholars (Amit & Schoemaker, 1993; Collis & Montgomery, 1995; Peteraf, 1993) later develop specific criteria for resources which enabled firms to cultivate strategies, thus generating competitive advantage. Barney (1991) provides a framework of RBV which is based upon two fundamental assumptions: resources (capabilities) are heterogeneous among firms and are imperfectly mobile. Based on these assumptions, RBV scholars argue that (1) if a firm possesses resources and capabilities that are both valuable and rare, the competitive advantage will be promoted, (2) if these resources and capabilities are also both inimitable and non-substitutable, the competitive advantage will be sustained (Figure 2-1). These resources can usually be classified into several categories: financial, physical, human, organizational, and intelligent resources, and a firm must know how to deploy them.

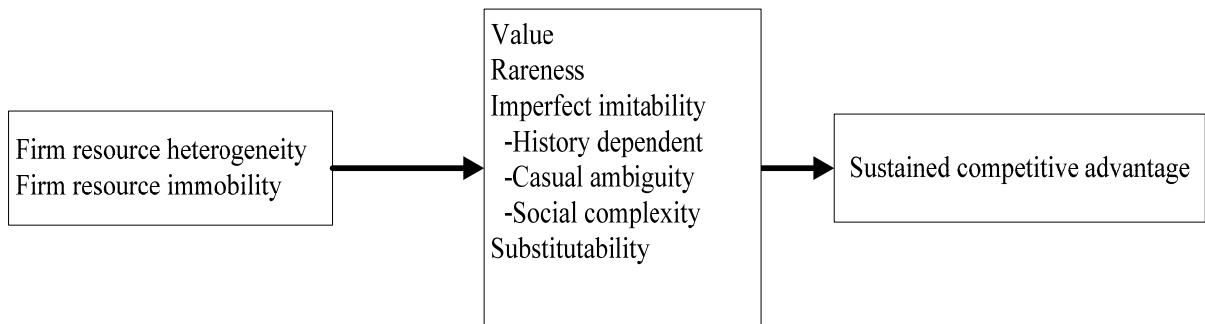


Figure 2-1: Relationship between Resource Heterogeneity, Immobility, Value, Rareness,

Imitability, Substitutability, and Sustained Competitive Advantage.

Source: Barney (1991), “Firm Resources and Sustained Competitive Advantage.”

According to RBV, scholars insist that short-term economic rents are possible (Schoemaker, 1990). A firm’s rents can be achieved by possessing rare and valuable resources and capabilities (Mahoney, 1995). Amit and Schoemaker (1993) also argue that economic rents are derived from asymmetry in the initial resource endowment, resource scarcity, the limited transferability of resources, and imperfect substitutability (see Figure 2-2). Furthermore, they propose that firms must be able to develop selected resources and capabilities when facing exogenous changes, including high uncertainty, complexity, and intra-firm conflict; by doing so, firm profits can be achieved. Collis and Montgomery (1995) similarly suggest that a firm’s competitive advantage is not only derived from the value, inimitability, and non-substitutability of its resources and capabilities, but also from the durability, appropriability, and superiority of those same resources and capabilities.

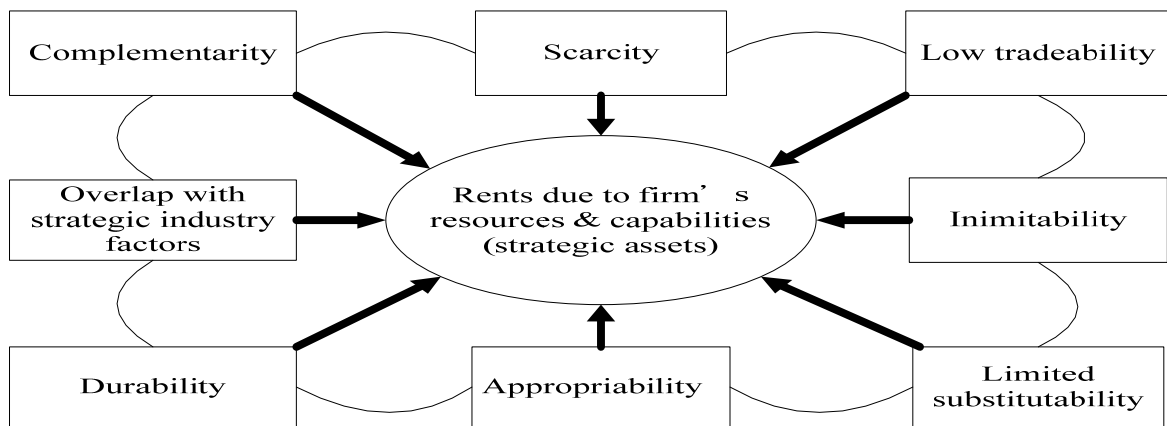


Figure 2-2: Desired Characteristics of a Firm's Resources and Capabilities

Source: Amit and Schoemaker (1993), "Strategic Assets and Organizational Rent."

In summary, in order to assess the resource attributes, this study reviews the literature of internal organization related to a resource-based view. The concept of the strategic resources of a firm stems from Penrose (1959), who views a firm as a collection of productive resources and explains how resource stocks, which are deployed along with opportunities, limit the direction and speed of a firm's growth. However, the term "resource-based view" is proposed by Wernerfelt (1984), who suggests that resources enable firms to promote product market strategies. Barney (1991) and other scholars (such as Amit & Schoemaker, 1993; Collis & Montgomery, 1995; Peteraf, 1993) develop criteria to evaluate the strategic resources that help firms to cultivate effective strategies and generate a competitive advantage or economic rents. Thus, these strategic resources usually have following attributes: value, rareness, imperfect limitability, and substitutability (Barney & Arkan, 2001), which can lead to firm performance.

2.4 Internal Resources, Capabilities, and Performance

As shown in the above conceptual literature review, the influence of resource attributes on firm performance has been identified by prior scholars (Amit & Schoemaker, 1993; Barney, 1991; Collis & Montgomery, 1995; Peteraf, 1993). In addition, most empirical research pertaining to the resource-based view also concentrates on large or high-growth firms (Chatterjee & Wernerfelt, 1991; Harrison, Hall, & Nargund-Kar, 1993) and focuses on new venture performance (Chandler & Hanks, 1994; Lerner & Almor, 2002). The researchers find that a variety of resources in organizations (such as tangible or intangible resources) and broader varieties of resource-based capabilities are significantly and positively related to their profits or growth. Thus, these studies support the resource-based argument that business performance is primarily the result of a firm's ability to exploit its resources.

Some long-term differences in firm profitability cannot be attributed to differences in industry conditions. Indeed, most studies show that these differences originate from firm effects rather than the industrial environment (Hansen & Wernerfelt, 1989; Mueller, 1986; Rumelt, 1991; Wernerfelt & Montgomery, 1988). A list of some empirical studies on the relationship between resources and firm performance is presented in Table 2-3.

Table 2-3 Some Empirical Studies of RBV

| Authors | Firm vs. Industry Effects |
|---------------------------------|---|
| Wernerfelt and Montgomery, 1988 | The attractiveness of an industry is not a universal dimension; instead, what is attractive depends on a firm's relative advantage. |

| | |
|---------------------------------|--|
| Rumelt, 1991 | Business-specific factors explain more variance in firm performance than industry factors. |
| McGahan and Porter, 1997 | An examination of the importance of the year, industry, corporate parent, and business-specific effects on the profitability of U.S. public corporations within 4-digit SIC categories demonstrates that year, industry, corporate parent, and business-specific effects account for 2%, 19%, 4%, and 32%, respectively, of the aggregate variance in profitability. |
| Mauri and Michaels, 1998 | A variance component analysis of 264 single-business companies from 69 industries using 5- and 15-year periods suggests that firm effects are more important on firm performance than industry effects. |
| Hall, 1992 | Based on a survey conducted in the U.K., intangible resources (such as patents, licenses, reputations, and employee know-how in operations) lead to a firm's sustainable competitive advantage and create capability differentials. An analysis of intangible resources should play a major role in the strategic management process. |
| Hall, 1993 | The intangible resources most commonly identified as being sources of sustainable competitive advantage are as follows: (1) company reputation, (2) product reputation, (3) employee know-how, (4) perception of quality standards, and (5) the ability to manage change. |
| Glunk and Wilderom, 1998 | Top management capital (i.e., inspiration, competence, and communication) and organizational capital (i.e., employee orientation and networking, financial management, and market focus) are the major predictors of organizational performance in small and medium-sized professional service firms. |
| Carolis, 2003 | Based upon an empirical study on a sample of pharmaceutical companies in the U.S., technological competencies that are valuable, rare, and inimitable have a great impact on firm performance. |
| Markman, Espina, and Phan, 2004 | By definition, patents are valuable and rare. Moreover, patent citations and claims capture inimitability and non-substitutability, respectively. Focusing on 85 pharmaceutical firms, the study finds that inimitability is positively and significantly related to firm performance, and |

| | |
|----------------------------|---|
| | non-substitutability is positively related to the introduction of new productions. |
| Sher and Yang, 2005 | The empirical results indicate that innovative capabilities are usually positively related to firm performance. Specifically, higher R&D intensity and higher R&D manpower are found to be predictors of improved firm performance in the Taiwanese integrated circuit (IC) industry. |
| Galbreath and Galvin, 2006 | This study finds that intangible resources can sustain firm profits, but tangible resources cannot explain a significant share of the variation in firm performance (Galbreath & Galvin, 2006). |
| Crook et al., 2008 | Based on a meta-analysis of 125 studies using the RBV, the resources-performance link is stronger when resources meet the following criteria: valuable, rare, imperfectly imitable, and imperfectly substitutable. |
| Newbert, 2008 | A study of micro-technology and nanotechnology firms examines the relationship between value, rareness, competitive advantage, and performance. The results suggest that value and rareness are related to competitive advantage. |

Source: Summary of this study

The resource-based view of strategic management is adopted to highlight the importance of resources and capabilities. Newbert (2007) conducts a systematic assessment of previous empirical research using four frameworks: the resource heterogeneity approach, the organizing approach, the conceptual-level approach, and the dynamic capabilities approach. Then, he further categorizes empirical studies using a variety of dependent and independent variables. Based upon the analysis of Newbert (2007), the resource heterogeneity approach is the most widely utilized, and is commonly operationalized by resources (such as human capital, knowledge, experience,

and social capital) and capabilities (such as human resourcefulness, innovativeness, and information technology). However, few empirical studies focus on the conceptual level and examine value and rareness.

In response to a gap in terms of the conceptual-level approach in testing the RBV hypotheses, Newbert (2008) examines how the exploitation of valuable, rare resources and capabilities contributes to a firm's competitive advantage, and how this, in turn, contributes to its performance (see Figure 2-3). The results show that value and rareness are positively related to competitive advantage, that competitive advantage is positively related to firm performance, and that competitive advantage significantly mediates the rareness-performance relationship.

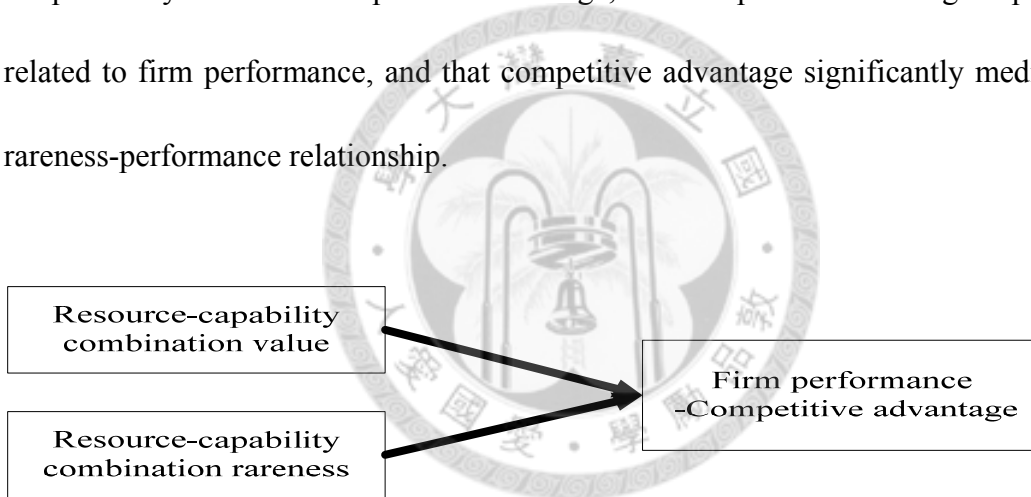


Figure 2-3: Conceptual Model of RBV

Source: Newbert (2008), "Value, Rareness, Competitive Advantage, and Performance: A Conceptual-Level Empirical Investigation of the Resource-based View of the Firm."

In summary, as shown in the above literature, existing empirical studies support business-specific effects on the profitability of firms. That is, value/rareness resources and capabilities, organizational, intellectual, financial, human, and physical resources and capabilities, can improve firm performance.

2.5 External Approach: Environmental Dynamism

As mentioned in the Introduction section, in addition organization's internal force, external environment, industry or needs of customers, has also been regarded as other force that can facilitate firm performance (Hitt et al., 2006; Porter, 1980). Each organization prefer to stable and munificent environment in which it can easily manage relevant questions and satisfy its stakeholders. However, the probability of facing an uncertainty of external environment (i.e. environmental dynamism, munificence, complexity) increase so that firms must attempt to explore and exploit resources and capabilities more effectively by grasping external opportunities and avoiding external threats (Jones, 2007). External analyses from opportunities and threats have long received attention in the literature of industrial organization (Bain, 1968; Demsetz, 1973; Mason, 1953; Porter, 1980; Schmalensee, 1985).

2.5.1 Environmental Dynamism from Industrial Organization

The traditional paradigm of industrial organization has provided a model in the field of strategic management for assessing competitive environment in industry. According to this paradigm of Bain (1968) and Mason (1939), the decision-making behavior or conduct of firms derived from industry structure that is influenced by several factors, including industry requirements, customer needs, technologies changes, and government policies. The conduct of firms is to construct market power, and various industries achieve different levels of averaged profitability. That is, the

industry structure determines what strategy can be conducted, thereby determining firm performance. This is the fundamental and famous argument of the structure–conduct–performance (S-C-P) paradigm that is defined as follows (Bain, 1972; Porter, 1981). According to Bain (1972), performance refers to profitability, technical efficiency (cost minimization), and innovation. Conduct refers to the activities of decision-making and strategies that includes price, advertising, capability, quality, collusion, and expanding market. Finally, industry structure is defined as a stable or dynamic economic and technical dimension of an industry that provides the context in which competition occurred. The elements of structure are identified as barriers to entry, the numbers of competitors in an industry, and product differentiation. According to this paradigm, firms can effectively form the strategy in industrial environment. This S-C-P framework is shown in Figure 2-4.



Figure 2-4: The Traditional Industry Organization Paradigm

Source: The Study of Bain (1968) and Mason (1953)

During the 1970s, IO has been enriched by addressing several of dimensions, which result in new developments IO. Therefore, IO has moved from being a useful tool to considering a strategy formulation. Porter (1981) provides an overview in terms of the new promise of industrial organization. Based on the comparison of both

traditional IO and modified IO (Porter, 1981), this study sorts and illustrates the difference between traditional IO and modified IO, which is shown in Table 2-4.

Table 2-4: The Comparison of Traditional IO and Modified IO

| Dimensions | Traditional IO | Modified IO |
|--------------------------------|---|---|
| <i>The frames of reference</i> | <u>Social viewpoint</u> ➤ economic base of competition | <u>Extensions of the IO paradigm to the perspective of strategic formulation</u> ➤ The IO-strategy link (Porter, 1980) |
| <i>Unit of analysis</i> | <u>Industry</u> ➤ all firms in an industry are identical | <u>Both the firm and industry</u> ➤ the emerging of the concept of strategic group |
| <i>Free-standing Entity</i> | Firm competing in a single business | Exploring the interaction between business units and their corporate siblings |
| <i>Static Tradition</i> | stable structure | <u>Encompassing dynamic models of industry evolution</u> ➤ dynamic forces underlying industry change |
| <i>Determinism</i> | Firm can't change industrial structure | The feedback effects of firm conduct on structure (see Figure 2-5) |
| <i>Completeness</i> | Consideration of general industry structure ➤ the number and size distribution of firms ➤ product differentiation | More elements of industry structure are considered ➤ exit barrier, vertical bargaining relations, and international trade and competition. |

Source: Summary of this study

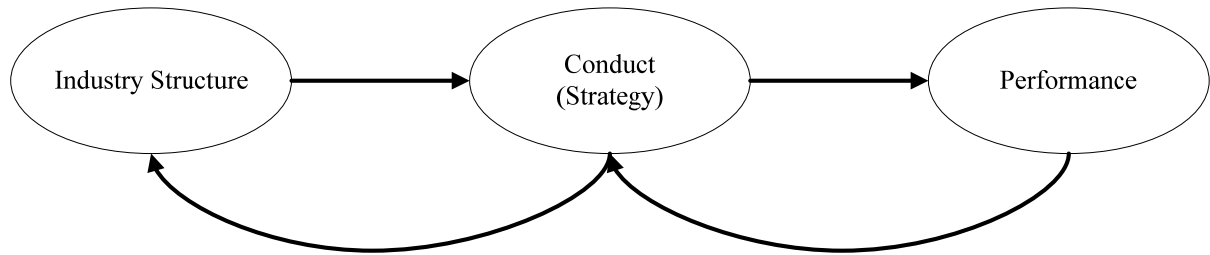


Figure 2-5: The Modified Industry Organization Paradigm

Source: Porter (1981), “The Contributions of Industrial Organization to Strategic Management”

According to the S-C-P paradigm, Porter (1980) develops five-force model, a power of industry structure, is composed of rivalry, potential entrants, substitutes, buyers, and suppliers. Based on the framework of industry structure, Porter constructs an analytical approach of outside-in that help a firm analyzes external environment, thereby improving its performance when its strategies exploit market opportunities and neutralize threats of competitors.

In summary, employing the framework of industrial analysis, the business easily constructs a strategic logic from outside-in. Industrial structure derives from several elements, industry requirements, customer needs, and technologies changes, refer to environmental dynamism. Therefore, environmental dynamism has been a main factor of analyzing external environment that a firm faces (Jones, 2007; Miller, 1983).

2.5.2 Environmental Dynamism and Resource Attributes

Environmental dynamism is the degree to which the power of influence in the specific and general environment changes quickly over time and thus increases the

uncertainty that firms face (Aldrich, 1979; Jones, 2007). If a firm cannot predict the context in which the power of influence can change over time, such environment is dynamism. For example, the environment is very dynamic if the technology changes rapidly in an industry (such as computer, IC, chemicals and biotechnology industry).

Especially, most firms enter the large emerging global markets in today, such as China, Eastern Europe, and Taiwan, and thus the possibility of gaining access to resources and capabilities increases, thereby providing new opportunities to enlarge the domain of firms and creating the value for their stakeholders. Miller (1983) argues that environmental dynamism is associated with unpredictability of customer tests, competitor actions, technologies changes, shifts of governmental policies, product/service shifts, and high rates of change in market and industry innovation. That is, based on the control of external environment of organizations, Pfeffer and Salancik (1978) assert that to satisfy the requirements of stakeholders, organizations must aggressively grasp more valuable and rare resources than other competitors can do, thus promoting a probability of survival in their industries. According to the study of Freeman (1984), the stakeholders are classified into following categories: customers, consumer advocates, owners, competitors, environmentalists, and government. As mentioned above, customers, competitors, and government policy that have been regarded as stakeholders are related to environmental dynamism. Therefore, to satisfy the needs from environmental dynamism, firms must recognize valuable and rare resources and build capabilities to employ these resources. In addition, following the

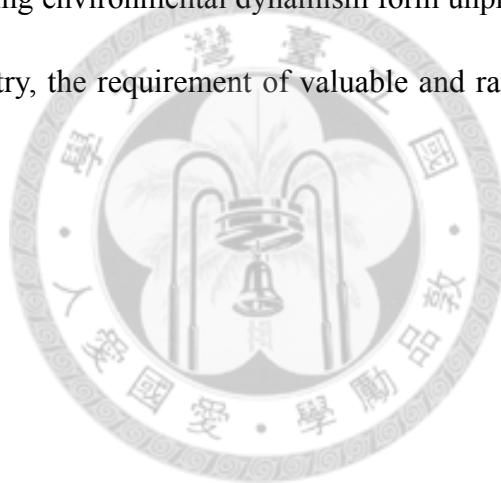
dynamic capability approach, Teece, Pisano, and Shuen (1997) assert that a firm has the capability to integrate internal resources with environmental dynamism. Therefore, firms usually have aggressive orientation to grasp valuable or rare resources in order to reduce environmental uncertainty that they face (Jones, 2007).

Several studies show that economic rents originate from external environment (industrial effects) rather than internal organization (firm effects) (Schmalensee, 1985; Wiklund & Shepherd, 2005). Based on the manufacturing in U.S., Schmalensee (1985) decomposes the variance of firm profits into industry, corporate, and market-share components, and thus find that (1) the corporate effect didn't exist; (2) the market-share effect accounts for 0.62% of total variance in profitability; (3) the industry effect accounts for 20% of total variance in profitability. Using a sample of 413 Swedish firms and a longitudinal design, Wiklund and Shepherd (2005) find that environmental dynamism positively influences small business performance.

As mentioned above, what do orientations allow firms to grasp resources in the environmental dynamism? Based on the prior literature (Schumpeter, 1934; Zahra, Sapienza, & Davidsson, 2006), entrepreneurship or entrepreneurial orientation can assist firms in combining resources with capabilities in environmental dynamism. According to Schumpeter (1934), firms with entrepreneurship combine production factors and facilitate unique resource-capability combinations in dynamic and high-risk environments. A firm with entrepreneurial activities and behaviors is effort to select and combine the resource and capabilities and thus addresses rapidly environmental

dynamism (Zahra et al., 2006). In addition, above argument consists with the view of some scholars (for example, Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zhou & Li, 2007; Zahra, 1993), which provide possible relationships between EO, external environment, internal organization, and firm performance. Relevant literature review is illustrated in section 2.6.

In summary, resources and capabilities within firms can be gained through the stimulation of environmental dynamism, thus maximizing profitability and sustaining survival. Therefore, facing environmental dynamism form unpredictability of customer tests and competitor entry, the requirement of valuable and rare resources/capabilities can increase.



2.6 Entrepreneurial Orientation, External environment, Internal Resources, and Firm Performance

Entrepreneurship literature has extensively documented the effects of EO. Scholars have long devoted themselves to studying the linkages between entrepreneurial behavior/entrepreneurial orientation and firm performance (Covin & Slevin, 1989, 1991; Lumpkin & Dess, 1996; Zahra, 1993). This research demonstrates that the linkage of EO and performance is moderated or mediated by several variables, and this is discussed in the following paragraphs.

In 1991, Covin and Slevin proposed an organization-based conceptual model of entrepreneurial behavior (see Figure 2-6). This model proposes several linkages between entrepreneurial posture, external variables, strategic variables, internal variables, and firm performance. It suggests that an entrepreneurial posture has a positive influence on the following internal variables: top management values and philosophies, organizational resources and competencies, and organizational culture.

Lumpkin and Dess (1996) advance a framework by investigating the relationship between the dimensions of EO and firm performance. Regarding the EO-performance relationship, Lumpkin and Dess (1996) propose three alternative models: the independent effect model, the mediating effect model, and the moderating effect model. First, the independent effect model views EO as an independent variable that directly influences firm performance. Second, the mediating effect model suggests that internal organization (such as the integration of activities) can mediate the association between

EO and firm performance (see Figure 2-7). Finally, the moderating effect model proposes that the EO-performance relationship varies, depending on a number of contingency variables, such as internal and external factors (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zahra, 1993) (see Figure 2-8).

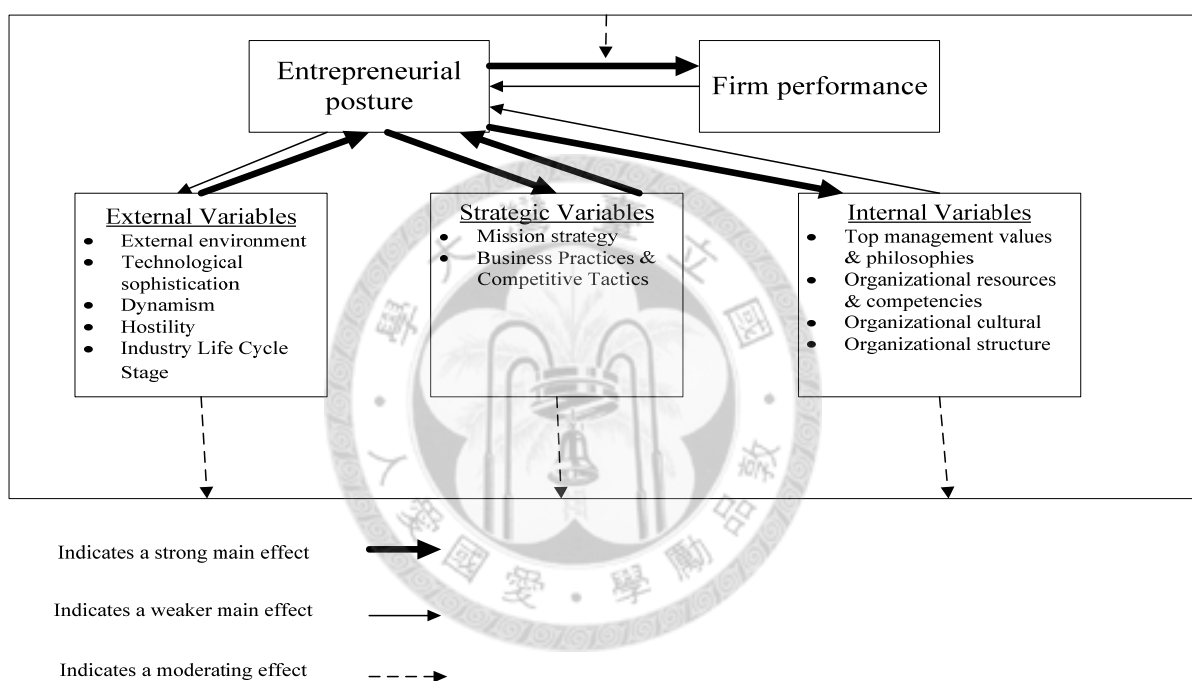


Figure 2-6: Conceptual Model of Entrepreneurship as a Firm Behavior

Source: Covin and Slevin (1991), "A Conceptual Model of Entrepreneurship as Firm Behavior"

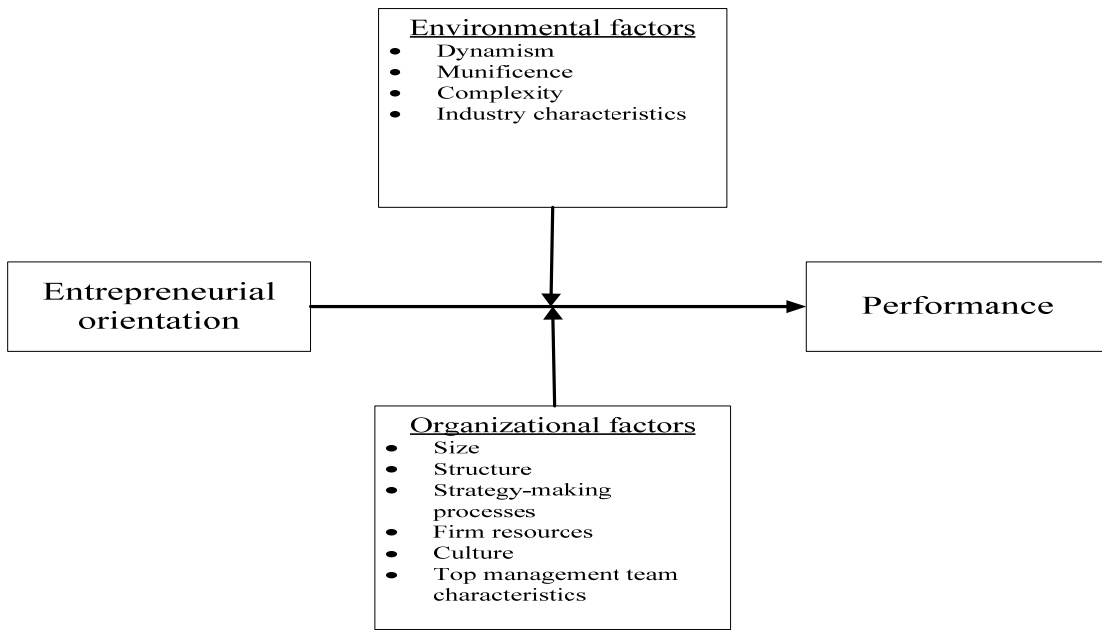


Figure 2-7: Conceptual Framework of an Entrepreneurial Orientation

Source: Lumpkin and Dess (1996), “Conceptual Framework of Entrepreneurial Orientation”

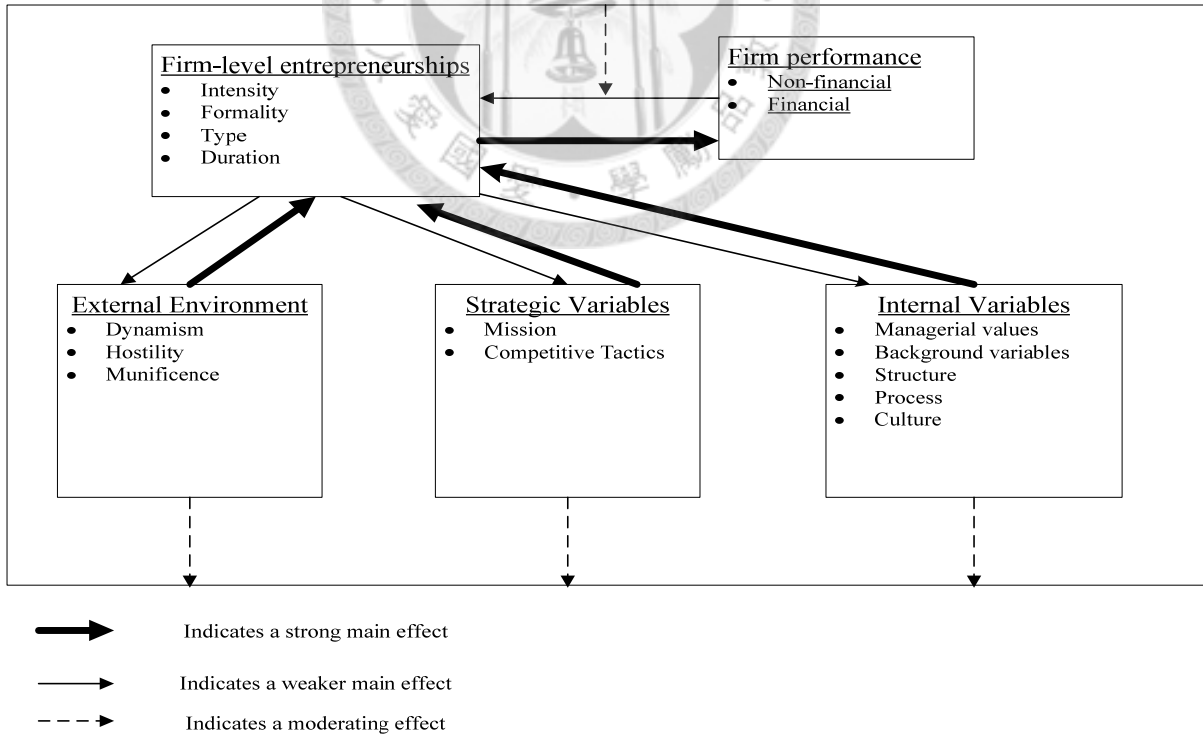


Figure 2-8: Revised Conceptual Framework of Firm-Level Entrepreneurship

Source: Zahra (1993), “A Conceptual Model of Entrepreneurship as Firm Behavior: A Critique and Extension.”

Based on the model created by Covin and Slevin (1991), a revised model of firm-level entrepreneurship or an entrepreneurial posture that includes mediating models and moderating models is shown in Figure 2-3. There are four differences between the revised model and the original model proposed by Zahra (1993). First, with respect to external factors, the revision uses a simpler classification than that originally suggested. Specifically, it eliminates the technological sophistication variable and incorporates another important environmental variable, munificence, which refers to the abundance of opportunities for innovation in the industry. Second, the internal variables are revised in the following four subcategories of variables: (1) managerial values and background (including age, past experience, and functional expertise); (2) organizational structure (including centralization, formalization, complexity, and organicity); (3) managerial process (including participation and fairness); and (4) organizational culture (including openness and empowerment). Finally, both the financial and non-financial outcomes of entrepreneurial activities are considered in this revised model. The model also suggests that there are certain non-financial benefits to be derived from an entrepreneurial posture, including several non-financial outcomes, such as increasing employee motivation and task involvement.

Figure 2-9 illustrates how the connection between a strategic orientation and its effect on firm performance has received significant attention (Zhou & Li, 2007). Zhou and Li focus on three major types of strategic orientation: market orientation, technology orientation, and entrepreneurship orientation. Teece et al. (1997) stress that

firms are able to develop and exploit specific capabilities, combine them with existing resources, and further fit the changing environment, thus strengthening their competitive advantage. In addition, some scholars suggest that organizational knowledge should be viewed as a source of competitive advantage in fast-changing environments (for example, Dickson, 1992; Grant, 1996; Hoskisson, Eden, Lau, & Wright, 2000). Therefore, it is intriguing to examine how EO influences the link between resources-capabilities and knowledge resources (Zhou & Li, 2007).

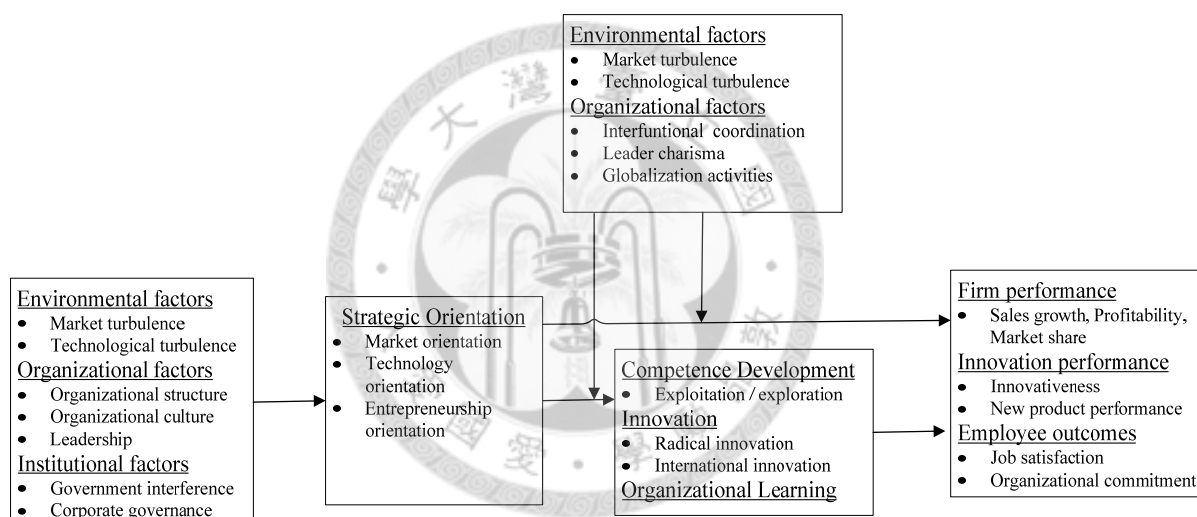


Figure 2-9: Conceptual Framework of Strategic Orientation

Source: Zhou and Li (2007), “Conceptual Framework of Existing Studies”

Although many scholars have argued that entrepreneurship or entrepreneurial action is an integral part of a resource-based framework (Alvarez & Busenitz, 2001; Connor, 1991; Rumelt, 1991), past research has failed to integrate the effects of resource characteristics and an EO. Entrepreneurial-orientation opportunities exist

primarily because different agents among firms have independent views or beliefs regarding the heterogeneity of resources as they decide which resources to utilize as inputs in production (Alvarez & Busenitz, 2001). In addition, Alvarez and Busenitz (2001) argue that entrepreneurs in firms may recognize specialized knowledge regarding resources (such as technological resource) and opportunities; thus, firm rents are produced.

An extensive discussion of the arguments is included in the conceptual literature of Lumpkin and Dess (1996). Their research indicates that performance can be improved when the EO is correctly aligned. The literature discusses certain variables, including internal and environmental factors, which can moderate the EO-performance relationship (Lumpkin & Dess, 1996; Zahra & Covin, 1995; Zahra & Garvis, 2000). Indeed, these suggestions form the basis of empirical studies examining the relationship between EO and performance.

In a meta-analysis, Rauch, Wiklund, Lumpkin, and Frese (2009) explore the magnitude of the EO-performance relationship and assess the potential moderating variables that impacting this link. These scholars further find that businesses operating in small organizations and dynamic industries are more likely to benefit from an EO. To date, numerous studies have reported the direct effect of an EO on firm performance, and Rauch et al. (2009) recommend that future research tests moderating effects. They suggest that moderating variables could include environmental dynamism, national culture, strategy (low-cost strategy firms being less positively affected by EO than

differentiation strategy firms), organizational structure (formalization), and various other factors.

In summary, the field of strategy management is concerned with understanding the complex factors that influence firm performance. Two strands of research have been largely separated into outside-in and inside-out view. This study employs industrial structure to analyze environmental dynamism in term of outside-in view and to analyze the resource and capability by using resource-based view in term of inside-out view. In this study, there are two central issues in this study. First, the promotion of value or rareness of resource-capability combinations is dependent on the stimulation of environmental dynamism that firms have capability to face, and this capability is closely connected to the notion of EO. Second, the improved performance through the strategy-making process is dependent on the capability to exploit internal resources, and this capability is also originated from EO. In addition, as mentioned above literature review, previous scholars propose several moderating factors (external environment) and mediating factors (internal organization), which would influence on the association between EO and firm performance in proposed conceptual models. Therefore, this study examines above two main issues by integrating internal organization and external environment, thus forming outside-in and inside-out strategic logic.

2.7 Development of Hypotheses

With respect to entrepreneurial strategy-making process, Mintzberg (1973) notes that a firm makes decisions by means of entrepreneurial propensity, and links the environment and entrepreneurial propensity to form a strategy. Some scholars certify that a firm's entrepreneurial strategy-making, which is a strategy-making process, is viewed as having an entrepreneurial orientation (Dess & Lumpkin, 2005; Lumpkin & Dess, 1996). EO refers to a firm's strategic orientation with respect to the processes, practices, and decision-making activities that lead to new entry; it involves the intentions and actions of a firm that is willing to grasp new market opportunities in a dynamic process (Lumpkin & Dess, 1996).¹ Miller (1983) highlights the characteristics of entrepreneurial firms and argues that an entrepreneurial firm is willing to engage in the innovation of products and technological processes, to undertake risky ventures, and to provide proactive innovations to pursue a first-mover advantage.

Prior studies have measured EO with three dimensions: innovation, proactiveness, and risk-taking (Lumpkin & Dess, 1996; Wang, 2008). Innovation refers to a firm's tendency to create resources and capabilities (Drucker, 1985), to support new ideas,

¹ The term 'entrepreneurship' was first introduced into the literature by Schumpeter (1934). Lumpkin and Dess (1996) made a distinction between the concepts of entrepreneurship and EO. They suggest that entrepreneurship involves a new entry or business venture and corresponds to strategic content; that is, "What business shall we enter?" Meanwhile, EO refers to the processes, practices, and decision-making activities that improve a new entry. In other words, entrepreneurship implies the content of various factors, while EO indicates how those factors are undertaken. Therefore, EO can be viewed as being a manipulative process of entrepreneurship. Entrepreneurship represents static content, but EO represents a dynamic process. Therefore, entrepreneurship and EO represent different concepts.

novelty and experimentation (Lumpkin & Dess, 1996), and to introduce new products and services that capitalize on market opportunities (Hage, 1980; Miller, 1983). The wealth of firms can be created when existing markets are disrupted by the discovery of new products, services, and processes (Miller, 1983; Schumpeter, 1934). Second, proactiveness refers to the manner in which enterprises attempt to track changes in customers' tastes and technology and seize new opportunities, implying a forward-looking perspective which may or may not be related to current operations (Lumpkin & Dess, 1996, 2001; Miller & Friesen, 1982). Third, risk-taking refers to a firm's propensity to engage in risky projects and managers' preference for bold acts to achieve the firm's objectives (Lumpkin & Dess, 1996).

In most conceptual studies, EO is viewed as an independent effect that creates or sustains firm performance (Covin & Slevin, 1991; Lumpkin & Dess, 1996). Previous empirical studies often report a positive impact of EO on firm performance in different country settings. For instance, when using small Swedish firms as the sample, Wiklund (1999) finds that a high level of EO is positively related to firm performance. The study by Tang, Tang, Marino, Zhang, & Li (2008) on Chinese firms also reports a positive and significant association between EO and performance.

However, different research findings are also reported. For instance, Hart (1992) argues that although a firm has an entrepreneurial strategy-making mode, it may lead to poor performance in certain circumstances. Covin and Slevin (1988, 1989) find that the relationship between EO and performance is insignificant. Smart and Conant (1994) and

Stam and Elfring (2008) also report an insignificant EO-performance relationship. These inconsistent empirical findings imply that the relationship between EO and firm performance may not be so straightforward. Some factors may moderate the EO-performance relationship.

EO has increasingly become a central concept in the domain of entrepreneurship and has received a substantial amount of theoretical and empirical attention (Covin, Green, & Slevin, 2006), and the EO–firm performance relationship has been one of the most intriguing topics. Previous studies have examined the direct effect of EO on firm performance, and its relationship is contingent on external-environment (Covin & Slevin, 1989; Dess et al., 1997) and internal-organization factors, such as strategy (Covin et al. 2006; Wang, 2008), financial resources (Wiklund & Shepherd, 2005), social capital (Lee & Sukoco, 2007), family involvement (Casillas & Moreno, 2010), managerial characteristics (Richard, Wu, & Chadwick, 2009), and knowledge-based resources (Wiklund & Shepherd, 2003).

However, does EO directly influence firm performance? Scholars have argued that some factors may mediate or moderate the relationship between EO and firm performance, such as the external environment (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zahra, 1993), internal organization (Covin & Slevin, 1991; Ireland et al. 2003; Lumpkin & Dess, 1996; Teng, 2007; Wang, 2008; Zahra, 1993), and the strategy-making process (Covin & Slevin, 1989; Dess et al. 1997; Lumpkin & Dess, 1996; Thourunrojje & Tansuhaj, 2005).

Therefore, before developing hypotheses, this study interviews two top managers in YAGEO Company and GIGA-BYTE Technology Company respectively by employing pilot case, thus forming propositions of this study (see Appendix B). Depending on existing literature and the propositions from pilot case, all research hypotheses are further developed. Finally, this study, which empirically examines the possible factors that influence the EO-performance relationship, is of academic significance.

2.7.1 EO and Resource Attributes

The resource-based view is widely adopted in strategic management literature and increasingly so in entrepreneurship studies (Barney & Arkan, 2001; Ireland et al., 2003). According to Schumpeter (1934), entrepreneurship facilitates a unique resource-capability combination. This argument is largely consistent with the central notion of the resource-based view, which asserts that a firm's competitive advantage lies in a unique combination of resources and capabilities (Penrose, 1959). In recent years, some studies propose that entrepreneurial firms are able to influence the changes and configurations of existing resources, capabilities and skills (Alvarez & Busenitz, 2001; Covin & Slevin, 1991; Ireland et al., 2003; Lumpkin & Dess, 1996; Zahra et al., 2006; Zahra, 1993).

Based upon the analysis of Newbert (2007), the resource heterogeneity approach is the most widely utilized, however, few empirical studies focus on the conceptual level and examine value and rareness for following reasons. First, although sustained

performance derived from inimitability and non-substitutability, performance mainly derived from value and rareness (Barney, 1991; Newbert, 2007, 2008). This study mainly examines the relationships between EO, resource attributes, and performance rather than the relationships between EO, resource attributes, and sustained performance. Second, in addition, inimitability has been empirically examined by several studies, but non-substitutability has not. According to the research of Newbert (2007), non-substitutability is not measured by prior scholars. Based on an empirical study on a sample of pharmaceutical companies in the U.S., de Carolis (2003) measures the inimitability of firm's knowledge by using the number of patent citations and find a significant negative influence of inimitability on firm performance. Hatch and Dyer (2004) measure the inimitability of a firm's human resources by using the level of experience and turnover, and find that inimitability of human resource has a positive impact on sustained performance. McEvily and Chakravarthy (2002) find support for the relationship between the inimitability of a firm's technical knowledge and its sustained performance. Therefore, this dissertation tries to fill a gap from conceptual level approach of RBV by using two variables: value and rareness.

Based on above the reasons, following the research of Barney (1991) and Newbert (2008), this study thus focuses on two aspects of resources and capabilities, namely, value and rareness, to review the possible relationship between EO and resource-capability combinations in response to the gap of empirical studies at a conceptual level approach. Barney (1991) argues that value and rareness are different

constructs. If a firm can effectively exploit its resources and capabilities to reduce costs and to respond to environmental requirements, those resources and capabilities are valuable; also, if a firm possesses some resources and capabilities that are only owned by a few companies in the industry, those resources and capabilities are rare (Barney, 1991). In recent years, this argument has been supported by empirical studies. The study of Irwin, Hoffman, and Lamont (1998) on Florida hospitals finds that value and rareness are different constructs and they both influence the relationship between technological innovation and organizational performance. Newbert's (2008) study on the micro- and nanotechnology firms finds that value and rareness are not the same constructs².

There are generally two research approaches regarding the resource-based view of entrepreneurship. The first approach focuses on the determinants of EO as it derives from the internal resources and capabilities of an organization (Covin & Slevin, 1991; Foss et al., 2008). Empirical studies following this line report that a variety of resources are associated with EO, including human, network, managerial, and knowledge (Yiu & Lau, 2008; Yu, 2010). The second approach emphasizes how internal factors, specifically firm resources and capabilities, mediate the association between EO and firm performance (Lumpkin & Dess, 1996; Teng, 2007). However,

² According to a letter of Newbert on January 9, 2011, Newbert illustrates value and rareness as follows. "Vale and rareness are distinct dimensions of resources; that is, a resource can be valuable and rare (i.e. Uranium) or it can also be valuable but not rare (I.e., air) or rare but not valuable (i.e., typewriter manufacturing capabilities). So you cannot treat them as one and the same."

since the empirical evidence is still sparse, this study aims to conduct empirical analyses on the overall associations between EO, resource attributes, and firm performance.

2.7.2 EO and the Value of Resource-Capability Combinations

Although some scholars define EO based on the individual characteristics of entrepreneurs (Shook et al., 2003), most studies follow the classical economics notion and consider EO to be a firm-level factor. Lumpkin and Dess (1996) define EO as the processes, practices, and decision-making activities that lead to new entry; it also involves the intentions and actions of a firm willing to grasp new market opportunities in a dynamic and generative process. Covin and Slevin (1989) view EO as an indication of a firm's strategic posture. Miller (1983) also regards entrepreneurship as firm-level activities and identifies three main dimensions of EO, including innovation, proactiveness, and risk-taking. Measures for these three dimensions are further developed by Covin and Slevin (1988, 1989, 1991), and are used in our study.

According to Schumpeter (1934), entrepreneurs can undertake a new combination of production factors, including production means and technical abilities, subsequently facilitating firm growth. Stopford and Baden-Fuller (1994) argue that a firm's entrepreneurial activities obtain resources for novel combinations. In other words, entrepreneurial opportunities arise because different entrepreneurs have different insights into the relative value of resources and tend to combine these resources with

capabilities in different ways. Shane and Venkataraman (2000) argue that entrepreneurial opportunities mainly emerge because an agent has a different perspective on the relative value of the necessary resources and capabilities to seize new opportunities. If a firm with EO indeed has a cognition and mindset for resources which is unique from those of its competitors, it can create a new combination of resources and capabilities to respond to the competitive environment (Lumpkin & Drss, 1996; Penrose, 1959); in other words, to be entrepreneurial (Alvarez & Barney, 2002; Alvarez & Busenitz, 2001; Barney, 1991). For example, Kaya's (2006) empirical study also finds that the combination of valuable human resources and capabilities is significantly influenced by EO.

The three dimensions of EO (innovation, proactiveness, and risk-taking) are all closely linked to the utilization of a firm's resources and capabilities. First, innovation refers to a firm's tendency to creates resources and capabilities (Drucker, 1985), to support new ideas, novelty and experimentation (Lumpkin & Dess, 1996), and to introduce new products and services to capitalize on market opportunities (Hage, 1980; Miller, 1983). The wealth of firms will thus be created when existing markets are disrupted by the discovery of new product/service opportunities that not only stimulate firms to optimize valuable resources and capabilities, but also to innovate ways of combining resources and capabilities (Lumpkin & Dess, 1996; Zahra et al., 1999).

Second, proactiveness refers to the manner of enterprises in attempting to track the changes in customer tastes and technology (Lumpkin & Dess, 2001) and to seize

the new opportunities (Lumpkin & Dess, 1996; Miller & Friesen, 1982), implying a forward-looking perspective that may or may not be related to current operations (Lumpkin & Dess, 1996, 2001). Venkatraman (1989) suggests that introducing new products and brands ahead of competitors is an effective way of combining resources and capabilities. Thus, proactive firms are expected to move beyond their current capabilities, and combine those capabilities with valuable resources to respond to environmental changes (Stopford & Baden-Fuller, 1994). Finally, there are potential risks in all types of resource-exploiting decisions made by an organization (Morris et al., 2008). Firms with EO are likely to be involved in risk-taking behavior, and be willing to commit a large amount of resources in order to aggressively seize new opportunities (Baird & Thomas, 1985; Lumpkin & Dess, 1966; Miller & Friesen, 1978). For example, in the pilot case study, the top manager in GIGA-BYTE Technology Company argues that to develop the brand, GIGA-BYTE with innovation in products, proactiveness in future markets, and risk-taking in investment can aggressively possess financial resources, R&D technology, and human resources.

According to the results of pilot case study, firms with EO (including innovation, proactiveness, and risk-taking) are likely to exploit valuable resources and combine them with valuable capabilities. Such a novel combination of resources and capabilities further enables firms to effectively respond to their external environment via product/service differentiation or cost reduction (Newbert, 2008). Thus, the proposition 1 has been formed from pilot case study (please see Appendix B).

Therefore, based on the proposition 1 from the pilot case study and literature review in this section, the hypothesis is developed as follows:

Hypothesis 1: Entrepreneurial orientation is positively associated with the exploitation of value of resource-capability combinations.

2.7.3 EO and the Rareness of Resource-Capability Combinations

Although the significance of valuable resources and capabilities has long been proposed in the literature, in reality, many organizations do not possess valuable resources or capabilities. This implies that, in addition to their value, the rareness of resources and capabilities also matters (Barney, 1991).

Some valuable resources are recognized by a few entrepreneurial firms, and these may also be rare or limited. In general, organizations emerge because entrepreneurs find and exploit opportunities to make strategic decisions (Jones, 2007), and then individual entrepreneurship gradually transforms over time into firm-level EO (Casson, Yeung, Basu & Wadeson, 2006). In order to survive in all stages of the organizational cycle, firms with EO aggressively seize rare resources to reduce the uncertainty that they face, while conservative firms without innovation, proactiveness and risk-taking may only exploit munificent and common resources (Jones, 2007). For example, according to the pilot case study of YAGEO Company and GIGA-BYTE Technology Company, their top managers that when a firm with EO can recognize new opportunities and enters new

markets (such as clone markets), the critical resources/capabilities (such as the film technology of multilayer ceramic condenser, MLCC) utilized by this firm may not be viewed as valuable resources/capabilities by its competitors. The critical resources/capabilities are thus controlled by very few firms, and become rare in their industries.

Some studies point out that entrepreneurship occurs when economic actors have an insight into the value of resources, while others do not, implying that such resources are rare (Casson, 1982; Shane & Venkataraman, 2000). Although firms with a higher level of EO may be able to take risks and create innovative products or services, a successful firm must exploit limited resources as much as possible in a multistage manner with minimal exposure at each stage, especially given the rapid changes in today's world (Brown et al., 2001). Newbert's (2007) empirical study also reports that a firm with EO knows better how to exploit scarce resources and is more motivated to identify rare resource-capability combinations, and this finding is consistent with earlier studies. Therefore, a firm with high EO is more likely to facilitate rare combinations of resources and capabilities.

In summary, in contrast with other competitors, a firm with EO is expected to be able to use a common capability to exploit a very distinct resource, or to exploit a common resource with a distinctive capability (Newbert, 2008). In addition, according to the results of pilot case study, firms with EO (including innovation, proactiveness, and risk-taking) are likely to exploit rare resources and capabilities that other

competitors don't possess. Thus, the proposition 2 has been formed from pilot case study (please see Appendix B).

Based on the proposition 2 from pilot case study and literature review in this section, the hypothesis is developed as follows:

Hypothesis 2: Entrepreneurial orientation is positively associated with the exploitation of rareness of resource-capability combinations.

2.7.4 Resource Attributes and Firm Performance

Many scholars suggest that a resource-based approach underlines the competitive advantage and performance of firms (Barney, 1991; Makadok, 2001; Penrose, 1959; Peteraf, 1993; Teng, 2007). Barney (1991) argues that resources that successfully create a firm performance must exhibit two attributes, namely, value and rareness.

2.7.4.1 Value and Firm Performance

As already mentioned, competitive advantage is derived from valuable resources and capabilities that enable a firm to reduce costs, exploit market opportunities, and neutralize competitive threats. Therefore, the valuable resources and capabilities that firms possess are an important source of firm performance (Amit & Schoemaker, 1993; Barney, 2001; Newbert, 2007).

Economists argue that products and services arise from resources (Penrose, 1959), and in order to utilize the resources, firms must exploit them efficiently and effectively

(Amit & Schoemaker, 1993). Peteraf (1993) uses the term “ex ante limits to competition” to indicate a situation in which the cost of acquiring superior resources is not too high to offset future benefits (Teng, 2007). Makadok (2001) demonstrates that selecting resources and capabilities complement each other in some circumstances. Amit and Schoemaker (1993) also view a firm as a combination of valuable resources and capabilities that have the potential to provide the firm with a sustainable probability of profit. For instance, in the pilot case study, according to the views of top managers in YAGEO Company and GIGA-BYTE Technology Company, when sufficient resources to serve customers are available, a firm can make its products/services valuable. However, if managers are unable or incapable of using these resources, i.e., managers lack the managerial ability to use service-related resources, the value of such resources cannot be exploited, and firm performance is less likely to be achieved.

The empirical study of Irwin et al. (1998) on 189 hospitals finds a significant and positive relationship between the acquisition of medical innovation and the financial performance of hospitals when the medical technologies are valuable. The empirical study by Newbert (2008) also finds that the value of resource-capability combinations is positively associated with firm performance.

It can be concluded from the above discussion and pilot case study (please see Appendix B) that the combination of valuable resources and capabilities can lead to firm performance. According to the results of pilot case study and literature review, valuable resources can be combined with valuable capabilities, and its value after the

combination will further create the wealth of firms, and thus the proposition 3 has been formed. Based on the proposition 3, it is thus hypothesized that,

Hypothesis 3: The value of resource-capability combinations is positively associated with firm performance.

2.7.4.2 Rareness and Firm Performance

In addition to the value of resource-capability combinations, the rareness of the combination also influences firm performance. Firms may own valuable resources, but may not be able to create performance because they lack the rare abilities to fully exploit these valuable resources (Barney, 1991). In other words, although many companies may own valuable resources, only a few can fully exploit such resources and create performance.

Scholars have identified a variety of rare resource-capability combinations, ranging from technology (Greve, 2009) and brand capital (Capron & Hulland, 1999) to knowledge and know-how (Fang, Wade, Delios, & Beamish, 2007). Amit and Schoemaker (1993) address that the scarcity of a firm's resources and capabilities is related to its returns. Peteraf (1993) proposes that heterogeneous resources are scarce and unique resources that allow a firm to generate performance because such a firm is likely to have lower costs than those of its competitors. Collis and Montgomery (1995) also assert that scarce resources are an important determinant of firm profits. For example, based on the pilot case study, the R&D technology of film MLCC in YAGEO

Company can continually develop new products, and other competitors don't possess this technology, thus firm performance can be prompted.

Empirical studies also provide evidence. Fang et al. (2007) investigate Japanese subsidiaries and find that knowledge, which is a rare resource, influences subsidiary performance. Newbert (2008) finds that the rareness of resource-capability combinations is positively related to the performance of U.S. micro- and nanotechnology firms.

It can be concluded from the above discussion and pilot case study (please see Appendix B) that the combination of rare resources and capabilities would influence firm performance. According to the results of pilot case study, a profitability of firms can be derived from the rareness of resource-capability combinations, and thus the proposition 4 has been formed. Based on the proposition 4 and literature review from theoretical background, it is thus hypothesized that,

Hypothesis 4: The rareness of resource-capability combinations is positively associated with firm performance.

2.7.5 EO, Resource-Capability Combinations, and Firm Performance

Regarding the association between EO and competitive advantage, scholars have proposed a number of factors that might influence the EO-performance relationship, such as international diversification strategy (Thoumrungroje & Tansuhaj, 2005), new products/technologies and new markets (Moreno & Casillas, 2008), the external

environment (Covin & Slevin, 1991), and integration of organizational activities (Lumpkin & Dess, 1996). Although different factors have been raised, most prior studies share, at least, one thing in common—EO does not directly influence firm performance. Some mediated or moderated variables exist.

This study follows the resource-based perspective of entrepreneurship and suggests that the value and rareness of resource-capability combinations might mediate the relationship between EO and firm performance. Firms with EO create new resources or combine valuable resources with capabilities to develop new products or enter new markets (Kuratko, Ireland, & Hornsby, 2001; Smith & Gregorio, 2002). An entrepreneurial firm accumulates resources and capabilities with the intention to develop them in the portfolio of resource bundles and to exploit new opportunities, generating firm profits (Barney & Arikan, 2001). Ireland et al. (2003) and Ireland et al. (2001) suggest that an entrepreneurial firm is able to identify and bundle unique packages of resources and leverage them capably, ultimately facilitating its wealth.

With respect to the value of resource-capability combinations, the empirical study of Kaya (2006) finds that the value of resource-capability combinations, operationalized as resource management practices, partially mediates the relationship between entrepreneurship and firm performance. Irwin et al. (1998) also find that medical technologies, which are valuable, positively mediate the relationship between innovation and firm profits. Based on 213 UK firms, Wang (2008) finds that learning orientation, a valuable resource, positively mediates the relationship between EO and

firm performance. With regard to the rareness of resource-capability combinations, the study by Wu et al. (2008) confirms that there is a positive relationship between EO and performance when the intellectual capital that mediates this link is rare. All these studies strongly suggest that resources and capabilities function as a bridge that links EO with firm performance (Grant, 1996; Ireland et al., 2003; Spender, 1996; Zahra et al., 2006).

In summary, based on the propositions 1 to 4 from pilot case study in Appendix B and literature review from theoretical background in this section, a firm with EO can exploit valuable resources and capabilities; thus, its wealth is enhanced. In contrast with other competitors, a firm with EO can exploit either a distinctive resource or a common resource with distinctive capability to correspond to external environmental opportunities, cope with threats, or reduce costs. Restated, the higher level of EO a firm possesses, a higher level of valuable and rare resource-capability combination is implied, and such a combination further generates firm profits. In other words, EO does not directly influence firm performance, and its influence on the performance is mediated by the value and rareness of resource-capability combinations. It is thus hypothesized that,

Hypothesis 5: Resource-capability combinations positively mediate the relationship between EO and firm performance.

Hypothesis 5a : The value of resource-capability combinations positively mediates the relationship between entrepreneurial orientation and firm

performance.

Hypothesis 5b : The rareness of resource-capability combinations positively mediates the relationship between entrepreneurial orientation and firm performance.

2.7.6 Moderating Effect by Environmental Dynamism

In strategic management and organization theory literature, the external environment is viewed as a critical contingency factor (Child, 1972; Thompson, 1967). According to future research on EO of Miller (2011), there have been numerous attempts to define context in terms of environmental uncertainty or dynamism (e.g., Becherer & Maurer, 1997), and organizational structure and process (Covin et al., 2006; Green et al., 2008). Moreover, Rauch et al. (2009) review past studies, and suggest that environmental dynamism, a moderator, has been identified in most of EO research. Although most studies propose and examine the influence of environmental dynamism on the EO-performance relationship (Covin & Slevin, 1989; Covin & Slevin, 1991; Dess et al., 1997; Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005; Zahra, 1993), several studies propose a concept of relationship between EO and internal resources that may be moderated by environmental dynamism (Hitt et al., 2011; Ireland et al., 2003; Schumpeter, 1934). Therefore, how environmental dynamism moderate the relationship between EO and internal resources (such as resource attributes) has formed a gap in literature of EO. Following paragraphs argue the definition of environmental dynamism,

the influence of environmental dynamism on the EO-performance relationship, and the moderating effect of environmental dynamism on the EO-resource attributes.

Environmental challenges often refer to the degree of dynamism of the environmental setting of a company (Lumpkin & Dess, 2001; Miller & Friesen, 1982). Miller (1983) argues that environmental dynamism is associated with the unpredictability of customer tests, aggressive competitor actions, product/service shifts, and high rates of change in market and industry innovation. Miller (1990) further argues that firms with a higher degree of EO are more likely to pursue success when customers are able to be satisfied by obtaining a premium on innovation and unique services. According to the study of Porter and Kramer (2006), every firm operates within a competitive environment that can be derived from solving the issues of corporate social responsibility (CRS), and the external stakeholders are effort to let firms accountable for these issues. To respond competitive environment and to satisfy the rules of government and the sophistication of customer needs from external stakeholders, Porter and Kramer (2006) further integrate inside-out from value chain and outside-in practices from external competitiveness, and each firm exploits resources (including management talent from human resource, expertise from knowledge resource, and relationships from organizational resource), thus gaining the greatest competitive benefits. Hamel (2000) suggests that the lifecycle of products and business models has been shortened in today's competitive and dynamic environment, so that a firm with EO is encouraged to introduce novel products and services, which helps to

minimise the threat resulting from environmental dynamism, thus sustaining the profitability of a firm.

Prior scholars have argued that environmental dynamism can influence the EO–firm performance relationship (Covin & Slevin, 1991; Lumpkin & Dess, 1996), and a great deal of existing literature suggests that environmental dynamism magnifies the link between EO and firm performance. For example, the empirical results gained by Li, Guo, Liu, and Li (2008) from a sample of 607 Chinese firms reveal an important finding, which is that technological turbulence significantly and positively moderates the relationship between EO and firm performance. Frese, Brantjes and Hoorn (2002) report that, in a dynamic and hostile environment, EO is positively related to firm growth. Similarly, in the empirical study by Miller (1988), the sample is composed of 89 firms from the province of Quebec, and he finds that innovative strategies in a dynamic environment are associated with higher performance. That is, firms facing higher environmental dynamism are more likely to make a profit from innovation (Kreiser & David, 2010; Miller, 1988), from making risky resource commitments (Kreiser & Davis, 2010), and from responding to the changes of competitors and customers (Lumpkin & Dess, 1996) than firms facing a relatively stable environment.

Although this study has argued that environmental dynamism would be an advantage for firms with EO, environmental dynamism could also be a disadvantage for firms (Dess et al., 1997; Wiklund & Shepherd, 2005). Firms may need the ability to control valuable and scarce resources in order to reduce the environmental dynamism

they face (Jones, 2007). In other words, environmental dynamism acts to influence the relationship between EO and internal resources. To increase profits in a dynamic environment, firms often employ an EO to access valuable or rare tangible/intangible resource–capability combinations (Brown et al., 2001; Stevenson & Gumpert, 1985; Sirmon, Hitt, & Ireland, 2007).

Therefore, this study expects that the levels of changes of environmental dynamism may influence EO-resource attributes relationship. In the pilot case study, according to the views of top managers in YAGEO Company and GIGA-BYTE Technology Company, a firm with EO is encouraged to have insights into, and exploit the relative value and rareness of resource-capability combinations when it faces the unpredictability of customer tests, aggressive competitor actions, the differentiations of products from other firms, and product/service changes involved with environmental dynamism. This argument is also consistent with the view of Schumpeter. According to Schumpeter (1934), entrepreneurship facilitates unique resource-capability combinations in dynamic and high-risk environments in a manner that distinguishes one firm from another by reducing costs or differentiating their products and services.

With respect to the model of strategic entrepreneurship (Ireland et al., 2003), it involves simultaneously opportunity-seeking (i.e., entrepreneurship) and advantage-seeking (i.e., strategic management) behaviour and results in a superior firm performance. Alvarez and Busenitz (2001) argue that entrepreneurial opportunities exist primarily because different agents among firms have different views or beliefs about the

heterogeneity of resources that others do not have when they decide which resources to input into their production.

With respect to the entrepreneurial mindset, it represents the integration of individual entrepreneurs, managers and employees in established firms that think and act entrepreneurially. The entrepreneurial mindset is usually involved in an entrepreneurial posture or entrepreneurial orientation (Covin & Slevin, 1991). Firms with an entrepreneurial mindset are able to search for entrepreneurial opportunities in uncertain business environments and then determine the necessary resources to successfully exploit them (Ireland et al., 2003; McGrath & MacMillan, 2000). That is, in high levels of environmental dynamism, a firm with EO is more likely to have an entrepreneurial mindset and alertness, and thus it has opportunities to recognize valuable/rare resources and capabilities.

Based on the dynamic capability approach, Teece et al. (1997) emphasize that a firm has the capability to integrate and configure internal resources with the requirement of environmental dynamism; thus, competitive advantage or economic rents can be achieved. According to the perspective of dynamic capability (Zahra et al., 2006), the firm with entrepreneurship enable it to grasp market opportunities, which influences the configuration and combination of resources and capabilities to respond to shifts in the business environment.

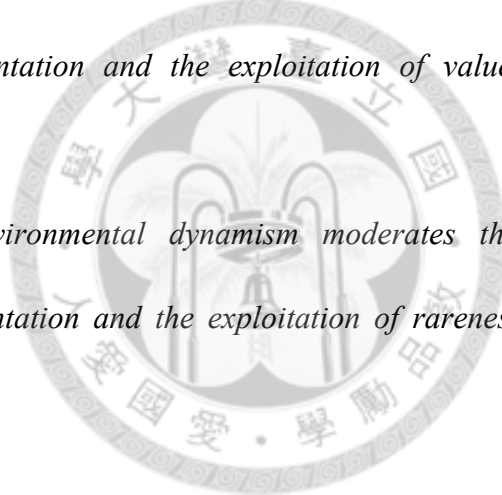
In addition, pilot case study (please see Appendix B) has formed propositions 5 and 6 and represents that a firm with EO of innovation, proactiveness, and risk-taking

would influence the exploitation and cultivation of valuable and rare resources in stimulation of environmental dynamism.

In summary, it can be concluded from the above discussion and pilot case study that to match high levels of environmental dynamism, firms that require EO (or entrepreneurial posture) can promote the value and rareness of their internal resources and capabilities, and the following hypotheses can be formed:

Hypothesis 6a: Environmental dynamism moderates the relationship between entrepreneurial orientation and the exploitation of value of resource-capability combinations.

Hypothesis 6b: Environmental dynamism moderates the relationship between entrepreneurial orientation and the exploitation of rareness of resource-capability combinations.



Chapter 3

Methodology

Chapter 1 provides the background and motivations of the relationship between EO and firm performance in terms of the views of organization's internal and external environment. Chapter 2 reviews three block literature: entrepreneurship and entrepreneurial orientation, resource-based view, and environmental dynamism, which highlights the influence of EO, environmental dynamism, and resource attributes on firm performance. In this methodology, four sections are included. First, based on the literature review, the research framework is introduced. Second, sample and data used in this study will be conducted and demonstrated by several analytical methods. The next section describes the measurements of following variables: (1) independent variables (i.e., EO, value, rareness, and environmental dynamism), (2) dependent variable (firm performance), and (3) control variables (i.e., firm size, firm age, debt-to-market ratio, and industry affiliation). The final section of this chapter introduces several analytical methods.

3.1 Research Framework

Figure 3-1 illustrates the research framework of this study. This framework is anchored in theoretical contributions, extracted mainly from the resource-based view and entrepreneurship perspective. In this study, the main construct in the proposed model consists of EO, including innovation, proactiveness and risk-taking. Mediating constructs include the value and rareness of resource-capability combinations, and the moderating construct is environmental dynamism. The proposed conceptual linkage of these constructs is as follows: EO provides the starting point of this model and directly influences firm performance. The value and rareness of resource-capability combinations act as two critical positions and mediating roles in the relationship between EO and firm performance. Environmental dynamism acts as a moderating role in the associations between EO, value and rareness of resource-capability combinations, and firm performance. The association of all constructs is presented below.

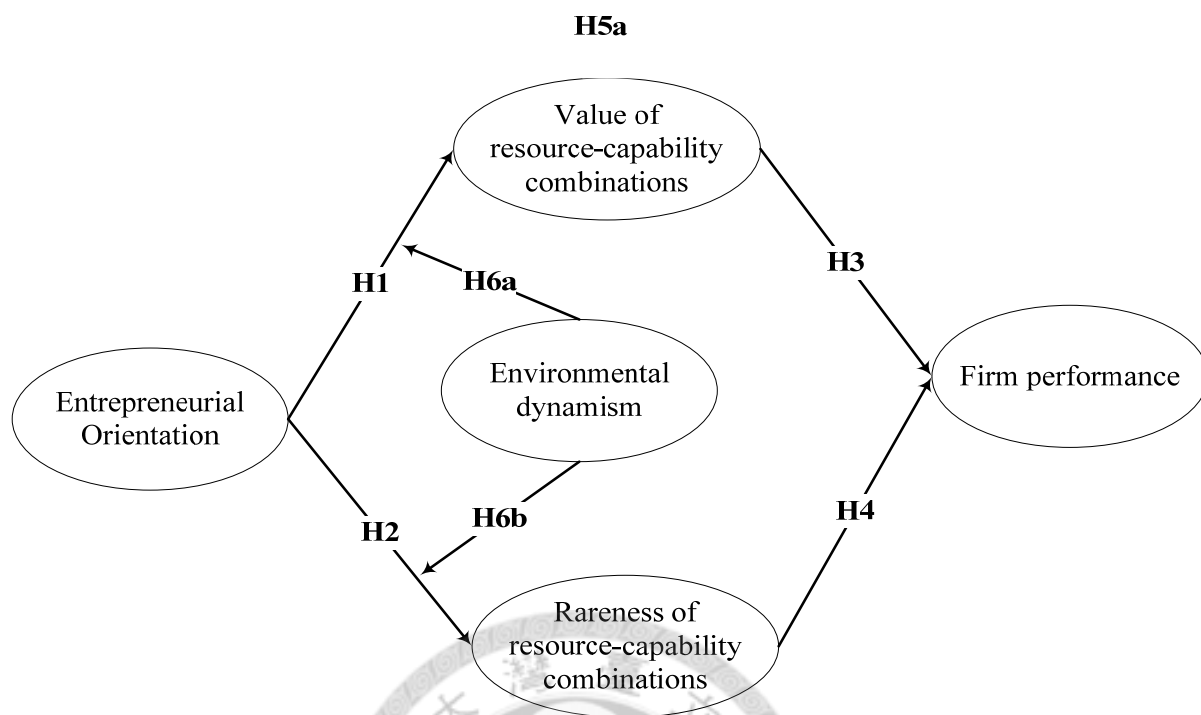


Figure 3-1 Theoretical Model of the Relationships among Entrepreneurial Orientation, Environmental Dynamism, Value, Rareness, and Firm Performance

3.2 Sample and Data

This cross-sectional study uses a sample from Taiwanese public firms for several reasons. First, Emerging economies are rapid-growth countries and economic liberalization is the primary engine of their growth. Taiwan represents an emerging market economy with relatively limited natural production factors, while its advanced factors, such as innovativeness and entrepreneurship, play an important role in its economic development (Wu et al., 2008). Oliver (1997) suggests that a firm can create and develop institutional environments to enhance the optimal use of resources. A firm with EO, comprising innovation, risk-taking, and competitive aggressiveness (Lumpkin & Dess, 1996; Miller, 1983), is the critical factor to manage its resources

and capabilities in order to generate profits in an institutional environment of emerging economies (Luo, Sun, & Wang, 2011). Although prior scholars suggest that the relationship between EO and firm performance can be influenced by environmental factors, the study of this relationship in emerging economics is still lack. Only several studies examine the impact of EO on firm performance in emerging economics, such as Taiwan and China. For example, Lee and Sukoco (2007) investigate the effects of EO on organizational effectiveness in Taiwan, listed in the Top 1000 firms, and find a significant and positive association between EO and effectiveness. Based on the 607 firms in China, Li et al. (2008) identify the significantly positive impact EO on technology commercialization in turbulent technological environment.

In 2009, there have been 716 non-financial-sector TSE companies and 531 non-financial-sector OTC companies that provided complete data for analysis. Financial service firms were excluded from the research sample because their accounting practices were incompatible with those of other industries. Two methods were used for data collection. First, data on EO, value, rareness, environmental dynamism, and satisfaction were obtained via a questionnaire survey, with top management as the respondents. The CEOs and top management of firms were initially contacted via telephone or personal visits to explain the purpose of this study. We sent a total of 1,247 questionnaires to the non-financial-sector TSE/OTC companies via post mail. A total of 247 questionnaires were returned, with a response rate of 20 percent. After eliminating some incomplete questionnaires, the final sample comprised 201 firms.

Second, dependent variables (ROA and Tobin's q) and some control variables were collected via a secondary database maintained by the Taiwan Economic Journal (TEJ), a leading credit analysis research agent and the most comprehensive business database in Taiwan, subscribed to by many international research agents such as Datastream, Dialog, Reuters, and Capital International.



3.3 Measures

3.3.1 Independent Variables

EO. The independent variable in this study is EO. Three dimensions are used to measure EO, including innovation, proactiveness, and risk-taking. The three dimensions are measured by using nine questions developed by Miller (1983) and Covin and Slevin (1986, 1988, & 1989). Following these studies, a semantic differentials method is used in the questionnaire. This means that two opposing phrases are offered for each question, and respondents are asked to rank the indices on a seven-point Likert scale, ranging from 1 to 7. The higher the score, the stronger the EO is the firm. Reliability is estimated by using both coefficient alpha (Peter, 1979) and composite reliability (Fornell & Larcker, 1981). The Cronbach's alpha values of the three dimensions are 0.800, 0.850, and 0.903 respectively, with an overall Cronbach's alpha of 0.868. The test of reliability in our sample is consistent with past studies (Runyan, Droge, & Swinney, 2008). The measure items of EO are shown in the Appendix A.

Resource-Capability Combination. These are the mediated variables of this study and are operationalized as two dimensions of resource attributes: value and rareness. The dimensions of value and rareness are measured by using the scales developed by Newbert (2008). Again, a seven-point Likert scale is used.

Value. The value of resource-capability combination is operationalized as an attribute in which the value of a resource (or a capability) can be enhanced when it is combined

with a capability (or a resource) to reduce costs and exploit market opportunities (Newbert, 2008). It is measured using four questions, each with five items developed by Newbert (2008), including financial, human, intellectual, organizational, and physical resources/capabilities. An averaged score of the questions is then calculated to indicate the overall value of a firm's resource-capability combination. The higher the score of a firm, the higher is the value of its resource-capability combination.³ This construct has an overall Cronbach's α of 0.887. The measure items of value are shown in the Appendix A.

Rareness. The rareness of resource-capability combination is operationalized as a firm's exploitation of a common resource (or capability) with a unique capability (or resource) or a firm's exploitation of unique resource-capability combinations, in order to reduce costs, utilize market opportunities, or withstand competitive threats. Following Newbert (2008), this construct is measured using three questions, each with five items—financial, human, intellectual, organizational and physical resources/capabilities. Similarly, the averaged score of the questions is then calculated to indicate the overall rareness of a firm's resource-capability combination. The higher the score of a firm, the higher is the rareness of its resource-capability combination.⁴ This construct has an overall Cronbach's α of 0.925. The measure items of rareness are shown in the Appendix A.

Environmental dynamism. Environmental dynamism is a moderating variable in this

³ The respondents are asked to rank the extent to which they agree on a seven-point Likert scale, ranging from extremely disagree (=1) to extremely agree (=7).

⁴ Ibid, footnote 2.

study. It is measured by using five questions, including extreme changes in marketing practices, a rapid rate of obsolescence in fashion goods/semi-conductors, the unpredictability of competitors, unpredictable demand and tastes of customers, and the modes of production/service change. The scales of environmental dynamism developed by Miller and Friesen (1982), and a semantic differential method is used in the questionnaire. Each question offers two opposite phrases. The overall Cronbach's α is 0.81. The measure items of environmental dynamism are shown in the Appendix A.

3.3.2 Dependent Variables

Firm performance. Firm performance is the dependent variable in this study. Consistent with prior studies, this study uses two categories to measure firm performance: subjective and objective measures, according to the recommendation of Weinzimmer, Nystrom, & Freeman (1998).

First, subjective measures are divided into competitive advantage and satisfaction, representing long-term performance. Following Newbert (2008), competitive advantage is based on the respondents' answers to three questions, including cost reduction, opportunity exploration, and the defense of competitive threats. Each question includes five items to indicate different types of resource-capability combinations, i.e. financial, human, intellectual, organizational, and physical resources/capabilities.⁵ It has an overall Cronbach's α of 0.903. The measure items of competitive advantage are shown in the Appendix A. In term of satisfaction, it is used in strategic management literature

⁵ Ibid, footnote 2.

and organization literature (Murphy et al., 1996; Venkatraman & Ramanujam, 1986). Following the studies of Beal and Yasai-Ardekani (2000), Newbert (2008), and Venkatraman and Ramanujam (1986), satisfaction consists of five indicators: sales growth rate, return of assets, rate of profits, customer satisfaction, and brand image.⁶ The overall Cronbach's α is 0.844. The measure items of satisfaction are shown in the Appendix A.

Second, objective measures for performance include return on assets (ROA) and Tobin's q (TQ), representing short-term performance (Beal & Yasai-Ardekani, 2000; Fitzsimmons, Douglas, Antoncic, & Hisrich, 2005; Luke, Verreynne, & Kearins, 2007; Venkatraman, & Ramanujam, 1986). The averaged annual rate of profit after taxes but before interest on total assets (ROA) between 2007 and 2009 is appropriate to estimate the effectiveness of the business operations (Combs & Ketchen, 1999) due to the high debt-equity ratio and imperfect capital markets in developing economics (Chang & Choi, 1988). Moreover, Tobin's q has been widely used to examine the source of unequal profitability (Lindenberg and Ross 1981). The stock market of firm performance is Tobin's q , the ratio of the firm's market value to the replacement costs of its assets between 2007 and 2009. Following Khanna and Palepu (2000), Miller and Breton-Miller (2011), and Villalonga and Amit (2006), a proxy variable for Tobin's q is defined as: (market value of equity plus book value of preferred stock plus book value of debt)/(book value of assets). ROA and Tobin's q were collected via a secondary

⁶ The respondents are asked to rank the extent to which they agree on a seven-point Likert scale, ranging from not satisfactory at all (=1) to extremely satisfactory (=7).

database maintained by the TEJ.

3.3.3 Control Variables

Control variables. Several variables that might influence the competitive advantage of firms are controlled in the regression models, including firm size, firm age, debt-to-market ratio (DEMKT), environmental dynamism, and industry affiliation. Firm size reflects the economies and diseconomies of scale and may form barriers to entry (Bain, 1968) and is operationalized as the natural logarithm of the three-year average of total employees. Firm age is controlled because prior studies suggest that the established organizations are more bureaucratic, and this factor influences their competitive advantages (Hannan & Freeman, 1989). A firm's age is measured as the company's age since its establishment. DEMKT is controlled because a firm with a low debt-to-market ratio is more likely to create a competitive advantage (Chatterjee & Wernerfelt, 1991; Palepu, 1986). Industrial environments are controlled by using industry affiliation (Khandwalla, 1976; Lumpkin & Dess, 2001, Miller & Friesen, 1982). Possible performance differences resulting from industrial affiliation are also controlled. Based on the industry classification of TSE, 17 dummy variables are used to classify the sample firms into 18 industries.⁷ Table 3.1 summarizes the number and percentage of firms based on their industrial categories.

⁷ According to the TSE database, these industries include cements, food and beverage, plastics, textile, electric machinery, electrical wire and cable, chemicals and biotechnology, glass and ceramic, paper, iron and steel, rubbers, information and electronics, building and construction, shipping and transportation, tourism, wholesale and retail trading, electricity, and other miscellaneous industries.

TABLE 3.1 Number and Percent of Public Firms by TSE Industry Code

| TEJ code | Industry | Total public firms | Received firms | Percentage of received firms in industry | Percentage of received firms in all received firms |
|---------------------|--------------------------------------|-----------------------------------|---------------------------|---|---|
| 11 | Cements | 7 | 4 | 0.52 | 1.99% |
| 12 | Food and beverage | 23 | 5 | 0.22 | 2.48% |
| 13 | Plastics | 27 | 8 | 0.30 | 3.98% |
| 14 | Textile | 55 | 11 | 0.30 | 7.17% |
| 15 | Electric machinery | 62 | 13 | 0.21 | 6.47% |
| 16 | Electrical wire and cable | 13 | 1 | 0.08 | 0.50% |
| 17 | Chemicals and biotechnology | 81 | 10 | 0.12 | 4.97% |
| 18 | Glass and ceramic | 6 | 2 | 0.33 | 0.96% |
| 19 | Paper | 7 | 1 | 0.14 | 0.50% |
| 20 | Iron and steel | 39 | 5 | 0.13 | 3.80% |
| 21 | Rubbers | 11 | 3 | 0.27 | 2.48% |
| 22 | Motor vehicles | 7 | 2 | 0.29 | 0.96% |
| 23 | Information and electronics | 729 | 88 | 0.12 | 43.78% |
| 25 | Building and construction | 53 | 20 | 0.38 | 9.96% |
| 26 | Shipping and transportation | 23 | 6 | 0.26 | 2.96% |
| 27 | Tourism | 11 | 3 | 0.27 | 2.48% |
| 29 | Wholesale and retail trading | 18 | 2 | 0.11 | 0.96% |
| 97 | Electricity | 12 | 4 | 0.33 | 1.99% |
| 99 | Other miscellaneous industries | 63 | 13 | 0.21 | 6.47% |
| Total | | 1247 | 201 | 0.16 | 100% |

3.4 Analytical Methods

This study uses several analytical methods to test all hypotheses. First, in subsections 4.2, 4.3, 4.4, and 4.5, the structural equation modeling (SEM) technique is conducted to test the proposed model.⁸ The data are analyzed by using the LISREL 8.54 software, and the maximum likelihood estimation (MLE) method is used to estimate the factor structure of the proposed model. A standard two-step process is followed, in which CFA is firstly performed to assess the measurement model, and the structural model is then constructed when the measurement model is upheld (Anderson & Gerbing, 1988). The model fit is assessed by using χ^2/df , goodness-of-fit index (GFI), comparative fit index (CFI), normal fit index (NFI), and root mean square error of approximation (RMSEA). The threshold for χ^2/df should be less than 3.0, or less than 2.0 in a more restrictive sense (Premkumar & King, 1994). Values of GFI, CFI and NFI should be over 0.90, while the value of RMSEA should be less than 1.0. In order to confirm the validity of the measurement model, both the convergent and discriminant validity are further tested (Venkatraman, 1989).

Second, to confirm the robustness of the moderating effect, a multi-group analysis in SEM technique is conducted in subsection 4.6. Following Brockman and Morgan (2006), a two-step approach is used to test the moderating effect. First, the appropriate structural parameters are constrained to be equal across groups, thereby generating a

⁸ In contemporary studies, the measurement (that is, factor analysis) and structure (that is, path analysis) have been integrated into SEM since the 1970s (Aryee, Budhwar, & Chen, 2002; Bagozzi, 1988; Moreno & Casillas, 2008).

covariance matrix for each group and an overall chi-square value for the sets of sub-models as part of a system of structural models. Second, the parameter equality constraints must be removed, resulting in the chi-square value with fewer degrees of freedom. The moderating effect is identified by comparing difference of two chi-square values.

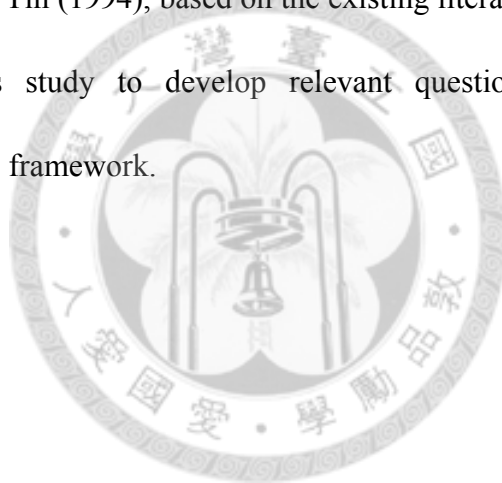
Third, to confirm whether the proposed model fit the data well, comparison of alternative models by using SEM technique is conducted in subsection 4.7. This study examines three alternative models (direct model and two partially models) by comparing them with our hypothesized models.

Forth, the ordinary-least-squared (OLS) hierarchical regression analysis is then used to examine the possible mediation and moderating effect of resource attributes on the relationship between EO and firm performance. With respect to the mediating effect, following Baron and Kenny (1986), three processes are used to test the mediation effect in subsection 4.8: (a) regression models are constructed by using only the mediated variable (that is, resource-capability combinations) as the regressor; (b) regression equations are constructed by using only the independent variable (that is, EO) as the regressor; and (c) regressions are conducted by introducing both the independent (EO) and mediated variables (resource-capability combination) into the models.

With respect to the moderating effect, hierarchical linear regressions are used again in subsection 4.9 when analyzing multiple terms in the regression equations. Following

Cohen and Cohen (1983), three processes are used to test the main-effect models and two-way interaction models. The two-way interaction models are constructed with the interaction of EO and environmental dynamism included in the equations. This study expects that each interaction term makes a significant contribution to the value/rareness of resource-capability combinations.

Finally, to provide considerable insight into the issue being studied and form the theoretical propositions in this study, the pilot case study is conducted and shown in Appendix B. Following Yin (1994), based on the existing literature, the information of a pilot case allows this study to develop relevant questions, producing research propositions and overall framework.



Chapter 4

Research Results

This chapter shows the research results by following statistical-analysis methods. First, the results of descriptive statistics present correlations among all variables. Second, the assessments of measurement model and comparisons of alternative measurement models are conducted in sections 4.2 and 4.3. Third, the mediating and moderating models conducted by SEM techniques showed in sections 4.4 and 4.5 respectively. Fourth, to confirm the moderating effect, the multi-group analysis is conducted in section 4.6. Fifth, section 4.7 provides the results of the comparisons on alternative models to examine whether the hypothesized model fits our data. Next two sections, to further confirm the mediating and moderating effects, regression analysis is used in sections 4.8 and 4.9 respectively. Finally, bivariate analysis is used in section 4.10 to examine again the moderating effect.

4.1 Descriptive Statistics

Table 4-1 reports the mean, standard deviations, and correlation coefficients of all the variables in this study. The degree of EO shows a high mean of 4.232, and the

degree of environmental dynamism also shows a high mean of 3.90. In addition, the degree of resource attributes shows a higher mean of 5.537 in the value and a higher of 5.444 in rareness. These results imply that public firms in Taiwan are more EO, and these firms usually possess higher value/rareness of resource-capability combinations in the high environmental dynamism.

As expected, the main effects are significantly correlated with the dependent variables and mediating variables. First, when examining the correlation between EO and firm performance variables (i.e., CA, satisfaction, ROA, and Tobin's q), the positive correlations are found. Second, when examining the correlation between EO and mediating variables (i.e., value and rareness), the positive correlations are found. Third, as predicted, when examining the correlation between mediating variables (i.e., value and rareness) and firm performance (i.e., CA and satisfaction), the positive correlations are found. However, it is found that both value and rareness variables are not significantly correlated to firm performance (i.e., ROA, and Tobin's q). In addition, another purpose of this study is to examine the relationships between EO, environmental dynamism, and resource attributes (i.e., value and rareness). It is found that there exists a significant and positive relationship between EO and environmental dynamism. The correlations between environmental dynamism and resource attributes are positively significant.

The correlation coefficients among independent, dependent and control variables are very low, with the highest correlation of 0.649 between value and rareness. If a high

correlation is found among the variables, high multicollinearity problems may exist in this study. Chatterjee, Hadi and Price (2000) suggest that multicollinearity is not serious when the largest variance inflation factor (VIF) is not greater. Therefore, the VIF values in the regression models is assessed and significant multicollinearity problems are not found ($VIF < 2.0$). This implies that no serious multicollinearity problems exist in this model.

In addition, this study uses self-reported data collected from CEOs or top managers (single respondent), so it may be vulnerable to common method variance (CMV). Using ex ante preventive methods, this study guarantees anonymity and mailed the questionnaires directly to the managers. To avoid respondents guessing the relationship between variables, this study also reduces item ambiguity and separated related items (Podsakoff et al., 2003). For the ex post testing methods, this study uses Harman's single-factor test, a widely adopted post hoc remedy, to estimate whether the data have a CMV problem (Podsakoff and Organ, 1986). The result showed that the first factor accounted for only 10.34% of variance among variables. Therefore, the data do not have a serious CMV problem and single response bias.

Table 4-1 Descriptive Statistics and Correlation Coefficients of Variables (n = 201)

| Variables | Mean | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|-----------------|--------|--------|----------|----------|---------|---------|---------|---------|-------|----------|----------|-------|-------|
| 1.ROA | 6.704 | 8.217 | 1.000 | | | | | | | | | | |
| 2.TQ | .681 | .561 | .443*** | 1.000 | | | | | | | | | |
| 3. Satisfaction | 26.956 | 7.624 | .349*** | .270*** | 1.000 | | | | | | | | |
| 4. CA | 5.594 | .777 | -.028 | .001 | .239*** | 1.000 | | | | | | | |
| 5. EO | 4.232 | 1.072 | .138** | .198** | .287*** | .195** | 1.000 | | | | | | |
| 6. Value | 5.537 | .736 | -.045 | .017 | .270*** | .679*** | .228*** | 1.000 | | | | | |
| 7. Rareness | 5.444 | .762 | -.008 | -.015 | .288*** | .669*** | .242*** | .649*** | 1.000 | | | | |
| 8. Age | 29.295 | 13.575 | -.150** | -.196*** | -.018 | -.032 | -.080 | -.033 | -.068 | 1.000 | | | |
| 9. Size | 2.510 | .562 | .157** | .073 | .114* | .097 | .165** | .046 | .059 | .245*** | 1.000 | | |
| 10. Dynamism | 3.902 | 1.153 | -.003 | .121* | .118* | .064 | .496*** | .130** | .102 | -.329*** | .063 | 1.000 | |
| 11. DEMKT | .698 | .990 | -.351*** | -.309*** | -.144** | .093 | -.169** | .075 | .109 | .107 | -.190*** | -.084 | 1.000 |

Note:

The VIF values are less than 2.0, implying that our model contains no significant multicollinearity problems.

* $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

4.2 Measurement Assessment Procedures

Following the study of Anderson and Gerbing (1988), a two-step analytical approach is used to test the hypothesized model. To test the construct validity of the measures, the study firstly employs a confirmatory factor analysis (CFA) using LISREL 8.54 (Bentler and Wu, 1995) and then conducts a SEM based on the measurement model to estimate the fit of the hypothesized model to the data. Unlike the traditional and more commonly-used EFA (exploratory factor analysis), the CFA contains inferential statistics that allow for a stricter and more objective interpretation of validity (Gerbing and Anderson, 1988). Moreover, SEM has certain advantages: (1) It offers a simultaneous test for an entire system in the proposed model. (2) It can assess whether or not the model is consistent with the data (Byrne, 1994).

A measurement model represents that the measure items (i.e., observed variables) are posited to underlying constructs (i.e., latent variables) (Bollen, 1989). This confirmatory assessment approach comprises both convergent validity and discriminant validity. First, the significant of factor loading and the average variance extracted (AVE) are used for the verification of convergent validity. The results of Table 4-2 confirm the convergent validity of the scales because the estimated coefficients of all indicators are significant on their posited underlying constructs ($t > 1.96$) (Anderson & Gerbing, 1988). All the AVEs are above 0.5, implying that the indicator variables can respond to the constructs (Bagozzi & Yi, 1988). Therefore, convergent validity is confirmed. Finally, in Table 4-3, regarding discriminant validity, the results show that the confidence intervals of the correlations for the constructs excluded 1.0, implying the discriminant validity of inter-constructs. In addition, discriminant

validity is assessed by comparing the unconstrained model with the constrained model in which the correlation between the two constructs is constrained to 1.0 (Anderson & Gerbing, 1988; Jöreskog and Sörbom, 1989). The results show that each pair of constructs has a significant difference (see Table 4-3). Therefore, discriminant validity is also achieved.

Table 4-2 Parameters of Measurement Model

| Construct | Standardized loading ($\lambda > 0.45$) | Reliability ($\lambda^2 > 0.20$) | t-value ($t > 1.96$) | CR (CR > 0.6) | AVE (AVE > 0.5) |
|---|--|---|---|-------------------------|---------------------------|
| <i>Entrepreneurial Orientation</i> | | | | 0.81 | 0.60 |
| Innovation | 0.82 | 0.67 | 10.00 | | |
| Proactiveness | 0.90 | 0.81 | 10.53 | | |
| Risk-taking | 0.55 | 0.30 | 8.33 | | |
| <i>Value</i> | | | | 0.87 | 0.66 |
| V1 | 0.76 | 0.58 | 12.00 | | |
| V2 | 0.81 | 0.66 | 12.93 | | |
| V3 | 0.85 | 0.72 | 13.66 | | |
| V4 | 0.87 | 0.76 | 14.04 | | |
| <i>Rareness</i> | | | | 0.92 | 0.79 |
| R1 | 0.92 | 0.85 | 18.00 | | |
| R2 | 0.83 | 0.69 | 18.30 | | |
| R3 | 0.92 | 0.85 | 23.23 | | |
| <i>Firm performance</i> | | | | 0.75 | 0.66 |
| CA1 | 0.84 | 0.71 | 19.00 | | |
| CA2 | 0.94 | 0.88 | 19.12 | | |
| CA3 | 0.83 | 0.69 | 15.61 | | |
| P1 | 0.77 | 0.59 | 12.00 | | |
| P2 | 0.76 | 0.58 | 12.46 | | |
| P3 | 0.94 | 0.88 | 16.27 | | |
| P4 | 0.91 | 0.83 | 15.75 | | |
| P5 | 0.45 | 0.20 | 7.02 | | |

Note: CR represents composite reliability; AVE represents the average variance extracted.

Table 4-3 Analysis of Discriminant Validity (n = 201)

| Construct | <i>EO</i> | <i>Value</i> | <i>Rareness</i> | <i>Environmental dynamism</i> |
|--------------------------------------|----------------------------|----------------------------|----------------------------|--------------------------------------|
| <i>Value</i> | 42.09*** (0.153, 0.309) | | | |
| <i>Rareness</i> | 36.72*** (0.101, 0.257) | 38.47*** (0.533, 0.807) | | |
| <i>Environmental dynamism</i> | 20.29*** (0.058, 0.214) | 74.70*** (0.561, 0.898) | 60.30*** (0.585, 0.899) | |
| <i>Firm performance</i> | 46.16*** (0.058, 0.214) | 43.30*** (0.058, 0.214) | 37.96*** (0.585, 0.899) | 77.47*** (0.585, 0.899) |

Note: The statistics compare the differences between the unconstrained model and the constrained model. The estimated confidence intervals are in parentheses.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

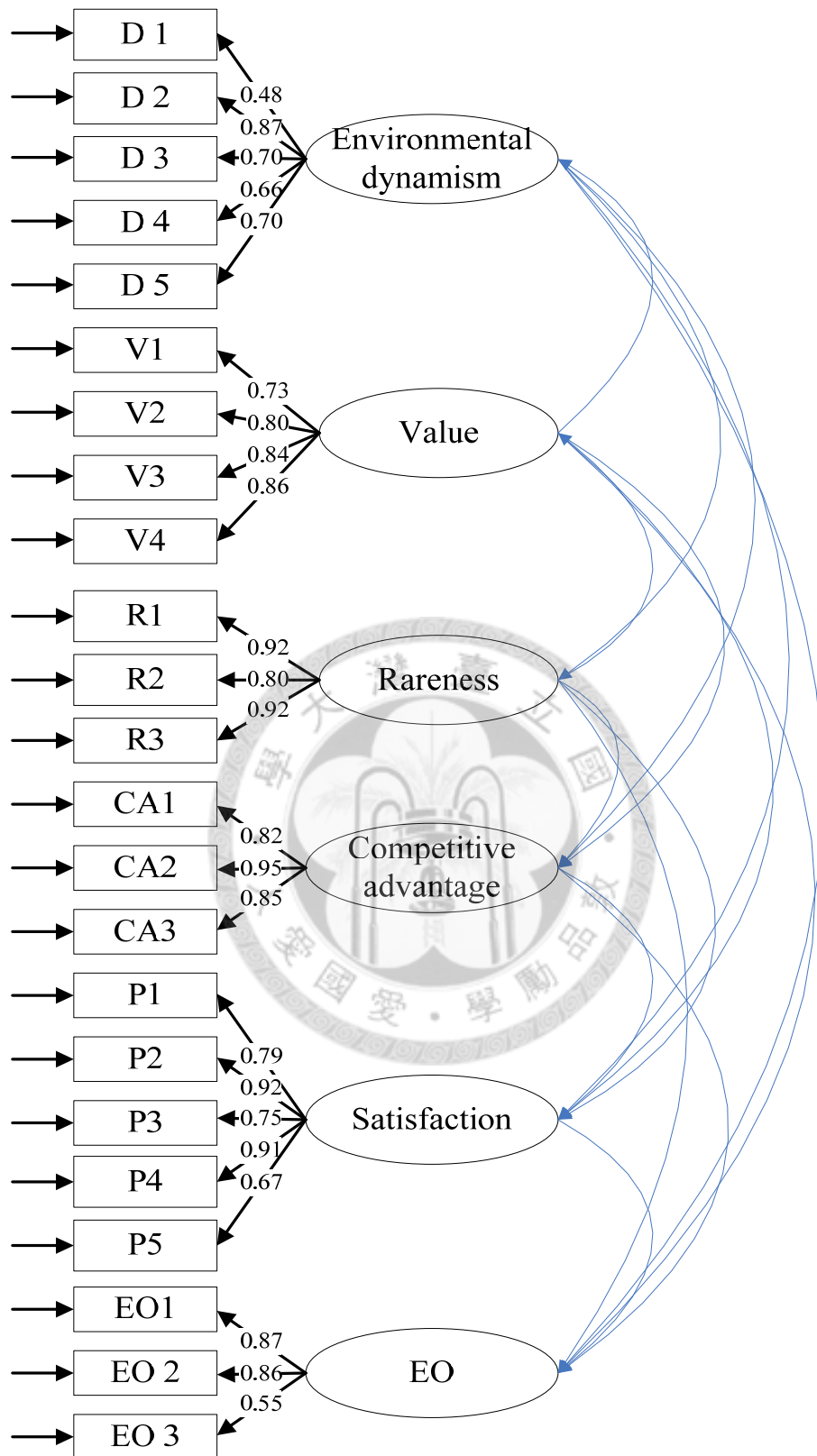
This study estimates the first-order factor measurement models by dividing the constructs of the models into four theoretically plausible groups (i.e., Model 1: three dimensions of entrepreneurial orientation; Model 2: two constructs of resource attributes; Model 3: performance and competitive advantage; Model 4: environmental dynamism). The CFAs provide an acceptable fit for the four measured models, and the results are exhibited in Table 4-4.

This study conducts a CFA for EO, value, rareness, competitive advantage, satisfaction, and environmental dynamism. Individual variables in this six-factor model are loaded on different factors. Because innovation, proactiveness, and risk-taking are regarded as the three dimensions of EO, this study averages items into the construct for EO and views the three dimensions as separate indicators. The CFA provides an acceptable fit for the full measurement model in which EO, value, rareness, performance, competitive advantage, and environmental dynamism are all included ($\chi^2(214) = 365.06$, GFI=0.86, CFI=0.97, NFI=0.94, RMSEA=0.059). Figure 4-1 illustrates the results. ROA and Tobin's q are not included in the measurement model because construct validity of these two measures has been considered by prior literature. In addition, it is also widely acknowledged that ROA and Tobin's q has been defined and calculated by academic literature and TEJ.

Table 4-4 Analysis of Measurement Model

| Model | Items of measurement models | GFI | AGFI | NFI | CFI | RMSEA |
|------------------------------------|------------------------------------|-------------|-------------|-------------|-------------|--------------|
| Model 1: | | | | | | |
| <i>Entrepreneurial Orientation</i> | Innovation: 3 items | 0.95 | 0.90 | 0.97 | 0.98 | 0.077 |
| | Proactiveness: 3 items | | | | | |
| | Risk-taking: 3 items | | | | | |
| Model 2: | | | | | | |
| <i>Resource attributes</i> | Value: 4 items | 0.96 | 0.92 | 0.98 | 0.99 | 0.075 |
| | Rareness: 3 items | | | | | |
| Model 3: | | | | | | |
| <i>Firm performance</i> | Satisfaction: 5 items | 0.97 | 0.94 | 0.98 | 0.99 | 0.057 |
| | Competitive advantage: 3 items | | | | | |
| Model 4: | | | | | | |
| <i>Environmental dynamism</i> | Environmental dynamism: 5 items | 0.99 | 0.93 | 0.98 | 0.99 | 0.081 |





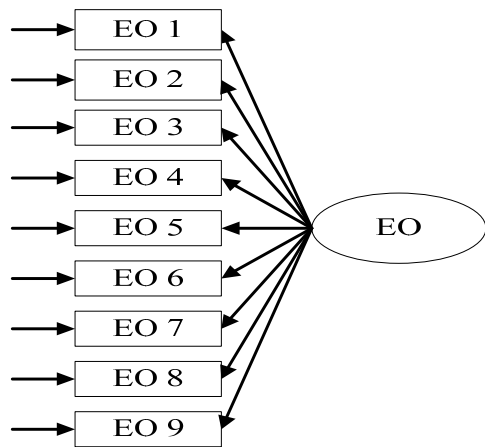
$\chi^2 (214) = 365.06$; GFI=0.86; CFI=0.97; NFI=0.94; RMSEA=0.059

Figure 4-1: Full Measurement Model in a CFA

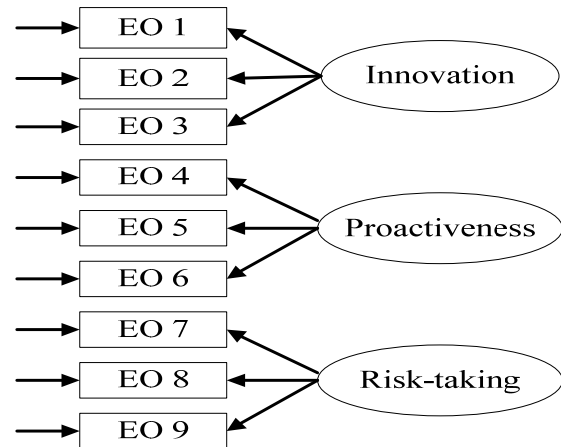
4.3 Comparison for EO Measurement Models

To confirm whether EO measurement model fits the data well, this study compares the efficacy of several alternative models (Aryee, Budhwar, & Chen, 2002). In addition to a first-order factor measurement model, this study may consider a second-order factor as a form of aggregation. Aggregation is useful since it can represent the relationship between variables more parsimoniously. For example, several observed variables can be represented by a single first-order latent variable, and a second-order factor encompasses the meaning of several first-order latent variables.

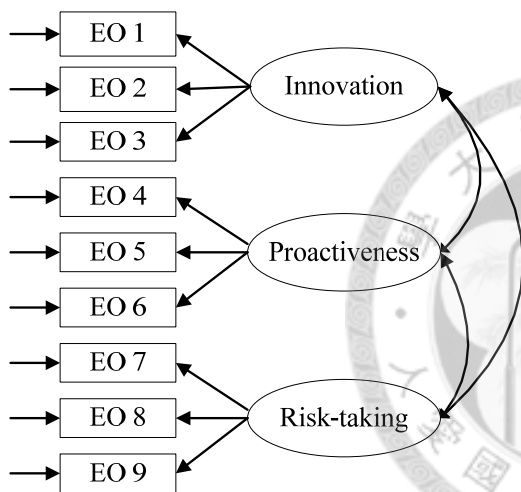
According to the theoretical model of EO, a second-order measurement model is developed, and EO is viewed as a second-order factor, which is measured by three first-order latent variables, including risk-taking, innovation and proactiveness (Bhuiyan et al., 2005). In order to identify the validity of first- and second-order measurement models, alternative models are examined in the CFA, and the patterns are shown in Figure 4-2.



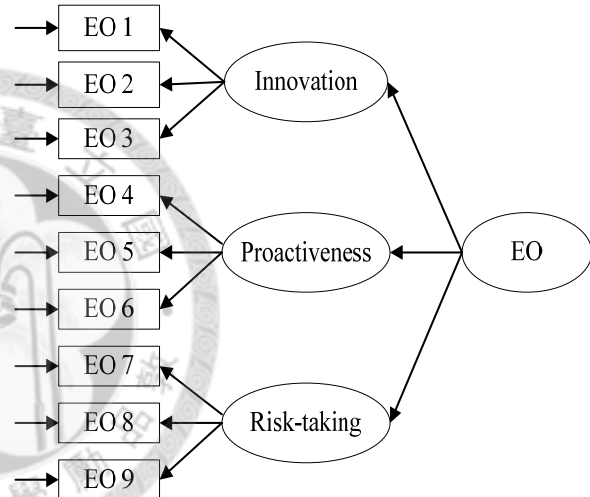
Model 1: One first-order factor



Model 2: Three uncorrelated first-order factors



Model 3: Three correlated first-order factors



Model 4: Second first-order factors

Figure 4-2: Alternative EO Models in CFAs

Model 1, a first-order factor, hypothesizes that one factor is measured by all items. This means that a uni-dimensional construct refers to the fact that EO can explain all the common variance among the 9 items in this model. Model 2 supposes that all 9 items form three uncorrelated first-order factors, namely, innovation, proactiveness, and risk-taking. The correlation between three first-order factors exists in Model 3, and these factors account for the covariance among 9 items. Model 4 hypothesizes that all 9 items form three first-order

factors and these three factors are measured by a second-order factor (EO).

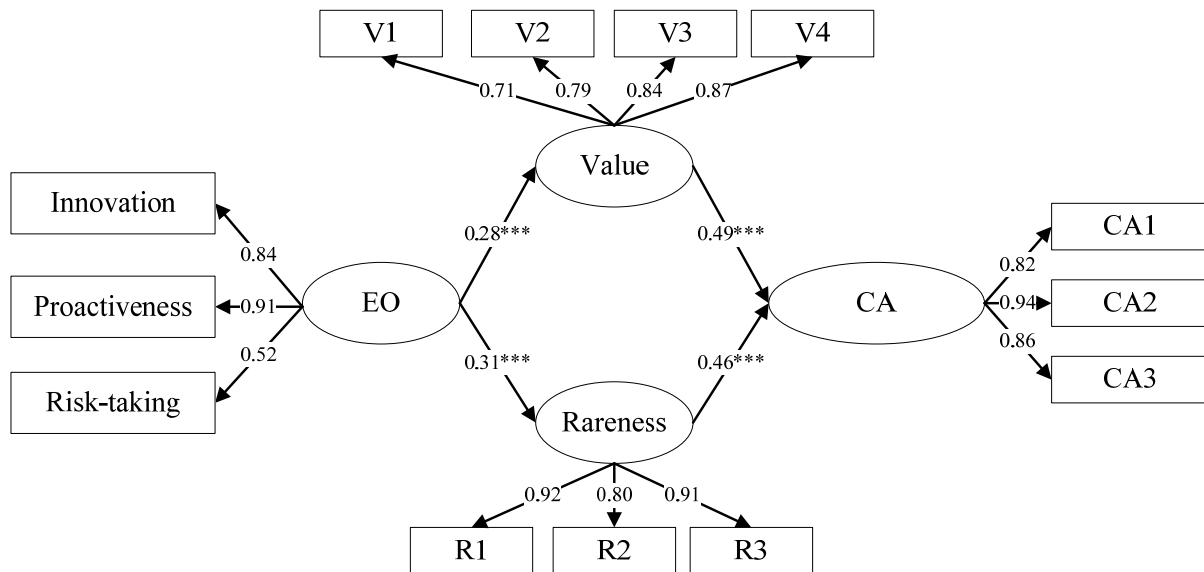
These four alternative models are examined by using SEM technology, and the results of the models are shown in Table 4-5. Models 1 and 2 are not reasonable because their fit indices do not achieve the threshold criteria. The results of both Models 3 and 4 are acceptable because all their fit indices meet the threshold criteria.

Table 4-5 Alternative EO Measurement Models

| Model | Construct dimension | χ^2 | <i>df</i> | (χ^2/df) | GFI | AGFI | NFI | CFI | RMSEA |
|----------------|---|---------------|-----------|---------------|-------------|-------------|-------------|-------------|--------------|
| <i>Model 1</i> | EO (One first-order factor) | <i>491.95</i> | <i>27</i> | <i>24.40</i> | <i>0.65</i> | <i>0.41</i> | <i>0.75</i> | <i>0.76</i> | <i>0.293</i> |
| <i>Model 2</i> | Three uncorrelated first-order factors | <i>200.71</i> | <i>26</i> | <i>8.35</i> | <i>0.82</i> | <i>0.68</i> | <i>0.87</i> | <i>0.88</i> | <i>0.183</i> |
| <i>Model 3</i> | Three correlated first-order factors | <i>50.20</i> | <i>23</i> | <i>2.08</i> | <i>0.95</i> | <i>0.90</i> | <i>0.97</i> | <i>0.98</i> | <i>0.077</i> |
| <i>Model 4</i> | EO (Second order) | <i>50.20</i> | <i>23</i> | <i>2.08</i> | <i>0.95</i> | <i>0.90</i> | <i>0.97</i> | <i>0.98</i> | <i>0.077</i> |

4.4 Assessment of Model Fit and Path Significance

A three correlated first-order factors model analysis is used to examine the proposed hypotheses. The study averages items into dimensions for innovation, proactiveness, and risk-taking, and treats the dimensions as separate indicators of their corresponding construct (EO) in the SEM analyses. The study first tests the fully mediated model, the results of which are presented in Figure 4-3. The fit indices for this model are adequate: $\chi^2(60) = 93.61$; GFI=0.93; AGFI=0.90; CFI=0.99; NFI=0.98; RMSEA=0.055. EO is found to be positively related to the value of resource-capability combinations ($\beta = 0.28$ for value, $p < 0.001$) and is also positively related to the rareness of resource-capability combinations ($\beta = 0.31$ for rareness, $p < 0.001$). Therefore, Hypotheses 1 and 2 are supported. In Hypotheses 3 and 4 (the association between resource attributes and competitive advantage), the value of resource-capability combinations is positively associated with a firm's competitive advantage ($\beta = 0.49$, $p < 0.001$), and the rareness of resource-capability combinations also shows a positive association ($\beta = 0.46$, $p < 0.001$). Thus, Hypotheses 3 and 4 are thus supported. With respect to the mediated effect of resource attributes (H5), the mediated model is found to be preferred, thus supporting Hypotheses 5a and 5b. The results of our analyses strongly support the mediated model proposed in this study. This means that the influence of EO on a firm's competitive advantage is channeled through its attributes, specifically, value and rareness, of resource-capability combinations.

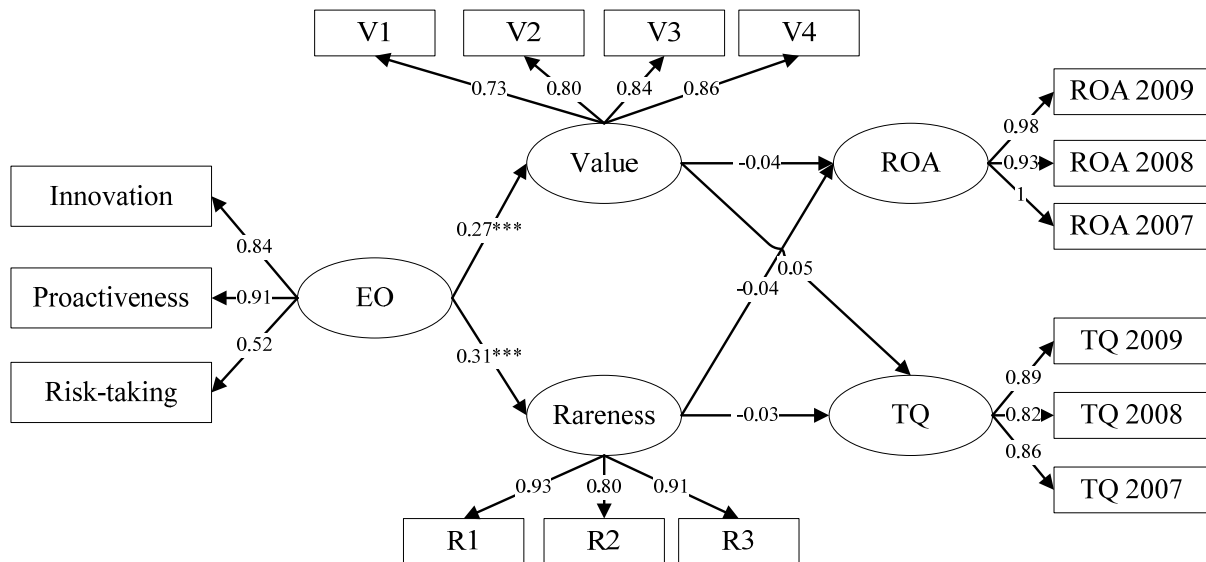


$$\chi^2 (60) = 93.61; \text{GFI}=0.93; \text{CFI}=0.99; \text{NFI}=0.98; \text{RMSEA}=0.055$$

Figure 4-3: Structural Model: Results of the SEM Model with CA (n = 201)

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Figure 4-4 shows the results of the fully mediated model when indicators of performance are derived from ROA and Tobin's q . The fit indices for this model are adequate: $\chi^2 (97) = 194.62$; GFI=0.90; AGFI=0.86; CFI=0.96; NFI=0.94; RMSEA=0.071. When examining all the hypotheses, the variety of the path coefficients is observed. First, EO has a positive effect on the value of resource-capability combinations ($\beta = 0.27$, $p < 0.001$). Second, EO has a positive effect on the rareness of resource-capability combinations ($\beta = 0.31$, $p < 0.001$). Therefore, Hypotheses 1 and 2 are supported. Third, the value of resource-capability combinations is not positively associated with ROA and Tobin's q . Finally, the rareness of resource-capability combinations is not related to ROA and Tobin's q . Therefore, Hypotheses 3 and 4 are not supported.

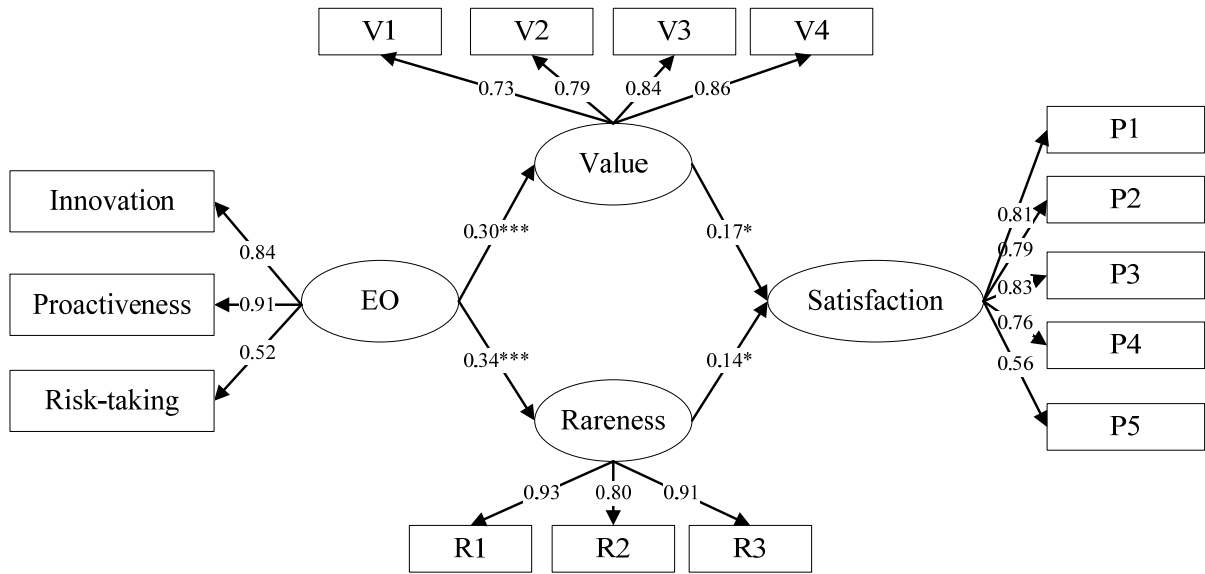


$$\chi^2(97) = 194.62; \text{GFI} = 0.90; \text{CFI} = 0.96; \text{NFI} = 0.94; \text{RMSEA} = 0.071$$

Figure 4-4: Structural Model: Results of the SEM Model with ROA and TQ (n = 201)

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

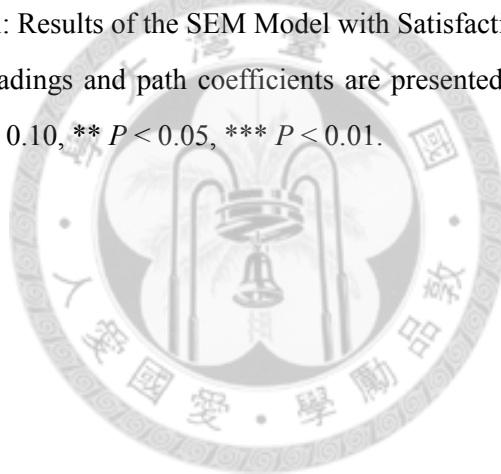
Figure 4-5 shows the results of the fully mediated model when indicators of performance are derived from firm performance. The fit indices for this model are adequate: $\chi^2(85) = 211.42$; GFI=0.92; CFI=0.98; NFI=0.96; RMSEA=0.052. All the hypotheses are examined again, and the results are shown as follows. EO has a positive and significant influence on the value of resource-capability combinations ($\beta = 0.30$, $p < 0.001$) and the rareness of resource-capability combinations ($\beta = 0.34$, $p < 0.001$). In addition, the value and rareness are also positively associated with satisfaction. Therefore, Hypotheses 1, 2, 3, and 4 are supported. With respect to the mediated effect of resource attributes (H5), the mediated model is found to be preferred, thus supporting Hypotheses 5a and 5b.



$$\chi^2(85) = 211.42; \text{GFI}=0.90; \text{CFI}=0.94; \text{NFI}=0.92; \text{RMSEA}=0.087$$

Figure 4-5: Structural Model: Results of the SEM Model with Satisfaction (n = 201)

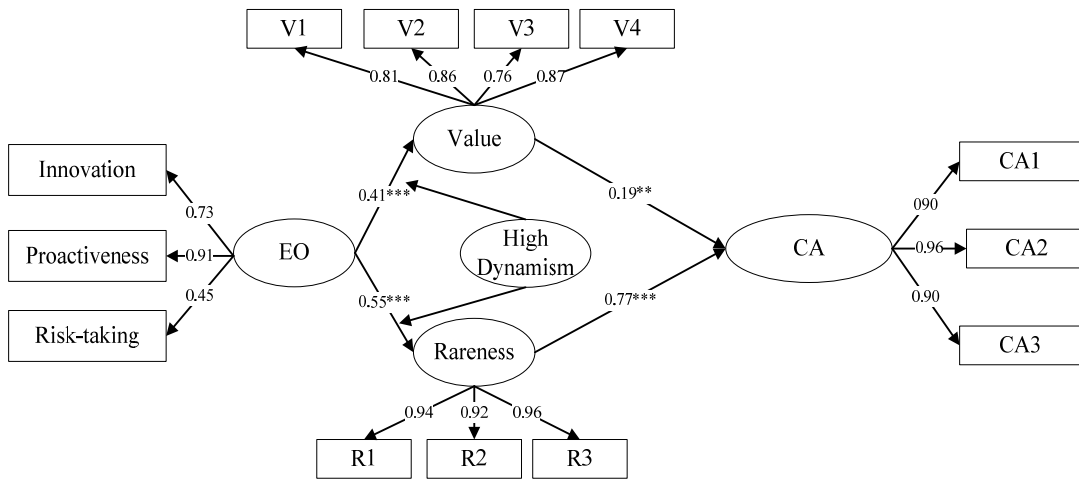
Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.



4.5 High and Low Levels of Environmental Dynamism Models

This study examines whether the levels of environmental dynamism can influence the relationships between EO and the value/rareness resource-capability combinations, when facing a dynamic environment. This study splits the sample into two groups: high levels of environmental dynamism (n=95) and low levels of environmental dynamism (n=106). Hypotheses 6a and 6b state that a dynamic environment strengthens the relationship between entrepreneurial orientation and the value of resource-capability combinations and strengthens the relationship between entrepreneurial orientation and the rareness of resource-capability combinations. To validate this hypothesis, the mediating models are tested in two different groups and with different indicators of firm performance (i.e., CA, ROA, TQ, and performance)

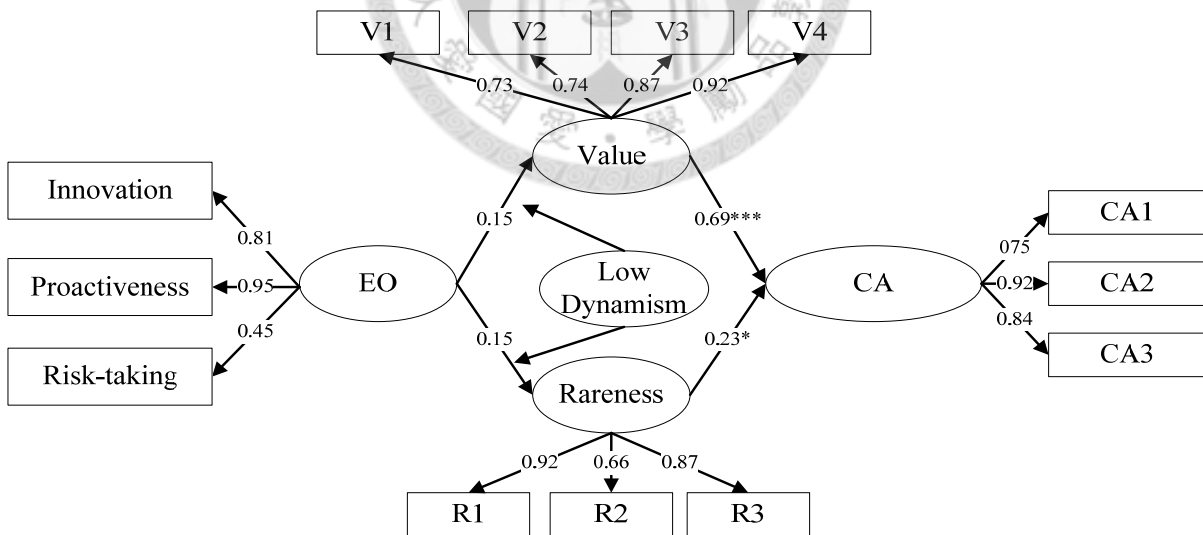
When firm performance is a competitive advantage, Figures 4-6 and 4-7 show the structural models with path coefficients. The results of Figure 4-6 show that EO has a positive and significant influence on the value ($\beta = 0.41$, $p < 0.001$) and the rareness ($\beta = 0.55$, $p < 0.001$) in high levels of environmental dynamism. However, the results of Figure 4-7 show that EO has no significant impact on the value ($\beta = 0.15$, $p > 0.1$) and rareness ($\beta = 0.15$, $p > 0.1$) in the low level of environmental dynamism. The comparison of the two models shows following results. First, EO has a stronger effect on value in the high level of environmental dynamism than the low level. Second, EO has a stronger effect on rareness in the high level of environmental dynamism than in low level.. Therefore, this study supports Hypotheses 6a and 6b.



$$\chi^2 (60) = 103.22; GFI=0.86; CFI=0.98; NFI=0.95; RMSEA=0.089$$

Figure 4-6: Structural Model: Results of the SEM Model with CA in High Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=95)

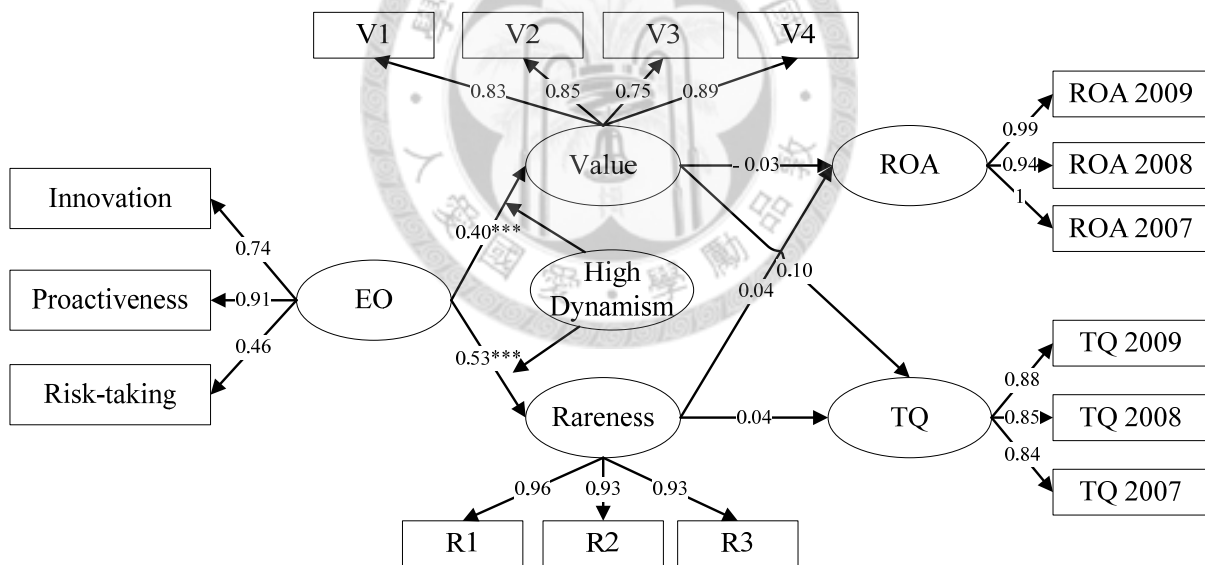


$$\chi^2 (60) = 62.9; GFI=0.92; CFI=1.00; NFI=0.96; RMSEA=0.025$$

Figure 4-7: Structural Model: Results of the SEM Model with CA in Low Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=106)

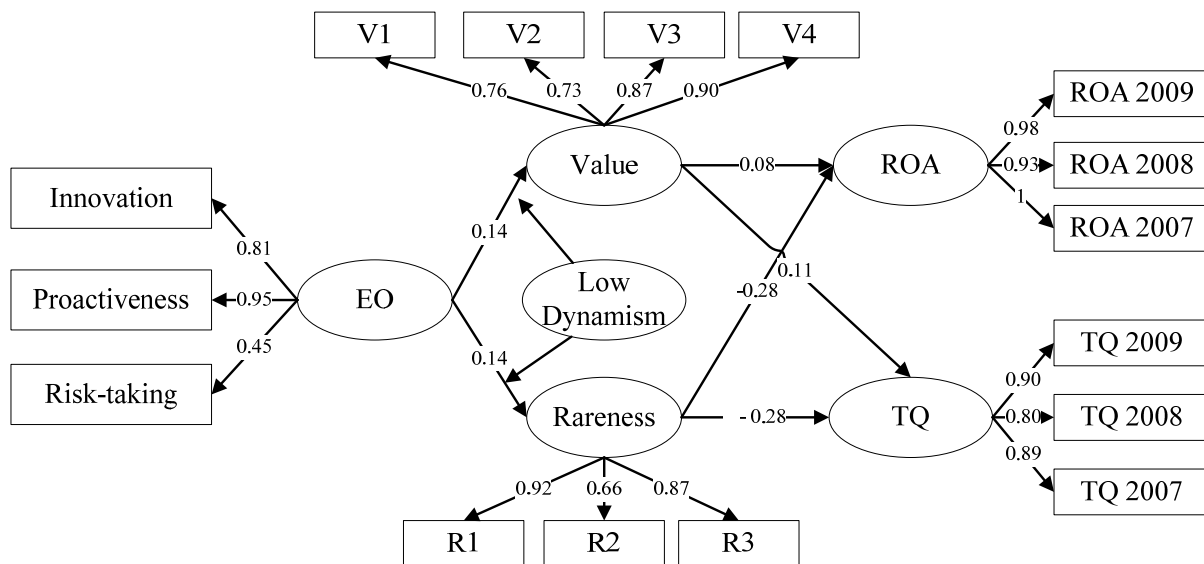
When firm performance is ROA and TQ, Figures 4-8 and 4-9 present the structural models with path coefficients. The results of Figure 4-8 show that EO has a positive and significant influence on value ($\beta= 0.40, p < 0.001$) and rareness ($\beta= 0.53, p < 0.001$) in a high level of environmental dynamism. The results of Figure 4-9 show that EO has no influence on value ($\beta= 0.14, p > 0.1$) and rareness ($\beta= 0.14, p > 0.1$) in a low level of environmental dynamism. A comparison of the two models shows the following results. First, the influence of EO on value in the two different groups is different. Second, this study finds that EO has a stronger effect on rareness in high levels of environmental dynamism than in low levels. Therefore, Hypotheses 6a and 6b are supported again.



$$\chi^2(97) = 161.90; GFI=0.84; CFI=0.95; NFI=0.91; RMSEA=0.082$$

Figure 4-8: Structural Model: Results of the SEM Model with ROA and TQ in High Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=95)

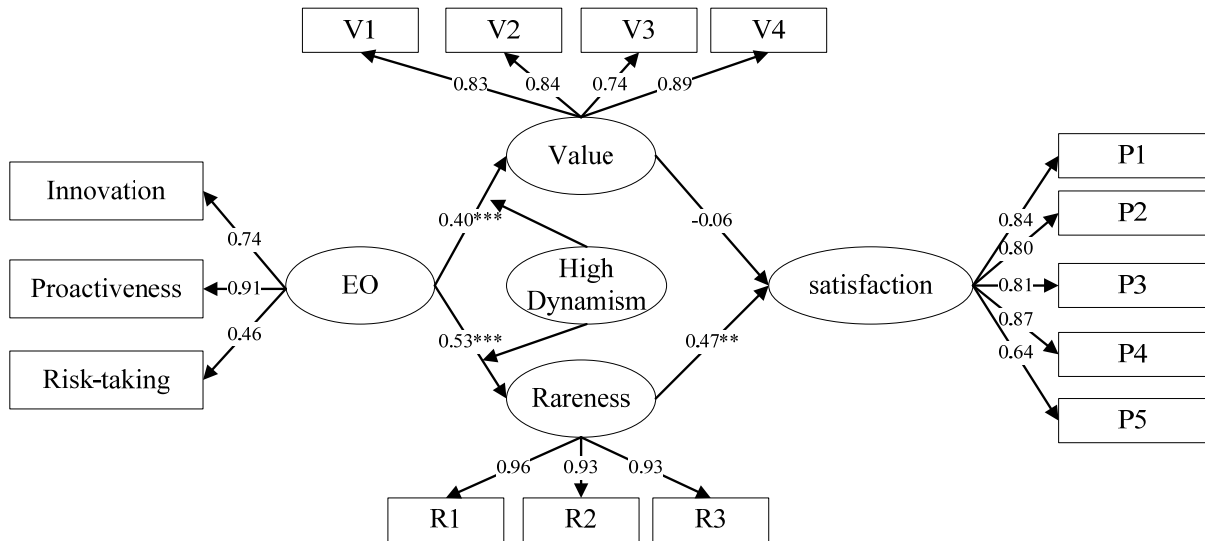


$$\chi^2(97) = 161.90; \text{GFI}=0.86; \text{CFI}=0.96; \text{NFI}=0.91; \text{RMSEA}=0.070$$

Figure 4-9 Structural Model: Results of the SEM Model with ROA and TQ in Low Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=106)

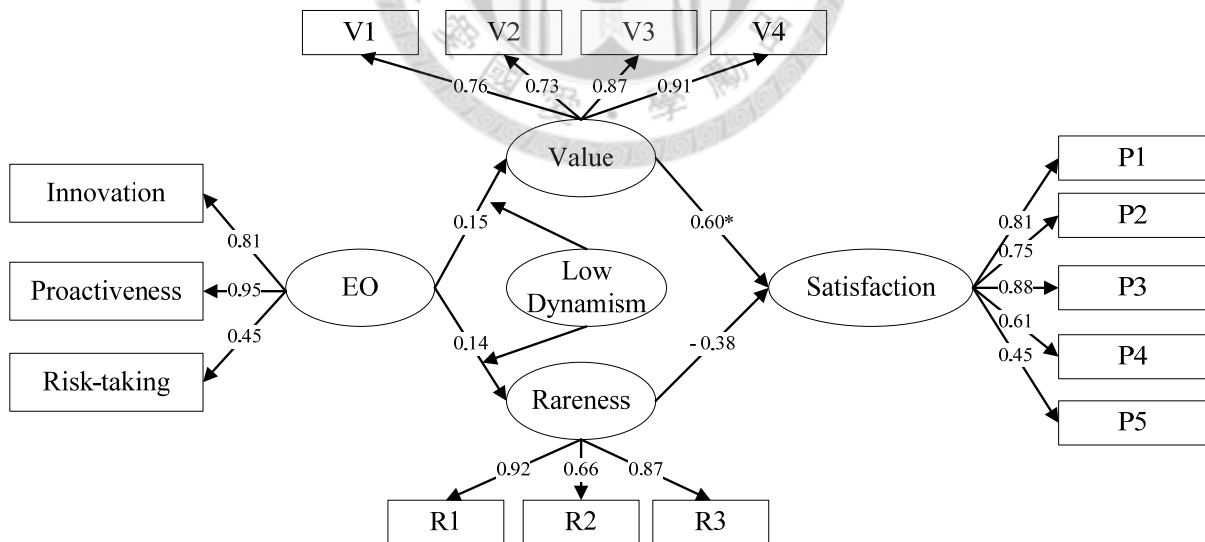
When firm performance is satisfaction, structural models with path coefficients are showed in the Figures 4-10 and 4-11. The results of Figure 4-10 show that EO has a positive and significant influence on value ($\beta = 0.40$, $p < 0.001$) and rareness ($\beta = 0.53$, $p < 0.001$) in high levels of environmental dynamism. Rareness is positively and significantly associated with performance ($\beta = 0.39$, $p < 0.05$). However, the results of Figure 4-11 show that EO has no significant impact on value ($\beta = 0.15$, $p > 0.1$) and rareness ($\beta = 0.15$, $p > 0.1$) in the low level of environmental dynamism. A comparison of the two models shows the following results. EO has a significantly different influence on value and rareness in a high level of environmental dynamism than in a low level of environmental dynamism; therefore, Hypotheses 6a and 6b are supported again.



$$\chi^2 (85) = 140.37; \text{GFI}=0.83; \text{CFI}=0.96; \text{NFI}=0.91; \text{RMSEA}=0.084$$

Figure 4-10 Structural Model: Results of the SEM Model with Satisfaction in High Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=95)



$$\chi^2 (85) = 140.15; \text{GFI}=0.88; \text{CFI}=0.98; \text{NFI}=0.91; \text{RMSEA}=0.048$$

Figure 4-11: Structural Model: Results of the SEM Model with Satisfaction in Low Levels of Environmental Dynamism

Note: Standardized factor loadings and path coefficients are presented. The estimates of t-value are reported in parentheses. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$. (n=106)

4.6 Multi-Group Analysis for the Moderating Effect of Environmental Dynamism

To confirm the moderating effect of environmental dynamism on the relationship between EO and resource attributes (including value and rareness), this dissertation uses the methodology of a multi-group analysis within LISREL 8.54 and assesses two effects of environmental dynamism with the high and low levels on the structural model. Following the study by Brockman and Morgan (2006), the examination is conducted in a two-step approach. First, the appropriate structural parameters are constrained to be equal among two groups, thereby generating a covariance matrix for each group and an overall chi-square value for the sets of sub-models as part of a system of structural models. Second, the parameter equality constraints, the EO-resource attributes (value or rareness) link, must be removed, resulting in the chi-square value with fewer degrees of freedom. The moderating effect is examined by estimating whether significant differences exist between the above two chi-square values. When the second chi-square value is significantly less than the first chi-square value, the null hypothesis of parameter invariance is rejected, indicating a moderating effect.

Based on the studies of Brockman and Morgan (2006), an environmental dynamism index is formed by averaging the items. As mentioned in the above section, this study splits the sample into two groups on the basis of the scores for the environmental dynamism variable; thus, this sample is divided into two different groups, namely, high levels of environmental dynamism and low levels of environmental dynamism.

Subsequently, a multi-group analysis is conducted relying on both environmental dynamism groups when firm performance is competitive advantage, ROA, TQ, or

performance, respectively. These results are summarized in Table 4-6. The EO-value link and EO-rareness link show a statistically significant difference in chi-square values between the two groups for the competitive advantage, ROA, TQ, and performance, respectively. This means that environmental dynamism moderates the EO-value relationship and the EO-rareness relationship, respectively. According to the parameter estimates in Table 4-7, the EO-value path is significant in a high level of environmental dynamism but insignificant in a low level. That is, the relationship between EO and value is stronger for firms facing a high level of environmental dynamism than for those facing a low level. The EO-rareness link has similar results; thus, Hypotheses 6a and 6b are supported.

In summary, the results of the multi-group analysis for the moderating effect are consistent with the results from subsection 4.5. Therefore, the influence of environmental dynamism on the EO-resource attributes link is supported again.

Table 4-6 Multi-Group Difference Test (Moderating Variable: Environmental Dynamism)

| Hypothesis | Firm performance | Hypothesized Moderating Path | Difference in Chi-Square Value |
|------------|------------------|------------------------------|--------------------------------|
| 6a | CA | Influence of EO on value | 6.045** |
| 6b | CA | Influence of EO on rareness | |
| 6a | ROA | Influence of EO on value | 4.92** |
| 6b | ROA | Influence of EO on rareness | |
| 6a | TQ | Influence of EO on value | 6.15** |
| 6b | TQ | Influence of EO on rareness | |
| 6a | Satisfaction | Influence of EO on value | 8.515** |
| 6b | Satisfaction | Influence of EO on rareness | |

Note: * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Table 4-7 Parameter Estimates, Low Versus High Environmental Dynamism

| Hypothesis | Firm performance | Hypothesized Moderating Path | Low estimate | Low t-value | High estimate | High t-value |
|------------|------------------|------------------------------|--------------|-------------|---------------|--------------|
| 6a | CA | EO-value link | 0.15 | 1.41 | 0.41*** | 3.16 |
| 6b | CA | EO-rareness link | 0.15 | 1.44 | 0.55*** | 5.11 |
| 6a | ROA | EO-value link | 0.13 | 1.37 | 0.44*** | 3.16 |
| 6b | ROA | EO-rareness link | 0.13 | 1.41 | 0.68*** | 4.98 |
| 6a | TQ | EO-value link | 0.13 | 1.37 | 0.44*** | 3.16 |
| 6b | TQ | EO-rareness link | 0.13 | 1.41 | 0.68*** | 4.98 |
| 6a | Satisfaction | EO-value link | 0.15 | 1.42 | 0.40*** | 3.45 |
| 6b | Satisfaction | EO-rareness link | 0.14 | 1.33 | 0.53*** | 4.73 |

Note: * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.



4.7 Comparison of Alternative Models

To confirm whether our proposed model fits the data well, this study compares the efficacy of several alternative models (Aryee, Budhwar, & Chen, 2002). Based on the different indicators of firm performance, this study classifies into three hypothesized models to test the proposed hypotheses. The results are presented in Table 4-8. Hypothesized models 1, 2, and 3 are the completely mediated models. Alternative models 1-1, 2-1, and 3-1 are the direct models and contain three paths: from EO to firm performance, from value to firm performance, and from rareness to firm performance. Alternative models 1-2, 2-2, and 3-2 are partially mediated models, with paths from EO to value, from value to firm performance, and from EO to firm performance. Alternative models 1-3, 2-3, and 3-3 are partially mediated models, containing three paths: from EO to rareness, from rareness to firm performance, and from EO to firm performance.

The results of Table 4-8 emphasize that our hypothesized models (Models 1, 2, and 3) fit the data better than the alternative models. The descriptions are as follows. First, the differences in the chi-square values (χ^2) between hypothesized model 1 and the other models (Alternative models 1-1, 1-2, and 1-3) are 0.98, 0.94, and 2.15 respectively. These differences are all insignificant. Second, the differences in the chi-square values (χ^2) between hypothesized model 2 and other models (Alternative models 2-1, 2-2, and 2-3) are 6.95, 1.20, and 1.64 respectively. Alternative models 2-2 and 2-3 are not better than hypothesized model 2, except for alternative model 2-1. Therefore, the results don't support the optimization of hypothesized model 2. Finally, the differences in the chi-square values (χ^2) between

hypothesized model 3 and other models (Alternative models 3-1, 3-2, and 3-3) are 3.19, 0.60, and 0.89 respectively. Overall, the hypothesized models 1, 2, and 3 are supported by the data.

Relying on former arguments, this study adds additional comparison tests to confirm whether the hypothesized models in the different two groups (high levels of environmental dynamism vs. low levels of environmental dynamism) still fit the data well; thus, these alternative models are compared again by this study. As shown in Tables 4-9 and 4-10, this study shows the similar results. All hypothesized models provide an adequate fit to the data, and alternative models are not significantly better than the hypothesized models.

In summary, on the whole, the hypothesized models 1 and 3 are more consistent with the data than any of four alternative models. Therefore, the results confirm the optimization of hypothesized models 1 and 3. That is, as dependent variables are competitive advantage and satisfaction, the completely mediated models are supported by data.

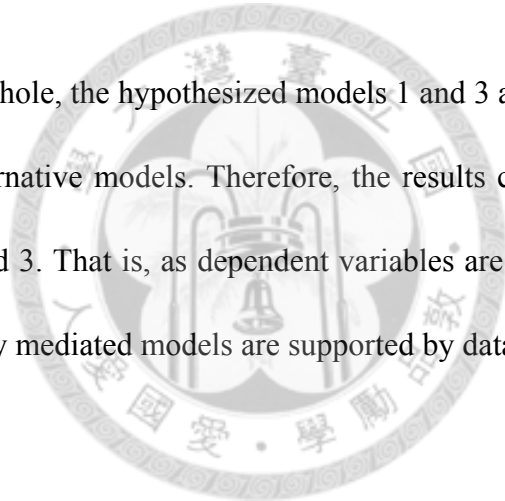


Table 4-8 Comparison of Competing Models with Full Sample (N=201)

| Model Test | Firm performance | χ^2 | <i>df</i> | χ^2/df | $\Delta\chi^2$ | Δdf | $\Delta\chi^2/\Delta df$ | GFI | NFI | CFI | RMSEA |
|-----------------------|------------------|----------|-----------|-------------|----------------|-------------|--------------------------|------|------|------|-------|
| Hypothesized model 1 | CA | 93.61 | 60 | 1.56 | | | | 0.93 | 0.98 | 0.99 | 0.055 |
| Alternative model 1-1 | CA | 95.33 | 59 | 1.62 | 0.98 | 1 | 0.98 (insignificant) | 0.93 | 0.98 | 0.99 | 0.055 |
| Alternative model 1-2 | CA | 69.97 | 32 | 2.17 | 26.34 | 28 | 0.94 (insignificant) | 0.93 | 0.97 | 0.98 | 0.077 |
| Alternative model 1-3 | CA | 18.86 | 24 | 0.79 | 77.45 | 36 | 2.15 (insignificant) | 0.98 | 0.99 | 1.00 | 0.000 |
| Hypothesized model 2 | TQ, ROA | 194.62 | 97 | 2.01 | | | | 0.90 | 0.94 | 0.96 | 0.071 |
| Alternative model 2-1 | TQ, ROA | 180.72 | 95 | 1.90 | 13.90 | 2 | 6.95 (significant) | 0.90 | 0.94 | 0.97 | 0.067 |
| Alternative model 2-2 | TQ, ROA | 150.12 | 60 | 2.50 | 44.50 | 37 | 1.20 (insignificant) | 0.90 | 0.92 | 0.95 | 0.087 |
| Alternative model 2-3 | TQ, ROA | 115.76 | 49 | 2.36 | 78.86 | 48 | 1.64 (insignificant) | 0.91 | 0.93 | 0.96 | 0.083 |
| Hypothesized model 3 | Satisfaction | 211.42 | 85 | 2.48 | | | | 0.90 | 0.92 | 0.94 | 0.052 |
| Alternative model 3-1 | Satisfaction | 122.32 | 83 | 1.47 | 89.10 | 2 | 44.5 (significant) | 0.91 | 0.95 | 0.98 | 0.059 |
| Alternative model 3-2 | Satisfaction | 107.67 | 51 | 2.11 | 103.75 | 35 | 2.96 (insignificant) | 0.92 | 0.93 | 0.96 | 0.075 |
| Alternative model 3-3 | Satisfaction | 90.43 | 41 | 2.20 | 120.99 | 45 | 2.68 (insignificant) | 0.92 | 0.94 | 0.96 | 0.078 |

Notes:

$\Delta\chi^2$ is the difference between the hypothesized model 1 and the competing models (Models 1-1 to 1-3), the hypothesized model 2 and the competing models (Models 2-1 to 2-3), and the hypothesized model 3 and the competing models (Models 3-1 to 3-3) respectively. If the value ($\Delta\chi^2/\Delta df$) is smaller than 3.84, the model will not be adapted.

Models 1, 2, and 3 are the hypothesized models (completely mediated model).

Models 1-1, 2-1, and 3-1 are the direct models. The path is from EO, value, and rareness to firm performance.

Models 1-2, 2-2, and 3-2 are the partially mediated model. The path is from EO to value, from value to competitive advantage, and from EO to firm performance.

Models 1-3, 2-3, and 3-3 are also the partially mediated models. The path is from EO to rareness, from rareness to competitive advantage, and from EO to firm performance.

Table 4-9 Comparison of Competing Models with High Degrees of Environmental Dynamism (N=95)

| Model Test | Firm performance | χ^2 | <i>df</i> | χ^2/df | $\Delta\chi^2$ | Δdf | $\Delta\chi^2/\Delta df$ | GFI | NFI | CFI | RMSEA |
|-----------------------|------------------|----------|-----------|-------------|----------------|-------------|--------------------------|------|------|------|-------|
| Hypothesized model 1 | CA | 103.22 | 60 | 1.72 | | | | 0.86 | 0.95 | 0.98 | 0.089 |
| Alternative model 1-1 | CA | 103.08 | 59 | 1.74 | 0.14 | 1 | 0.14 (insignificant) | 0.85 | 0.95 | 0.97 | 0.091 |
| Alternative model 1-2 | CA | 51.91 | 32 | 1.62 | 59.81 | 28 | 2.13 (insignificant) | 0.90 | 0.95 | 0.98 | 0.085 |
| Alternative model 1-3 | CA | 37.76 | 24 | 1.57 | 39.88 | 37 | 2.05 (insignificant) | 0.96 | 0.99 | 0.99 | 0.057 |
| Hypothesized model 2 | TQ, ROA | 161.90 | 97 | 1.66 | | | | 0.84 | 0.90 | 0.95 | 0.085 |
| Alternative model 2-1 | TQ, ROA | 153.06 | 95 | 1.61 | 16.31 | 2 | 4.42 (significant) | 0.83 | 0.91 | 0.95 | 0.082 |
| Alternative model 2-2 | TQ, ROA | 100.48 | 60 | 1.67 | 61.42 | 37 | 1.66 (insignificant) | 0.86 | 0.90 | 0.94 | 0.086 |
| Alternative model 2-3 | TQ, ROA | 94.86 | 49 | 1.94 | 67.04 | 48 | 1.39 (insignificant) | 0.86 | 0.91 | 0.95 | 0.100 |
| Hypothesized model 3 | Satisfaction | 140.37 | 85 | 1.65 | | | | 0.83 | 0.91 | 0.96 | 0.084 |
| Alternative model 3-1 | Satisfaction | 141.29 | 83 | 1.87 | 2 | -0.92 | insignificant | 0.83 | 0.91 | 0.96 | 0.086 |
| Alternative model 3-2 | Satisfaction | 87.60 | 51 | 1.72 | 52.77 | 33 | 1.59 (insignificant) | 0.87 | 0.90 | 0.95 | 0.090 |
| Alternative model 3-3 | Satisfaction | 86.88 | 41 | 2.11 | 69.80 | 43 | 1.62 (insignificant) | 0.86 | 0.91 | 0.95 | 0.109 |

Notes:

$\Delta\chi^2$ is the difference between the hypothesized model 1 and the competing models (Models 1-1 to 1-3), the hypothesized model 2 and the competing models (Models 2-1 to 2-3), and the hypothesized model 3 and the competing models (Models 3-1 to 3-3) respectively. If the value ($\Delta\chi^2/\Delta df$) is smaller than 3.84, the model will not be adapted.

Models 1, 2, and 3 are the hypothesized models (completely mediated model).

Models 1-1, 2-2, and 3-1 are the direct models. The path is from EO, value, and rareness to firm performance.

Models 1-2, 2-2, and 3-2 are the partially mediated model. The path is from EO to value, from value to competitive advantage, and from EO to firm performance.

Models 1-3, 2-3, and 3-3 are also the partially mediated models. The path is from EO to rareness, from rareness to competitive advantage, and from EO to firm performance.

Table 4-10 Comparison of Competing Models with Low Degrees of Environmental Dynamism (N=106)

| Model Test | Firm performance | χ^2 | <i>df</i> | χ^2/df | $\Delta\chi^2$ | Δdf | $\Delta\chi^2/\Delta df$ | GFI | NFI | CFI | RMSEA |
|-----------------------|------------------|----------|-----------|-------------|----------------|-------------|--------------------------|------|------|------|-------|
| Hypothesized model 1 | CA | 62.90 | 60 | 1.04 | | | | 0.92 | 0.96 | 1.00 | 0.025 |
| Alternative model 1-1 | CA | 61.81 | 59 | 1.04 | 1.09 | 1 | 1.09 (insignificant) | 0.92 | 0.96 | 1.00 | 0.025 |
| Alternative model 1-2 | CA | 35.25 | 32 | 1.10 | 27.65 | 28 | 0.99 (insignificant) | 0.96 | 0.97 | 1.00 | 0.036 |
| Alternative model 1-3 | CA | 23.23 | 24 | 0.96 | 61.13 | 37 | 1.65 (insignificant) | 0.96 | 0.97 | 1.00 | 0.000 |
| Hypothesized model 2 | TQ, ROA | 161.90 | 97 | 1.68 | | | | 0.86 | 0.92 | 0.96 | 0.085 |
| Alternative model 2-1 | TQ, ROA | 144.27 | 95 | 1.69 | 17.63 | 2 | 8.82 (significant) | 0.85 | 0.91 | 0.96 | 0.070 |
| Alternative model 2-2 | TQ, ROA | 119.62 | 60 | 1.89 | 51.48 | 38 | 1.35 (insignificant) | 0.88 | 0.91 | 0.95 | 0.084 |
| Alternative model 2-3 | TQ, ROA | 92.93 | 49 | 1.99 | 68.97 | 48 | 1.44 (insignificant) | 0.87 | 0.90 | 0.94 | 0.092 |
| Hypothesized model 3 | Satisfaction | 104.15 | 85 | 1.52 | | | | 0.88 | 0.91 | 0.98 | 0.048 |
| Alternative model 3-1 | Satisfaction | 99.74 | 83 | 1.20 | 4.41 | 2 | 2.21 (insignificant) | 0.88 | 0.91 | 0.98 | 0.052 |
| Alternative model 3-2 | Satisfaction | 71.12 | 51 | 1.39 | 33.03 | 33 | 1.00 (insignificant) | 0.90 | 0.90 | 0.96 | 0.063 |
| Alternative model 3-3 | Satisfaction | 62.69 | 41 | 1.52 | 41.46 | 43 | 0.96 (insignificant) | 0.90 | 0.90 | 0.95 | 0.071 |

Notes:

$\Delta\chi^2$ is the difference between the hypothesized model 1 and the competing models (Models 1-1 to 1-3), the hypothesized model 2 and the competing models (Models 2-1 to 2-3), and the hypothesized model 3 and the competing models (Models 3-1 to 3-3) respectively. If the value ($\Delta\chi^2/\Delta df$) is smaller than 3.84, the model will not be adapted.

Models 1, 2, and 3 are the hypothesized models (completely mediated model).

Models 1-1, 2-2, and 3-1 are the direct models. The path is from EO, value, and rareness to firm performance.

Models 1-2, 2-2, and 3-2 are the partially mediated models. The path is from EO to value, from value to competitive advantage, and from EO to firm performance.

Models 1-3, 2-3, and 3-3 are also the partially mediated models. The path is from EO to rareness, from rareness to competitive advantage, and from EO to firm performance.

4.8 Regression Model for Mediating Effect

To test the mediating effect (Hypotheses 1, 2, 3, 4, 5a, and 5b), this study further follows Baron and Kenny's (1986) procedure and uses its regression techniques to confirm the robustness of our research findings. The OLS multiple regression analysis is used after controlling for a number of variables. Four dependent variables, namely, competitive advantage, subjective performance, ROA, and Tobin's q , are employed with models constructed. Tables 4-11, 4-12, 4-13, and 4-14 summarize the results. First, Model 3 in these tables is the null model, with only control variables included in the regression equation, and EO is further introduced into the regressions in Model 4. Second, two mediating variables, value and rareness, are added in Models 1 and 2 respectively. Third, these two mediating variables, value and rareness, are again incorporated in Models 5 and 6 respectively. Both mediating variables are added in Model 7.

When the dependent variable is competitive advantage, all the results are presented in Table 4-11. EO is found to be positively related to the value of resource-capability combination in Model 1 ($\beta = 0.238, p < 0.01$) and is also positively related to rareness in Model 2 ($\beta = 0.371, p < 0.01$). Therefore, Hypotheses 1 and 2 are supported. Model 4 indicates that EO is positively associated with competitive advantage ($\beta = 0.377, p < 0.01$). When value is added into the equation in Model 5, the relationship between EO and competitive advantage is still significant, while the significant level is reduced ($\beta = 0.198, p < 0.05$). When rareness is added into the equation in Model 6, the relationship between EO and competitive advantage is still significant, while the significant level is reduced ($\beta = 0.099, p < 0.1$). Finally, when value and rareness both enter the equation in Model 7, the relationship between EO and competitive advantage is still significant, while the significant level is reduced ($\beta = 0.111, p < 0.05$). Overall, the results strongly indicate that value and rareness partially mediate the relationship between EO and competitive advantage. Therefore,

Hypotheses 3, 4, 5a, and 5b are supported.

Table 4-11 Results of OLS Regression Model with Competitive Advantage (n = 201)

| | Model (EO, Rareness, Competitive advantage) | | | | | | |
|-------------------------------|--|-------------------|------------------------------|-------------------|-------------------|-------------------|-------------------|
| | <i>Value</i> | <i>Rareness</i> | <i>Competitive advantage</i> | | | | |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
| Control variables | | | | | | | |
| <i>Firm age</i> | -.005 (.004) | -.123 (.024) | -.061 (.015) | -.097 (.015) | -.097 (.010) | -.005 (.010) | -.042 (.009) |
| <i>Firm size</i> | .039 (.098) | .079 (.523) | .078 (.328) | .031 (.317) | .001 (.207) | .009 (.211) | .001 (.185) |
| <i>DEMKT</i> | .071 (.053) | .174** (.282) | .105 (.177) | .152** (.170) | .099* (.112) | .021 (.115) | .046 (.101) |
| <i>Environmental dynamism</i> | .031 (.055) | -.126 (.295) | .079 (.157) | -.135 (.178) | -.158** (.117) | -.040 (.120) | -.095* (.105) |
| <i>Industry</i> | includes | includes | includes | Includes | includes | includes | includes |
| Independent variable | | | | | | | |
| <i>EO</i> | .238*** (.058) | .371*** (.308) | | .377*** (.187) | .198** (.125) | .099* (.130) | .111** (.120) |
| Mediated variables | | | | | | | |
| <i>Value</i> | | | | | .752*** (.154) | | .455*** (.193) |
| <i>Rareness</i> | | | | | | .748*** (.029) | .425*** (.036) |
| <i>R²</i> | .138 | .153 | .064 | .151 | .638 | .625 | .715 |
| <i>Adjusted R²</i> | .093 | .108 | .020 | .106 | .617 | .603 | .697 |
| <i>F statistics</i> | 3.036*** | 3.407*** | 1.449 | 3.368*** | 30.108*** | 28.499*** | 39.081*** |
| <i>Sign F</i> | .001 | .000 | .170 | .000 | .000 | .000 | .000 |
| ΔR^2 | | | | .086 | .511 | .497 | .094 |

Note: Standardized regression coefficients are presented. Standard errors are in parentheses. The dependent variable is *competitive advantage*. The independent variable, entrepreneurial orientation, is measured using several alternative methods, encompassing *EO* model (innovation, proactiveness, and risk-taking). The mediated variables encompass *value* and *rareness*. The remaining variables report the control variables, including *firm size*, *firm age*, *DEMKT*, *environmental dynamism*, and *industry affiliation*. * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

When the dependent variable is subjective performance, all the results are presented in Table 4-12. EO is found to be positively associated with the value in Model 1 ($\beta = 0.238, p < 0.01$) and is also positively related to rareness in Model 2 ($\beta = 0.371, p < 0.01$). Therefore, again, Hypotheses 1 and 2 are supported. Model 4 indicates that EO is positively associated with satisfaction ($\beta = 0.346, p < 0.01$). When value is added into the equation in Model 5, the relationship between EO and satisfaction is still significant, while the significant level is reduced ($\beta = 0.289, p < 0.05$). The results represent that value has a partially mediating effect on the association between EO and satisfaction.

When rareness is added into the equation in Model 6, EO and satisfaction are shown to be significantly related, but the significant level is reduced ($\beta = 0.251, p < 0.05$). The results represent that rareness has a partially mediating effect on the association between EO and satisfaction. Finally, when value and rareness both enter the equation in Model 7, the relationship between EO and satisfaction is still significant, while the significant level is reduced ($\beta = 0.254, p < 0.05$). Overall, the results strongly indicate that value and rareness partially mediate the relationship between EO and satisfaction. Therefore, Hypotheses 3, 4, 5a, and 5b are strongly supported.

Table 4-12 Results of OLS Regression Model with Satisfaction (n = 201)

| Model (EO, Rareness, Satisfaction) | | | | | | | |
|---|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|-------------------|
| | <i>Value</i> | <i>Rareness</i> | | <i>Satisfaction</i> | | | |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
| Control variables | | | | | | | |
| <i>Firm age</i> | -.005 (.004) | -.123 (.024) | .072 (.051) | .039 (.049) | .040 (.048) | .071 (.048) | .061 (.048) |
| <i>Firm size</i> | .039 (.098) | .079 (.523) | .108 (1.105) | .065 (1.073) | .056 (1.045) | .058 (1.042) | .056 (1.040) |
| <i>DEMKT</i> | .071 (.053) | .174** (.282) | -.167** (.595) | -.124 (.578) | -.141 (.564) | -.168** (.568) | -.162** (.569) |
| <i>Environmental dynamism</i> | .031 (.055) | -.126 (.295) | .137* (.528) | -.060 (.605) | -.067 (.589) | -.027 (.590) | -.042 (.595) |
| <i>Industry</i> | includes | includes | includes | Includes | Includes | Includes | Includes |
| Independent variable | | | | | | | |
| <i>EO</i> | .238*** (.058) | .371*** (.308) | | .346*** (.633) | .289** (.628) | .251** (.644) | .254** (.643) |
| Mediated variables | | | | | | | |
| <i>Value</i> | | | | | .240*** (.777) | | .122 (1.089) |
| <i>Rareness</i> | | | | | | .255*** (.241) | .168* (.340) |
| R^2 | .138 | .153 | .068 | .142 | .191 | .197 | .203 |
| <i>Adjusted R²</i> | .093 | .108 | .024 | .096 | .144 | .150 | .152 |
| <i>F statistics</i> | 3.036*** | 3.407*** | 1.549 | 3.120*** | 4.038*** | 4.185*** | 3.974*** |
| <i>Sign F</i> | .001 | .000 | .133 | .001 | .000 | .000 | .000 |
| ΔR^2 | | | | .074 | .049 | .055 | .061 |

Note: Standardized regression coefficients are presented. Standard errors are in parentheses. The dependent variable is *competitive advantage*. The independent variable, entrepreneurial orientation, is measured using several alternative methods, encompassing *EO* model (innovation, proactiveness, and risk-taking). The mediated variables encompass *value* and *rareness*. The remaining variables report the control variables, including *firm size*, *firm age*, *DEMKT*, *environmental dynamism*, and *industry affiliation*.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

In Table 4-13, for the accounting performance ROA, EO is introduced into the regression equation and in the regression, the coefficient of EO on profitability is positively significant in model 4. When value and rareness are added into the equation in Models 5 and 6 respectively, the value-ROA and the rareness-ROA link are shown not to be significantly related. Finally, after introducing value and rareness into the equation in Model 7, the relationship between EO and ROA is still significant. However, value and rareness are both not significantly associated with ROA. Therefore, Hypotheses 3, 4, 5a, and 5b are not supported.

Similar procedures are followed for testing all the hypotheses again. The similar results in Table 4-14 are found in the stock market performance. Tobin's q , dependent variable, is introduced into Models 3, 4, 5, 6, and 7. Similarly, EO has a significant and positive influence on value ($\beta = 0.238, p < 0.01$) and rareness ($\beta = 0.371, p < 0.01$), supporting Hypotheses 1 and 2. When value and rareness are added into the equation in Models 5 and 6 respectively, the value-Tobin's q and the rareness-Tobin's q links are shown not to be significantly related. When introducing value and rareness into the equation in Model 7, the data indicates a strong significant relationship between EO and Tobin's q . However, the value and rareness are both not significantly associated with Tobin's q . Hypotheses 3, 4, 5a, and 5b are thus not supported.

Table 4-13 Results of OLS Regression Model with ROA (n = 201)

| Model (EO, Rareness, ROA) | | | | | | | |
|----------------------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | <i>Value</i> | <i>Rareness</i> | <i>ROA</i> | | | | |
| | Model | Model | Model | Model | Model | Model | Model |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Control variables | | | | | | | |
| <i>Firm age</i> | -.005 (.004) | -.123 (.024) | -.047 (.045) | -.061 (.045) | -.061 (.045) | -.068 (.045) | -.080 (.046) |
| <i>Firm size</i> | .039 (.098) | .079 (.523) | .068 (.982) | .050 (.986) | .048 (.988) | .051 (.987) | .048 (.984) |
| <i>DEMKT</i> | .071 (.053) | .174** (.282) | -.358*** (.529) | -.339*** (.531) | -.342*** (.533) | -.329*** (.539) | -.322*** (.538) |
| <i>Environmental dynamism</i> | .031 (.055) | -.126 (.295) | -.054 (.469) | -.139 (.556) | -.140 (.557) | -.146* (.559) | -.164* (.562) |
| <i>Industry</i> | includes | includes | includes | Includes | Includes | Includes | Includes |
| Independent variable | | | | | | | |
| <i>EO</i> | .238*** (.058) | .371*** (.308) | | .150* (.581) | .142* (.594) | .171* (.610) | .175** (.608) |
| Mediated variables | | | | | | | |
| <i>Value</i> | | | | | .035 (.734) | | .147 (1.030) |
| <i>Rareness</i> | | | | | | -.056 (.229) | .160 (.321) |
| <i>R²</i> | .138 | .153 | .176 | .189 | .190 | .192 | .201 |
| <i>Adjusted R²</i> | .093 | .108 | .137 | .147 | .143 | .145 | .150 |
| <i>F statistics</i> | 3.036*** | 3.407*** | 4.497*** | 4.416*** | 4.021*** | 4.063*** | 3.930*** |
| <i>Sign F</i> | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| ΔR^2 | | | | .014 | .000 | .002 | .005 |

Note: Standardized regression coefficients are presented. Standard errors are in parentheses. The dependent variable is *competitive advantage*. The independent variable, entrepreneurial orientation, is measured using several alternative methods, encompassing *EO* model (innovation, proactiveness, and risk-taking). The mediated variables encompass *value* and *rareness*. The remaining variables report the control variables, including *firm size*, *firm age*, *DEMKT*, *environmental dynamism*, and *industry affiliation*.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

Table 4-14 Results of OLS Regression Model with Tobin's q ($n = 201$)

| Model (EO, Rareness, Tobin's q) | | | | | | | |
|---|-------------------|-------------------|-------------------------------|--------------------|--------------------|--------------------|-------------------|
| | <i>Value</i> | <i>Rareness</i> | <i>Tobin's q</i> | | | | |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
| Control variables | | | | | | | |
| <i>Firm age</i> | -.005 (.004) | -.123 (.024) | -.010 (.004) | -.025 (.004) | -.025 (.004) | -.028 (.004) | -.037 (.004) |
| <i>Firm size</i> | .039 (.098) | .079 (.523) | .044 (.082) | .025 (.082) | .023 (.082) | .025 (.082) | .023 (.082) |
| <i>DEMKT</i> | .071 (.053) | .174** (.282) | -.212*** (.044) | -.192*** (.044) | -.195*** (.044) | -.192*** (.045) | -.183** (.045) |
| <i>Environmental dynamism</i> | .031 (.055) | -.126 (.295) | -.024 (.039) | -.110 (.046) | -.112 (.046) | -.113 (.046) | -.127 (.047) |
| <i>Industry</i> | includes | includes | includes | Includes | Includes | Includes | Includes |
| Independent variable | | | | | | | |
| <i>EO</i> | .238*** (.058) | .371*** (.308) | | .153* (.048) | .142* (.049) | .160* (.051) | .192* (.051) |
| Mediated variables | | | | | | | |
| <i>Value</i> | | | | | .044 (.061) | | .115 (.086) |
| <i>Rareness</i> | | | | | | .021 (.011) | -.102 (.016) |
| R^2 | .138 | .153 | .192 | .206 | .208 | .207 | .213 |
| <i>Adjusted R^2</i> | .093 | .108 | .154 | .164 | .162 | .160 | .162 |
| <i>F statistics</i> | 3.036*** | 3.407*** | 5.020*** | 4.917*** | 4.490*** | 4.456*** | 4.206*** |
| <i>Sign F</i> | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| ΔR^2 | | | | .010 | .000 | .000 | .002 |

Note: Standardized regression coefficients are presented. Standard errors are in parentheses. The dependent variable is *competitive advantage*. The independent variable, entrepreneurial orientation, is measured using several alternative methods, encompassing *EO* model (innovation, proactiveness, and risk-taking). The mediated variables encompass *value* and *rareness*. The remaining variables report the control variables, including *firm size*, *firm age*, *DEMKT*, *environmental dynamism*, and *industry affiliation*.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.

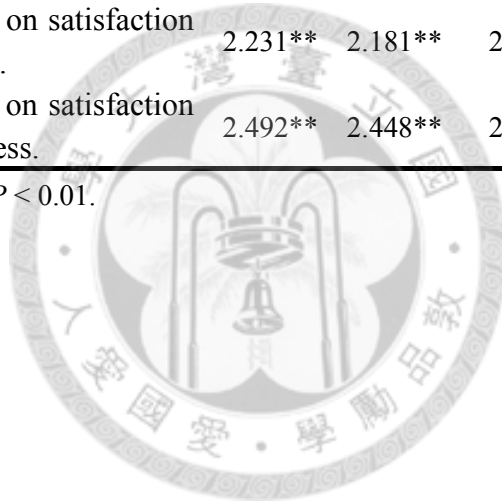
Finally, in order to further examine the mediating effects of resource-capability combinations on the EO-performance relationship, we utilize the tests proposed by Sobel (1982), Aroian (1947) and Goodman (1960). Their method is particularly useful in examining the influence of a mediating variable on the relationship between an independent and a dependent variable. In other words, their method estimates whether or not a mediating variable reflects the influence of an independent variable on a dependent variable. Table 4-15 shows that the results of the relationship between EO and performance in alternative models are significantly mediated by value and rareness, re-confirming the robustness of our predications on Hypotheses 5a and 5b.

Based on several methods (including SEM, OLS regression analysis, and Sobel test), it is consistent in the influence of EO on competitive advantage that is mediated by value and by rareness. Moreover, there has been similar result in the relationship between EO and satisfaction that is mediated by value and by rareness. However, it is also consistent in the influences of EO on both ROA and Tobin's q that are not mediated by value and rareness. Therefore, it is necessary that this dissertation examines whether the mediating effect can be consistent and supported by using different statistical methods.

Table 4-15 Mediating Effect of Value and Rareness

| Mediating relationship | Sobel test | Aroian test | Goodman test | Results |
|--|------------|-------------|--------------|---------------|
| H5a: The influence of EO on competitive advantage is mediated by the value. | 2.348** | 2.341** | 2.354** | Supported |
| H5b: The influence of EO on competitive advantage is mediated by the rareness. | 2.007** | 2.002** | 2.011** | Supported |
| H5a: The influence of EO on ROA is mediated by the value. | -0.14 | -0.13 | -0.15 | Not Supported |
| H5b: The influence of EO on ROA is mediated by the rareness. | -0.482 | -0.455 | -0.516 | Not Supported |
| H5a: The influence of EO on Tobin's q is mediated by the value. | 0.689 | 0.651 | 0.736 | Not Supported |
| H5b: The influence of EO on Tobin's q is mediated by the rareness. | -0.139 | -0.133 | -0.148 | Not Supported |
| H5a: The influence of EO on satisfaction is mediated by the value. | 2.231** | 2.181** | 2.284** | Supported |
| H5b: The influence of EO on satisfaction is mediated by the rareness. | 2.492** | 2.448** | 2.540** | Supported |

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$.



4.9 Regression Model for Moderating Effect

Table 4-16 shows the results of the hierarchical regression models undertaken to test the hypotheses. Models 2 and 4 are used to test Hypotheses 6a and 6b respectively. All regression equations are statistically significant at the $p < 0.01$ level, with approximately 15% to 17% of variance explained.

The dependent variable, value, enters Model 1. This is the based model that contains the control variables and the independent variable (EO). In the next step, the contingency approach to the relationship between EO and value is tested in Model 2 to see whether environmental dynamism would positively moderate the value-enhancing effect of EO. It is found that the introduction of the interactive terms of EO and environmental dynamism into the regression equation has a significant impact on the value ($\beta = 0.134, p < 0.05$); therefore, Hypothesis 6a is supported

Similar procedures are again conducted to test Hypotheses 6b. The dependent variable, rareness, enters Models 3 and 4. Model 3 is also the base model that contains the control variables and the independent variable (EO). Hypothesis 6b posits that environmental dynamism positively moderates the relationship between EO and the rareness. This study tests the hypothesis by adding the interactive terms of EO and environmental dynamism in Model 4. The interactive term has a significant and positive effect on the rareness ($\beta = 0.138, p < 0.05$). Therefore, Hypothesis 6b is supported.

In summary, to confirm the robustness of research findings from subsections 4.5 and 4.6, this study uses hierarchical regression models to test moderating effect, and the similar results are again found in this section.

Table 4-16 Results of Hierarchical Regression (n = 201)

| | <i>Value</i> Model | <i>Value</i> Model 2 | <i>Rareness</i> Model 3 | <i>Rareness</i> Model 4 |
|------------------------------------|-----------------------|-------------------------|----------------------------|----------------------------|
| | β | β | β | β |
| <i>Control variables</i> | | | | |
| Firm age | -.010 (.004) | -.004 (.004) | -.102 (.014) | -.122 (.014) |
| Firm size | .039 (.098) | .051 (.097) | .028 (.315) | .041 (.312)** |
| DEMKT | .074 (.052) | .073 (.052) | .163 (.168) | .176 (.168) |
| Industry | | | | |
| <i>Main variable</i> | | | | |
| EO | .254*** (.048) | .245*** (.057) | .306*** (.156) | .379*** (.184) |
| <i>Moderating variables</i> | | | | |
| Environmental dynamism | | .016 (.055) | | -.142 (.116) |
| <i>Two-way interactions</i> | | | | |
| EO × Environmental dynamism | | .134** (.036) | | .138** (.174) |
| R^2 | .138 | .156 | .144 | .171 |
| <i>Adjusted R²</i> | .097 | .106 | .103 | .123 |
| <i>F statistics</i> | 3.376*** | 3.156*** | 3.545*** | 3.532*** |
| <i>Significant F</i> | .001 | .001 | .000 | .000 |
| ΔR^2 | | .016 | | .027 |

Note: Standardized regression coefficients are presented. Standard errors are in parentheses. The dependent variable is *value* and *rareness*. The independent variable, entrepreneurial orientation, is measured using several alternative methods, encompassing *EO* model (innovation, proactiveness, and risk-taking). The moderating variable is *environmental dynamism*. The remaining variables report the control variables, including *firm size*, *firm age*, *DEMKT*, and *industry affiliation*.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

4.10 Bivariate Analysis

To further explain the moderating effect between EO and resource attributes, this dissertation examines this relationship by splitting the sample by a dummy variable: environmental dynamism. Figure 4-12 presents the graphs of the OLS regression lines between EO and value for two subgroups, namely, the high level of environmental dynamism and the low level of environmental dynamism. Figures 4-13 shows that EO has a positive and significant impact on value for the subgroup of the high level of environmental dynamism, and a positive, but insignificant, association for the subgroup of low level of environmental dynamism. This result indicates that EO is not stimulated to enhance the value of resource-capability combinations in a static environment, whereas higher environmental dynamism is more likely to encourage firms with EO to exploit the value of their resource-capability combinations.

Figure 4-13 suggests that, when firms face a high level of environmental dynamism, EO leads to significant and positive rareness-enhancing. However, when firms face a low level of environmental dynamism, the association between EO and rareness is still positive, but insignificant. This result indicates that EO encourages a firm to grasp the rareness of resource-capability combinations in a higher environmental dynamism. Facing a static environment, the probability becomes weak that firms with EO obtain the rareness of resource-capability combinations.

The results of the bivariate analyses are exactly the same as those of the regression analyses and SEM analyses. These results highlight differences between the subsamples with high and low levels of environmental dynamism by employing several statistical approaches. Therefore, Hypotheses 6a and 6b are strongly supported again.

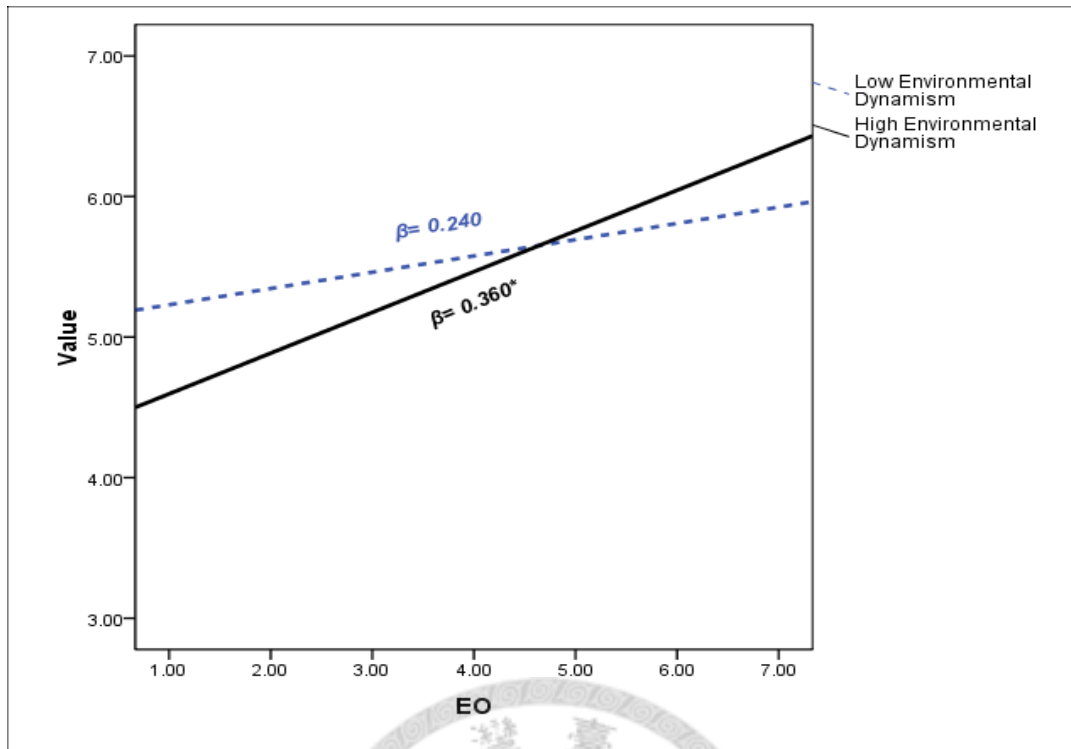


Figure 4-12: Association between EO and value: Bivariate analysis

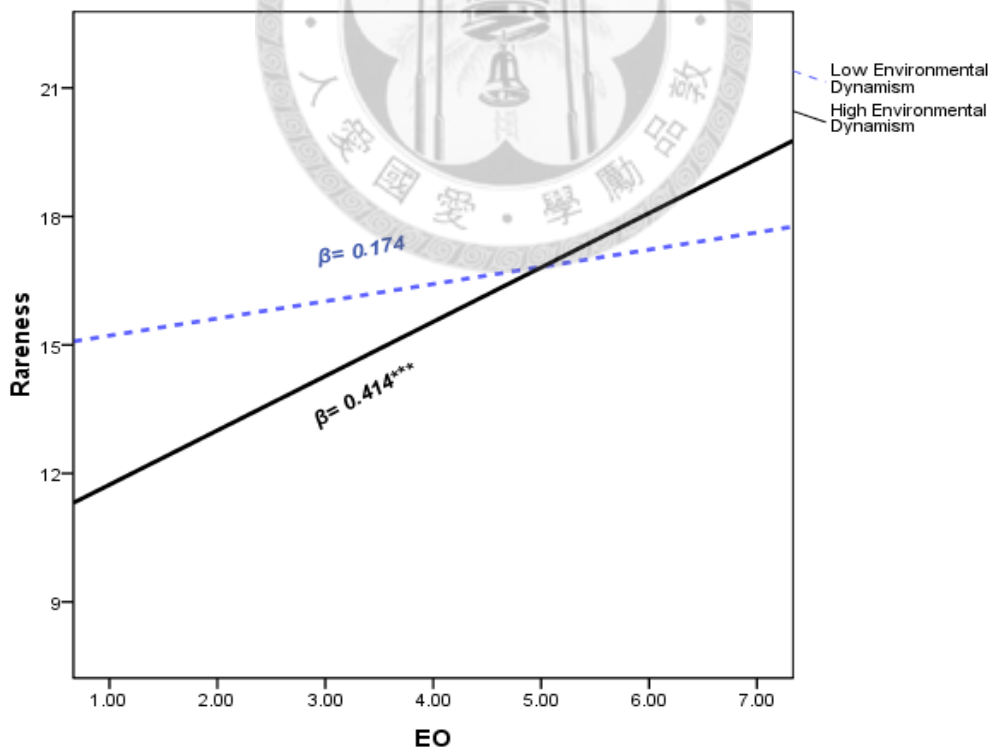


Figure 4-13: Association between EO and rareness: Bivariate analysis

Chapter 5

Conclusions

EO, a strategy-making process, has been an emerging issue in strategy process research in the field of strategic management, which is an organizational-level phenomenon and is to understand how it contributes to firm performance (Hart, 1992; Hitt et al., 2001). Such process, EO, is rarely predictive of in isolation. It is well recognized in strategic literature that the profits, competitive advantage, and satisfactions of firms are derived from at least two major aspects: organizational-inside forces (internal resources and capabilities) and organizational-outside forces (external environmental dynamism). In this study, EO benefits greatly derives from two mainly strategic logic: (1) analysis of industrial structure for outside; (2) the recognition and exploitation of valuable and rare resources for inside, and thereby both outside-in and inside-out logic are integrated in this proposed model.

With regard to the theories, in recent years, EO has become a main concept in the domain of entrepreneurship that has been viewed as a central research topic in strategic management (Meyer, Neck, & Meeks, 2002), and the resource-based view (Alvarez & Busenitz, 2001; Barney, 2001; Brown et al., 2001; Conner, 1991) and environmental dynamism (Conner, 1991; Covin & Slevin, 1989; Miller, 1983) are likely to advance our insights into entrepreneurship.

The purpose of this dissertation is to examine the EO issue by introducing resource attributes (value and rareness of resource-capability combinations) and environmental

dynamism into the EO-performance relationship. Although a high level of EO may enhance firms' abnormal returns and growth, solely pursuing a strong EO strategy may not be sufficient to improve firm performance (Covin & Slevin, 1989; Ireland, Hitt, & Sirmon, 2003; Stam & Elfring, 2008). Thereby, this dissertation specifically attempts to answer the following questions to solve above issue: (1) The EO-performance relationship may be not so straightforward, and thus this dissertation proposes following two sub-questions. Does a firm with EO obtain the value of resource-capability combinations? Or, does a firm with EO obtain the rareness of resource-capability combinations? (2) What variables might influence the EO-performance relationship? Is the relationship between EO and firm performance mediated by the value of resource-capability combinations? Or, is the relationship between EO and firm performance mediated by the rareness of resource-capability combinations? (3) What contextual variables might influence the EO-the resource attributes relationship? Particularly, this dissertation expects to examine whether this relationship is influenced by environmental dynamism. More specifically, is the relationship between EO and the value of resource-capability combinations magnified by environmental dynamism? Or, is the relationship between EO and the rareness of resource-capability combinations magnified by the rareness of resource-capability combinations?

The data for this dissertation was collected from public sources and a questionnaire survey. The questionnaire was distributed to the top management or CEO in firms, and those top managers were the respondents. Additional data was collected via a secondary database maintained by the Taiwan Economic Journal (TEJ). Based on the data collected from the secondary database (TEJ) and the questionnaire, this study has built a structural equation model (SEM) and an ordinary-least-squares (OLS) regression model to empirically test all the hypotheses.

5.1 Major Findings

The major findings of this dissertation are as follows:

1. EO is found to be positively related to the value of resource-capability combination, and EO is also positively related to rareness. Therefore, Hypotheses 1 and 2 are supported (see Table 5-1). That is, EO Firms with strong EO are likely to recognize and utilize valuable and rare resource-capability combinations. The results of this study support the resource-based perspective of entrepreneurship (Covin & Slevin, 1991; Lumpkin & Dess, 1996).
2. Value is positive related to firm performance when CA and satisfaction are regarded as performance, implying that the higher the value of resource-capability combinations in a firm, the greater is its performance. And, the rareness is introduced into the models that show the similar results.

However, there is no significant positively relationship between the value/rareness and firm performance when ROA and TQ are regarded as performance, implying that firm profits or abnormal returns can not be achieved even though a firm owns value/rareness of resource-capability combinations. Therefore, Hypotheses 3 and 4 are partially supported (see Table 5-1).

3. Following Baron and Kenny's (1986) procedure, this study tests the mediating effect by using several statistics methods, including OLS multiple regression analysis, the comparison of competing models, and Sobel tests. With respect to internal factors of the firm, although the relationship between EO and performance (including ROA and TQ) is not mediated by value and by rareness, the relationship between EO and performance (including competitive advantage and satisfaction) is found to be significantly mediated by value and by rareness. Therefore, Hypotheses 5a and 5b

are partially supported (see Table 5-1)

4. With respect to external factors, environmental dynamism is viewed as moderating variable and introduced into the proposed model in this study. It is found that environmental dynamism strengthens the relationship between EO and value/rareness of resource-capability combinations.
5. This study interviews two top managers who represent four firms of different industries respectively during the period of July 2012. Based on the following procedures, the interview samples are selected by this study. (1) The questionnaire survey includes 201 public firms that are selected as the sample. (2) Personal invitation letters are sent to top managers by email. (3) Top managers may be usually friendly and accessible. (4) The case represents the most complicated phenomenon of the real cases, so that nearly all relevant issues will be encountered. When obtaining the agreement of two firms (including YAGEO Company and GIGA-BYTE Technology Company), the interviews are conducted.

All the results of interviews are represented in Appendix B. This dissertation mainly introduce propositions and forms theoretical framework by pilot study. According pilot study, the research framework between among “EO, environmental dynamism, value and rareness, and performance” has been constructed (please see Figure B-14 in Appendix B), and the findings are as follows. (1) A firm with EO would influence obtainment and exploit of value. (2) A firm with EO would influence obtainment and exploit of rareness. (3) The value would influence firm performance. (4) The rareness would influence firm performance. (5) In stimulation of environmental dynamism, a firm has the characteristics of EO that would influence it to cultivate or grasp value or rareness.

Table 5-1: Summary of Research Findings

| Hypotheses | Firm performance | | Firm performance | |
|--|------------------|--------------|------------------|------------------|
| | CA | Satisfaction | ROA | Tobin's <i>q</i> |
| <i>H1: EO is positively associated with the value of resource-capability combinations.</i> | Supported | Supported | Supported | Supported |
| <i>H2: EO is positively associated with the rareness of resource-capability combinations.</i> | Supported | Supported | Supported | Supported |
| <i>H3: The value of resource-capability combinations is positively associated with firm performance.</i> | Supported | Supported | Not Supported | Not Supported |
| <i>H4: The rareness of resource-capability combinations is positively associated with firm performance.</i> | Supported | Supported | Not Supported | Not Supported |
| <i>H5a: The value of resource-capability combinations positively mediates the relationship between EO and firm performance.</i> | Supported | Supported | Not Supported | Not Supported |
| <i>H5b: The rareness of resource-capability combinations positively mediates the relationship between EO and firm performance.</i> | Supported | Supported | Not Supported | Not Supported |
| <i>H6a: Environmental dynamism strengthens the relationship between EO and the value of resource-capability combinations.</i> | Supported | Supported | Supported | Supported |
| <i>H6b: Environmental dynamism strengthens the relationship between EO and the rareness of resource-capability combinations.</i> | Supported | Supported | Supported | Supported |

5.2 Implications

The aim of this dissertation is to ascertain whether EO would result in firm performance by adding external factors and internal factors. Based on the results of examination in Chapter 4, this dissertation summarizes following implications.

1. Existing studies have tried to sort out the complexities regarding the possible associations between EO and the specific resource/capability. Some scholars content that EO represents a type of resource/capability; thus, EO and resource/capability are viewed as the same construct (Conner, 1991; Foss, Klein, Kor, Mahoney, 2008; Stevenson, & Gumpert, 1985; Lee, Lee, & Pennings, 2001). These scholars argue that entrepreneurship is an intrinsic feature of the resource-based framework, and the commitment and control of resources can be viewed as characteristics of a firm's entrepreneurial focus (Foss et al., 2008; Stevenson and Gumpert, 1985).

In contrast, some scholars argue that the relationship between entrepreneurship and resource/capability might not be so straightforward (Alvarez & Busenitz, 2001; Barney & Arian, 2001; Ireland, Hitt, & Sirmon, 2003; Lumpkin & Dess, 1996). Specifically, resource/capability and EO might represent completely different constructs and their associations deserve close examination (Lumpkin and Dess, 1996; 2001; Miller, 1983). This study challenges the conventional wisdom of the resource heterogeneity approach, which may over-emphasize the relationship between the role of a specific resource/capability and firm performance (Deephouse, 2000). The results of this study show that EO and resources/capabilities attributes (including value and rareness) represent different constructs (Ireland et al., 2003; Lumpkin & Dess, 1996).

2. RBV is used by strategic management scholars and integrated increasingly by

entrepreneurship scholars, identifying and explaining sustained competitive advantage and persistent performance differences among firms (Alvarez & Barney, 2002; Ireland et al., 2003). A firm with EO has a unique mindset or cognitive value resources and capabilities, thus grasping opportunities to own them. This firm's unique bundle of resources and capabilities, valuable resource-capability combinations, is different from those of competitive firms (Alvarez & Busenitz, 2001). The results also show that entrepreneurial orientation is positively associated with the value of resource-capability combinations.

3. Some studies point out that a firm with EO has an insight into the value of resources while others do not have the capability of recognition and may be unable to employ these resources, which implies that such resources and capabilities are rare (Casson, 1982; Shane & Venkataraman, 2000). Newbert's (2007) empirical study reports that a firm with EO knows better how to exploit rare resources and is more motivated to identify rare resource-capability combinations. The results of this study also show that EO has a positive influence on the rareness of resource-capability combinations.
4. Based on the above argument, a firm's EO stems from its innovation, proactiveness, and risk-taking, which determines the value and rareness of resource-capability combinations. This dissertation further explores whether firms with EO are likely to enhance their firm performance by reducing costs or differentiating products/services via the combination of resources and capabilities. All the results are examined in two different outcomes. Some results indicate that the relationship between EO and firm performance (including CA and satisfaction) is mediated by the value or rareness of resource-capability combinations while other results show that there is no relationship between EO and firm performance (including ROA and TQ) through these combinations. This implicates that a firm with EO lead to the high levels of

ambition, courage, and challenge, which support it to do right things rather than efficient things. That is, the promotion of competitive advantage and satisfaction is regarded as a main direction by firms with high levels of EO than with low levels of EO, and thereby such firms concern about prospective markets and needs of customers by grasping and exploiting value and rareness resources and capabilities. A firm with EO is more effort to obtaining competitive advantage or satisfaction in long-term than abnormal returns in short-term. Therefore, to aggressively carry off economic returns, even though a firm has entrepreneurial posture, it may be not expect to develop core competence by cultivating and exploiting valuable or rare resources and capabilities.

5. As to the association between resources attributes and firm performance, differing from Western firms (Newbert, 2008), Taiwanese firms show inconsistent results. With respect to the four indicators of firm performance, value and rareness have positive impact on competitive advantage and satisfaction, as opposed to ROA and TQ. There may be three reasons for explaining the results. First, Data for EO and resources attributes is derived from subjective measures while data for ROA and Tobin's q is derived from objective measures. These two different sources may lead to the insignificance of this relationship. Second, ROA and Tobin's q from a TEJ database are financial measures, and they may not really reflect valuable or rare resources. Especially, new ventures may not obtain such resources in their start-up years, thus resulting in negative economic returns (Luke et al., 2007). In addition, financial measures only present accounting returns rather than the advantages that are gained from intellectual, human and organizational capital. With respect to EO, the innovation of products, a forward-looking perspective and risk-taking are associated with intellectual, human, and organizational capital, thus yielding firm performance.

Third, the measurement of ROA and Tobin's q may be influenced by a so-called "Financial Tsunami" environment.

6. Based on the theoretical framework, this dissertation investigates the effects of EO on firm performance from following perspectives. (1) In addition to prior internal factors from inside-out view, (2) this study further explores whether a firm with EO can obtain the value or rareness of resource-capability combinations in a high level of environmental dynamism from outside-in view. It is found that a firm with EO does exert a positive influence on value and rareness, yet it seems that EO alone is not a major driving force in determining value and rareness (Covin & Slevin, 1991; Zahra, 1993). In order to survive in all stages of the organizational cycle, firms with EO aggressively seize valuable/rare resources and capabilities to reduce uncertainty that they face, but conservative firms without innovation, proactiveness, and risk-taking might exploit valuable/rare resources and capabilities in a low level of environmental dynamism rather than in a high level of environmental dynamism (Jones, 2007) (please see Figure 4-13). However, ignoring environmental dynamism, a firm's EO is still pursuing performance through high levels of value and rareness (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zahra, 1993).

Moreover, by interviewing Mr. Huang and Mr. White in YAGEO Company and GIGA-BYTE Technology Company respectively (Appendix B), this study finds that both internal factors (such as intelligent, financial, organizational, and human resources and capabilities) and external factors (such as environmental dynamism) would influence firm performance. That is, both resources attributes in an organization and environmental dynamism in the out an organization are simultaneously considered in business operation from strategic thinking and analytical framework. Thus, a firm can build strategic positions and may have

opportunities to improve performance by fitting internal resources/capabilities and environmental dynamism (Figure 5-1). With respect to the view of IO and entrepreneurship theory, when a firm with EO cognizes new opportunities and enters new markets in environmental dynamism, the critical resources/capabilities utilized by this firm may not be viewed as valuable resources/capabilities by its competitors. Therefore, the situation of environmental dynamism is necessary to precipitate the effect of EO on resource attributes; that is, environmental dynamism plays a significant supporting role in facilitating the value/rareness of resource-capability combinations for a firm with EO (Schumpeter, 1934). However, top managers in case study emphasize no matter what environment a firm faces, valuable and rare resources/capabilities are important in strategic position, which is consistent with the concept of RBV (Barney, 1991). Therefore, according to the strategic logic, when the influence of EO on firm performance can be promoted, firms must simultaneously consider two views: inside-out and outside-in.

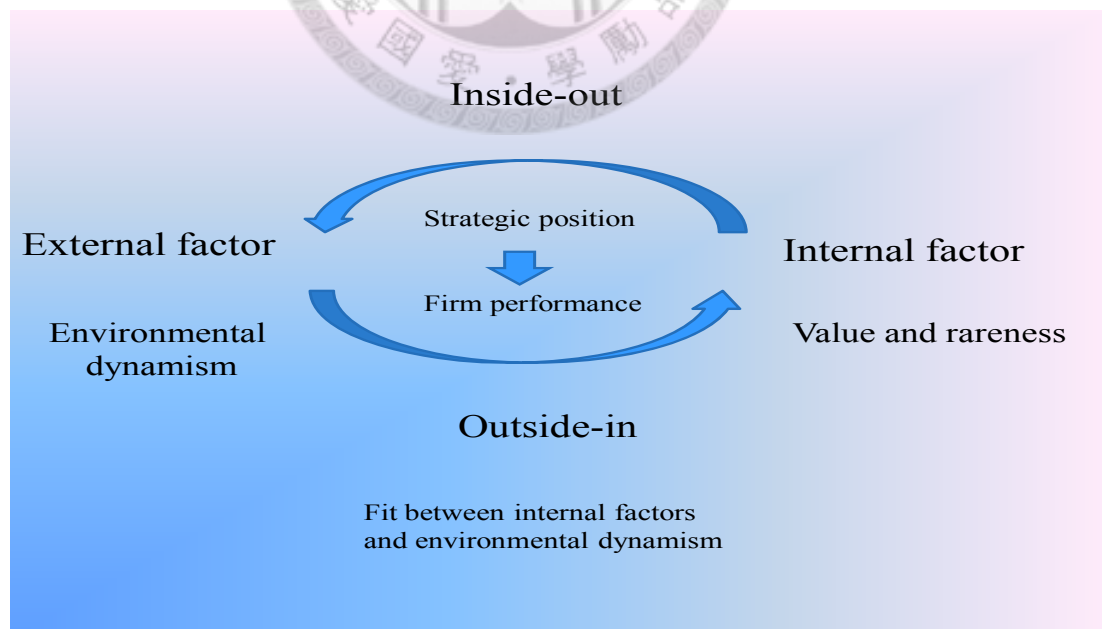
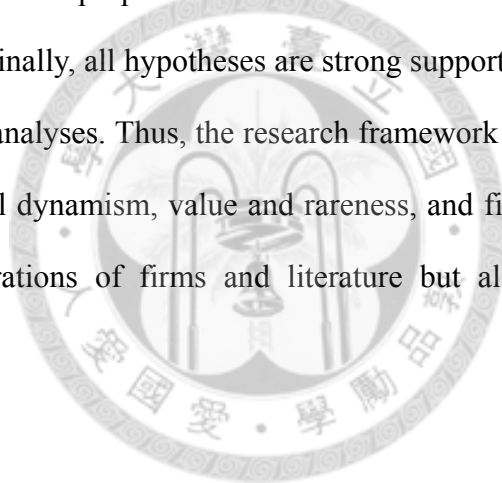


Figure 5-1 Strategic Logic of Inside-out and Outside-in

7. In the field of strategic management, some research issues can be empirically examined by using a questionnaire survey or secondary data to measure the constructs of management issues. However, the limitation in scales and measures of items may lead to miss some important variables in the framework of this study. Therefore, this dissertation provides case study from firms' practices to identify and support the accuracy of research propositions, through interviewing a top manager in firms. Based on the literature of RBV, entrepreneurship theory, and environmental dynamism, this dissertation acquires several constructs and further constructs the propositions between these constructs by pilot case to fill a gap of literature (Yin, 1994). In terms of these propositions and literature review, all hypotheses are built in this dissertation. Finally, all hypotheses are strong supported or partially supported by several statistical analyses. Thus, the research framework of the associations between EO, environmental dynamism, value and rareness, and firm performance is not only proposed by operations of firms and literature but also supported by statistical analyses.



5.3 Research Limitations and Directions

Despite its contributions, this study has following limitations that possibly pave the way for future research.

1. This study relies on the self-reported data from top managers, so it may be involved with a common method variance (CMV). To address the potential concerns of common method bias and single informant bias, several procedural and statistical remedies were used (Podsakoff et al., 2003). Regarding the procedural remedies (ex ante preventive methods), the managers were guaranteed anonymity and the questionnaires were mailed directly to them. Item ambiguity was also reduced, and related items were separated to avoid the respondents guessing the relationship between the variables (Podsakoff et al., 2003). As for the statistical remedies (ex post testing methods), Harman's single-factor test, a widely-adopted post hoc remedy, was used to estimate whether our data had a CMV problem or not (Podsakoff and Organ, 1986). The results showed that the first factor accounted for only 10.34% of variance among the variables. This implied that there were no serious CMV problems in our data.
2. The data of this study was derived from diverse industries in Taiwan, and the empirical evidence derived from a single country may not be able to generalize the situation of other developed or developing economies. Future studies may consider collecting data from various countries to achieve more generalizable research findings.
3. Several studies have suggested that the effect of EO on firm performance is a long-term rather than a short-term (Wiklund, 1999; Zahra & Covin, 1995). A firm with EO is viewed as a first-mover and introduces new products or services ahead

of competitors. This action helps first-movers to establish markets, thus sustaining a superior performance. To avoid the error of measurement for short-term returns, a number of performance indicators are used in this study to estimate the effectiveness of business operations between 2007 and 2009 (Combs & Ketchen, 1999). The results show that EO indeed influences firm performance, and the relationship between EO and firm performance (including competitive advantage and satisfaction) can be mediated by value/rareness of resource-capability combinations. In addition, this study further examines the relationships between EO, value/rareness of resource-capability combinations and firm performance over a future two-year period (2010-2011). The results show that all the Hypotheses are not supported when performance is measured using a future two-year period. There are two possible explanations for these results. First, based on small- and medium-sized enterprises in Western countries, prior scholars find that the strength of EO-performance will increase over time. However, the sample in this study mainly focuses on public firms that include a variety of organizational types, and this may produce insignificant results between EO, value/rareness, and firm performance. Second, both *ROA* and *Tobin's q* that are the indicators of objective performance may be not indeed represent the advantages of a firm with EO because engaging in bold initiatives and risk-taking is usually inherent in a firm with EO and such firm may invest heavily in long-term growth to increase non-financial goals, such as the satisfaction of customers, market share, and brand image. Therefore, based on a large sample of small- and medium-sized enterprises in Taiwan, the framework of the mediating effects in this dissertation can be examined in future studies.

4. This study focuses how EO, environmental dynamism, and resource attributes influence firm performance by using quantitative research. However,

entrepreneurship is a complex process that is related to the context and conditioned by many factors. Therefore, in order to truly understand the entrepreneurial career and posture of a firm, it is useful that scholars must spend a good deal of time to study the start, mature, and declining stages of the life cycle of this firm by getting close to its managers, employees, owners, or customers (Miller, 2011; Neergaard & Ulhoi, 2006). However, the EO literature has shied away from qualitative studies, perhaps because they are hard to carry out due to the time, skills, and access required. Thereby, this dissertation introduces pilot case and chooses two firms (including YAGEO Company and GIGA-BYTE Technology Company) with EO that are regarded as the sample of pilot case by interviewing top managers. Due to the time and space of printed paper, this study only uses two cases to discuss this issue and to construct propositions. It is suggested that future scholars can continue access to other firms from different industries.

5. Although this dissertation has pointed out the mediating and moderating factors, many possible contingency factors may still exist. Some scholars have argued that organizational structure may influence the relationship between EO and firm performance (Nordqvist & Melin, 2010; Nordqvist, Habbershon, & Melin, 2008). For example, the family firm is not only the oldest, but the general organization type, of all enterprises in the world. Recent academic studies note that family firms have been viewed as an important organizational type, structure, and a unique context for firms in developed, developing, and emerging economics (Casillas & Moreno, 2010; Nordqvist & Melin, 2010). Many firms in Taiwan are family firms that have following characteristics: family-owned or family-managed. Future studies may be able to examine whether possessing EO would influence the performance of family vs. non-family firms.

6. In terms of external environmental factors, this dissertation only examined one variable: environmental dynamism, with a focus on whether environmental dynamism can lead to the effectiveness of resource attributes. However, the association between EO and performance may be influenced by other environmental variables, such as hostility. For instance, some scholars have examined the effects of environmental dynamism and hostility on the success of firms in Western countries (Covin & Slevin, 1989; Dess et al., 1997). However, this issue remains unclear in Eastern countries. Thus, future studies should try to explore external environmental factors and their influences on Taiwanese or Chinese firms.
7. Some scholars have argued that a close relationship may exist between EO and top management teams (Lumpkin & Dess, 1996; Zahra, 1993; Zhou & Li, 2007). According to the perspective of the upper echelons, Hambrick and Mason (1984) argue that organizational outcomes, strategies and effectiveness, are reflected in the dominant coalition of a firm, especially its top management team. Early on, EO emerges from a strategic-choice perspective (Child, 1972), and then Mintzberg (1973) viewed this proclivity as an entrepreneurial strategy mode that is characterized by an active search for new opportunities, undertaking risky decisions, and taking dramatic leaps forward. Therefore, some scholars have viewed EO as entrepreneurial strategy-making in terms of process, approach, and styles of decision-making (Dess, Lumpkin, & Covin, 1997; Li & Li, 2009; Simsek, Heavy, & Veiga, 2010). From prior studies of EO and the upper echelons perspective, there are two streams of academic research. First, future studies can examine how top management teams moderate the relationship between EO and firm performance. Second, top management teams are viewed as the antecedent factor which may be examined to ascertain how to influence EO.

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Appendix A: Questionnaire

中文版問卷

第一部份：創業家精神：下列各題都有左右兩邊不同的敘述句，一般而言，貴公司高階主管比較偏向哪一邊的作法？請在適當的□中打✓

| 敘述一 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 敘述二 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| 1 高階主管非常強調現有產品或服務的行銷。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 非常重視研發、技術領先和創新。 |
| 2 公司過去5年中沒有推出任何新的產品或服務。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 過去5年中有推出許多新的產品或服務。 |
| 3 新產品或服務的改變大多是小幅度的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 新產品或服務的改變大多是大幅度的。 |
| 4 當公司面對同業競爭時，通常競爭者先採取行動，之後，我們再回應。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 當公司面對同業競爭時，通常我們會先採取行動，之後，競爭者再回應。 |
| 5 公司很少率先推出新產品、服務、管理模式或營運科技。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 經常率先推出新產品、服務、管理模式或營運科技。 |
| 6 在開發新產品與新思維方面，高階主管強烈傾向於做一個「跟隨者」。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 在開發新產品與新思維方面，高階主管強烈傾向於做一個「領導者」。 |
| 7 高階主管強烈傾向採行「低風險、正常報酬」的投資計畫。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 強烈傾向採行「高風險、高報酬」的投資計畫。 |
| 8 基於外在環境的因素，高階主管認為企業必須採取「謹慎、漸進式」的經營作為。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 基於外在環境的因素，為了達成公司目標，必須採取「大膽、大範圍」的行動。 |
| 9 當面臨不確定狀況下的決策時，公司典型上會採取謹慎、保守、觀望的態度，以達到最小化成本決策的可能性。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 當面臨不確定狀況下的決策時，公司典型上會採取大膽、積極的態度，以最大化發掘潛在機會的可能性。 |
| 10 公司很少為了跟上市場和競爭者的腳步，而改變行銷實務。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 公司常常改變行銷實務(約每年改變一次)。 |
| 11 公司所在的主要產業，產品或服務的老舊速度非常慢(例如基礎金屬等)。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 產業老舊過時的速度非常快(例如時尚商品、半導體產業等)。 |
| 12 公司所在的主要產業，競爭行為很容易預測。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 產業中競爭者的行為無法預測。 |
| 13 公司所在的主要產業，需求與顧客品味很容易預測(例如奶製品公司等)。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 產業的需求與品味幾乎無法預測(例如高度時尚商品等)。 |

- 14 公司所在的主要產業，產品或服務 產業的產品或服務模式很容易改變
 科技非常不易改變，且有既定的模 (例如先進的電子零件等)。
 式(例如鋼鐵製造等)。

第二部份：資源與能力 (本題涉及的名詞定義如下，懇請您耐心看完，謝謝您!)

資源：公司擁有的有形、無形資產，分為下列五種：

- (1) **財務資源：**資本、現金、股權、保留盈餘等。
- (2) **人力資源：**公司的主管和員工經過訓練、有經驗、智慧，或具有良好關係。
- (3) **智慧資源：**公司擁有專利權、著作權、商標權，或其他貿易機密行為。
- (4) **組織資源：**與其他公司的關係，例如合作伙伴、供應商、顧客、銀行等。
- (5) **有形資源：**實際技術、工廠、設備等。

能力：公司擁有的、無形的營運過程(如：技術、技能、專門知識、設計規劃、管理能力等)。

一、下列四小題是有關貴公司所擁有的資源與能力的陳述，您的同意程度為何？請在適當中打√。

| | 非常不同意 | 不同意 | 有點不同意 | 普通 | 有點同意 | 同意 | 非常同意 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 在已擁有 <u>資源</u> 的情況下，公司若擁有以下 <u>能力</u> 來運用該資源，則可 降低成本 ： | | | | | | | |
| a. 運用財務資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 運用人力資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 運用智慧資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 運用組織資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 運用有形資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 在已擁有 <u>能力</u> 的情況下，公司若擁有以下 <u>資源</u> ，則可 降低成本 ： | | | | | | | |
| a. 財務資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- 3 在已擁有資源的情況下，公司若擁有以下能力來運用該資源，則可開拓目標市場的機會：
- | | | | | | | | |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 4 在已擁有能力的情況下，公司若擁有以下資源，則可開拓目標市場的機會：
- | | | | | | | | |
|--------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

二、下列三小題是有關貴公司的資源與能力運用情況的陳述，您的同意程度為何？請在適當□中打√。

- 2 在試圖降低成本、開拓市場機會，或避免競爭威脅時，相較於有類似能力的公司，本公司會運用這些能力在下列各種不同的資源上(與其他公司相較，運用類似的能力在不同的資源上)：
- | | 非常不同意 | 不同意 | 有點不同意 | 普通 | 有點同意 | 同意 | 非常同意 |
|--------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 2 在試圖降低成本、開拓市場機會，或避免競爭威脅時，相較於有類似資源的公司，本公司會運用以下不同的能力去使用這些資源 (與其他公司相較，運用不同的能力在類似的資源上)
- | | | | | | | | |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 運用財務資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 運用人力資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 運用智慧資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 運用組織資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 運用有形資源的能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3 在試圖降低成本、開拓市場機會，或避免競爭威脅時，相較於競爭同業而言，公司會利用下列非常獨特的資源與能力之結合：

- | | | | | | | | |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

第三部份：競爭優勢：下列三小題是有關競爭優勢的敘述，貴公司的同意程度為何？請在適當□中打√。

- | | 非常不同意 | 不同意 | 有點不同意 | 普通 | 有點同意 | 同意 | 非常同意 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. 公司如果能夠結合下列資源與能力，就可以 <u>降低成本</u> ，達到高度競爭優勢： | | | | | | | |
| a. 財務資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2. 公司如果能夠結合下列資源與能力，就可以開拓目標市場的機會；

- | | | | | | | | |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3. 公司如果能夠結合下列資源與能力，就可以避免同業的競爭威脅：

- | | | | | | | | |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 財務資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 人力資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 智慧資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 組織資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 有形資源與能力的結合..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

第四部份：公司基本資料

1、一般而言，貴公司在衡量績效時，下列各項指標的重要程度為何？另外，與同業相較，貴公司對過去三年各項指標表現的滿意程度為何？請在適當□中打√。

| 1. 下列各項指標在績效衡量上的重要程度： | 非常不重要 | 不重要 | 有點不重要 | 普通 | 有點重要 | 重要 | 非常重要 |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 資產報酬率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 銷售成長率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 獲利率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 品牌/公司形象 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 顧客滿意度 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| 2. 對各項指標三年表現的滿意程度： | 非常不滿意 | 不滿意 | 有點不滿意 | 普通 | 有點滿意 | 滿意 | 非常滿意 |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. 資產報酬率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. 銷售成長率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. 獲利率 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. 品牌/公司形象 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. 顧客滿意度 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2、請問貴公司成立大約幾年？_____年

3、請問貴公司的員工人數大約是多少？_____人

4、請問貴公司的資產總額大約是多少？新台幣_____元

5、貴公司的主要產業別為何？

水泥 食品 塑膠 紡織 電機機械 電器電纜 化學、生技醫療 玻璃陶瓷 造紙 鋼鐵 橡膠 汽車 電子與資訊 建材營造 運輸 觀光 油電燃 貿易百貨 其他

6、請問您的職務為：

董事長/總經理 高階主管 助理或秘書 其他

Appendix B: Pilot Case Study

個案研究

本個案係以第二章文獻回顧所提及之資源基礎(resource-based view)、環境動態(environmental dynamism)與創業家精神(entrepreneurship)等相關理論為基礎，其目的在探討下列幾個問題：(1)創業家導向是否有助於公司獲得價值性的資源與能力？(2)創業家導向是否有助於公司獲得稀有性的資源與能力？(3)這些在公司內部具有價值性(或稀有性)的資源與能力是否提升公司績效？(4)公司若具備創業家導向，是否能藉由價值性的資源與能力來提升公司績效？(5)公司若具備創業家導向，是否能藉由稀有性的資源與能力來提升公司績效？(6)當公司面對高環境動態性時，這樣的環境是否能激發公司發揮創業家導向，獲得具有價值性的資源與能力？(7)當公司面對高環境動態性時，這樣的環境是否能激發公司發揮創業家導向，獲得具有稀有性的資源與能力？本研究以理論回顧與假設建立為藍本，導入前置個案分析(pilot case study)，其目的有二，首先，在進行探究性研究時，藉由進入產業的相關公司年報、產業分析資料與高階主管實務經驗訪談的綜整，澄清並確認研究主題的概念、研究問題和整體觀念架構；其次，藉由個案分析確認研究是否出現新的問題或構念 (Yin, 2001)？換言之，祈經由前置個案確認研究主題的價值性和研究問題，並透過多重資料來源(如文件、檔案、訪談、直接觀察和參與觀察)，對研究議題提供深入的見解，最後，發展成研究命題。

1. 個案研究法

個案研究的本質在於試著闡明一個或一組決策(set of decisions)，為什麼這樣的決策會被採用、如何執行、會有什麼樣的結果 (Schramm, 1971)。Yin (1994)認為個案研究是一種實徵探究(empirical inquiry)，在真實的背景中，公司面對不同情況下所做的反應，明確反應當時現象，特別是在現象和背景之間的界線不是非常清楚時。亦言之，個案研究必須包含真實情境中的條件，且這些條件與研究的主題有所關連性。因為，通常在實驗法中會將現象從研究背景中抽離出來，研究者將焦點放在所關心的研究變項上，操控研究事件所在的環境，而調查法通常也侷限在所欲分析的變項上。然而，個案研究法提供了不同的觀點，認為現象和背景在實際現象之間有唇齒相依之關係，透過三角檢定(triangulation)的方式(多重證據來源)，達到收斂之相同的研究結果。

個案研究是一種周延而完整的研究策略，包含研究設計邏輯、資料蒐集與分析方法。就個案研究法而言，研究設計包含五個要素，分別解釋如表 B-1:

表 B-1 不同研究策略的相關狀況

| 要素 | 說明 | 本研究採用的要素 |
|---------|---|---|
| 研究問題 | 確認研究問題的本質: Who, What, Where, How, How many, How much, Why | 本研究的研究問題: 面對環境動態時，公司如何利用創業家導向利用資源與能力?並如何進一步提升公司績效? |
| 研究命題 | 研究命題會將研究者的注意力引導在研究範圍內所要檢視的問題上。 | 依研究目的產生問題，進行文獻回顧與個案研究形成研究命題，如本附錄的個案分析結果(5.1~5.3)。 |
| 分析單元 | 一些事件或個體: 國家經濟、產業、組織、團隊、個人。 | 本研究的分析單位: 組織(公司)層級。 |
| 連結資料與命題 | 類型比對(pattern-matching): 個案中的一些資訊可能會與某些理論相關。 | 本研究回顧 Entrepreneurship Theory, Resource-based View, External Approach: Environmental Dynamism 等理論或觀點結合個案所蒐集的資訊形成命題。 |
| 解釋發現的準則 | 目前沒有明確的方法，只希望能比對出不同的類型。 | 收斂文件、訪談和檔案資料得到可撰寫報告中的分析結果。 |

資料來源: 依 Yin (1994)研究整理。

一般而言，個案研究通常關心的變項會較多，但侷限於時間與有限的資源，研究者會減少所分析的變項，因此，若能事先發展理論命題，即能有效導入資料蒐集和分析。Eisenhardt(1989)認為當研究的現象無法被現有的理論解釋，或在解釋上存在衝突或不足時，對研究問題可整理構念並從個案中建立理論命題。Yin(1994)的方法論強調研究設計的邏輯，以便形成以個案資料和從理論中推導出的命題。

本論文依個案研究中的前置個案法為主軸來進行研究設計，前置個案是形成研究命題之前進行的研究，它提供了對研究議題較深入的看法，這些資訊與目前的文獻相互對應比較，由此，結合目前的理論和一組最新的實徵觀察形成最後的研究架構。藉由理論與實徵觀察雙重的資訊來源可支持研究的進行，並反應理論和政策上重要的議題，而這些問題也反應在研究的個案上(Yin, 1994)。基本上，前置個案的研究僅須大略設計，不

需要太精確的設計與資料蒐整(Yin, 2003)。依 Yin (1994)的看法，選擇前置個案有下列兩個原則：(1)個案的資訊提供者是友善、容易接觸、地理位置方便或有完整的輔助參考文件；(2)個案可提供複雜的現象，研究議題的資料蒐集都可在這個個案場域觀察到。本研究配合文獻回顧及研究主題適用於各種產業，故選擇個案樣本的標準除上述兩點外，還需(3)已經正式營運且上市櫃的事業，俾利了解個案公司的發展歷程與組織文化；(4)個案公司強調實務的行動而非主觀的認知。

依 Yin (1994)的個案研究設計觀點，一般可分為整體性的單一個案設計(holistic single-case designs)與整體性的多重個案設計(holistic multiple-case designs)。所謂整體性的單一個案設計係指，個案研究的分析單元是整體公司(組織)層面，測試一個成熟理論的關鍵性個案，且理論已經具體說明一組清楚的命題，以及命題所適用的條件。另外，整體性的多重個案設計係指，以整體公司(組織)層面為分析單元，採取所謂的「複現邏輯(replication logic)」，使得兩個或兩個以上的個案都有相類似的結果。其目的有二：第一，預測類似結果，屬於原樣的複現(a literal replication)；其次，藉由可預測的理由，產生不同的結果，屬於理論複現(a theoretical replication)。整體性的單一個案與整體性的多重個案設計之間並沒有很大的差異，僅是在個案研究策略下的兩種不同的研究設計。但兩者比較起來有不同的優缺點，通常多重個案研究的優點在於藉此研究設計，可就想瞭的現象做反覆性的觀察，分析與比較，得以延伸理論，因此多重個案研究所得到的證據，通常被認為是較強而有力、穩健且具有說服力，整個研究比較能趨於穩健且一致性(Eisenhardt, 1989)。然而，多重個案研究的缺點則在於無法滿足採用單一個案設計的標準，例如關鍵性個案、例外或少數個案，此外執行多重個案需要充分的資源與時間。

綜上所述，本研究採用整體性的多重個案設計(兩個個案)，原因有下列兩點：(1)研究議題係屬於各產業(傳統產業或高科技之被動元件、IC、電子零組件.....等產業)都可觀察到的現象，預測會得出相類似的結果；(2)雖然研究的相關理論都已經發展臻於成熟階段，但創業家精神與資源基礎理論的結合所形成的議題上仍有缺口存在，在理論上可能欠缺直接連接證據。因此，希望藉由前置個案研究之整體多重個案設計，收斂出類似結果並形成研究命題。

2. 前置個案的分析方法

前置個案研究參考 Yin (1994)的個案研究方法，必須由發展理論開始，然後說明個案的選擇與研究分析法，接著撰寫報告與發現、最後藉由報告得到命題。本研究在既定的研究問題、文獻回顧、參酌文件與蒐集檔案紀錄等基礎下，擬定訪談大綱。就文件而言係指個案公司近年的年報資料；就檔案紀錄係指產業次集資料的蒐整，包含了大眾媒體的文章、公開資訊觀測站、工業年鑑、資訊工業年鑑及資策會(MIC)的產業分析資料。就訪談大綱而言，根據第一章的研究問題與第二章的文獻回顧所得到的相關構念做為訪談開端，過程中保持理論的開放與彈性(Eisenhardt, 1989)，要求受訪者提出他自己本身對本研究議題深入的見解，使本研究對創業家導向、外部環境動態與公司內部價值性/稀有性資源與能力的取得議題有更豐富見解。

訪談可說是個案研究重要資訊來源之一，訪談包含的形式有下列三種：(1)開放式訪談(open-ended interview)：研究者可就事實拜託受訪者回答研究議題的見解，並利用訪談的資訊形成命題做為進一步研究的基礎。(2)焦點式訪談(focused interview)：研究者必須在一段短時間內訪談受訪者，例如一小時。訪談依舊維持開放式與彈性且必須遵循一組特定的問題來進行訪問。(3)問卷調查(survey)：訪談內容限於結構化的問題，這樣的問卷設計可作為研究個案的一部分。然而，本研究基於受訪者時間的限制，但又兼顧訪談內容不失開放性與彈性，因此本個案研究是建立在開放訪談的基礎上，採取焦點式訪談。

綜上所述，本前置個案研究以目前發展的理論為背景，採取整體性多重個案設計，資料分析來自受訪者陳述的初級資料，與產業分析等次集資料作為研究結果分析的多重來源，加以整理精簡後，得到前置個案簡介與描述，並透過前置個案分析形成研究命題。

3. 前置個案訪談簡介與描述

本研究前置個案的選擇以容易接觸、可提供複雜現象及上市櫃公司為原則，因此選擇主機板產業的技嘉科技股份有限公司與被動元件產業的國巨股份有限公司，分別訪談副總經理與事業部門總監等高階主管，其相關資料彙整如表 B-2:

表 B-2 受訪者基本資料

| 公 司 名 稱 | 技嘉科技股份有限公司 | 國巨股份有限公司 |
|-----------|--|--|
| 受 訪 對 象 | 白光華先生 | 黃義鎔先生(Ben) |
| 職 務 | 副總經理/策略資訊長 | MLLC 事業部總監 |
| 學 歷 | 國立台灣科技大學研究所碩士 | 國立成功大學 EMBA 國立清華大學材料科學研究所碩士 |
| 重 要 經 歷 | 美格科技資深經理/代廠長 中凌科技協理 資策會講師 | 國巨公司全球品質管理處品質長 華亞電子公司副總經理 品質學會理事 品質教育委員會主委 |
| 受訪者進入產業年資 | 10 年 | 12 年 |
| 訪 談 地 點 | 台北新店技嘉公司會議室 | 國巨公司高雄 MLCC 研發部辦公室 高雄文化中心附近西餐廳 |
| 訪 談 時 間 | 2012/7/30(星期五) 1500-1640(共計 100 分鐘) | 2010/1/4(星期一) 1000-1100(共計 60 分鐘) 2012/7/14(星期六) 2000-2100 (共計 90 分鐘) |

資料來源：本研究整理

3.1. 技嘉公司

第一個公司是技嘉科技股份有限公司，本研究羅列該公司的相關基本資料，包含產業別、成立時間、創業核心成員等，如表 B-3。

表 B-3 基本資料

| | |
|----------|--|
| 公司名稱 | 技嘉科技股份有限公司 |
| TEJ 產業別 | 電子業 |
| TEJ 子產業別 | 主機板產業 |
| 成立時間 | 1986/4/30 |
| 創業核心成員 | 五位同學創業：葉培城、馬孟明、劉明雄、柯聰源與廖德和 |
| 董事長 | 葉培城先生 |
| 總經理 | 馬孟明先生 |
| 員工人數 | 2,700 人 |
| 創業資本額 | 新台幣 70,000,000 元 |
| 實收資本額 | 新台幣 62,450,000,000 元 |
| 股票上市時間 | 1998/9/24 |
| 主要產品 | 主機板(74%) 3D 加速顯示卡、筆記型電腦、平板電腦、智慧型手機、電腦 周邊產品與網路儲存相關產品(26%) |

資料來源：本研究整理。

3.1.1. 主機板產業

主機板的功能主要係負責連接電腦中各種關鍵零件組的運作，例如，中央處理器、顯示卡、記憶體、硬碟等，並且也提供周邊設備連接，像是，印表機、滑鼠、數據機等，主要讓這些裝置元件能夠順利運作和存取資料。台灣主機板產業位於資訊產業鏈中屬於中游的階段，所需要的零組件幾乎全向上游廠商購買，整合各項零組件於一片電路板上，並使其穩定協調沒有任何衝突的運作。所以，主機板廠商必須熟悉各項新技術的應用並搜尋在價格上具有競爭優勢的晶片，將其整合研發製造成主機板，最後，賣給下游的知名品牌電腦廠商或自組電腦的玩家(如圖 B-1)。

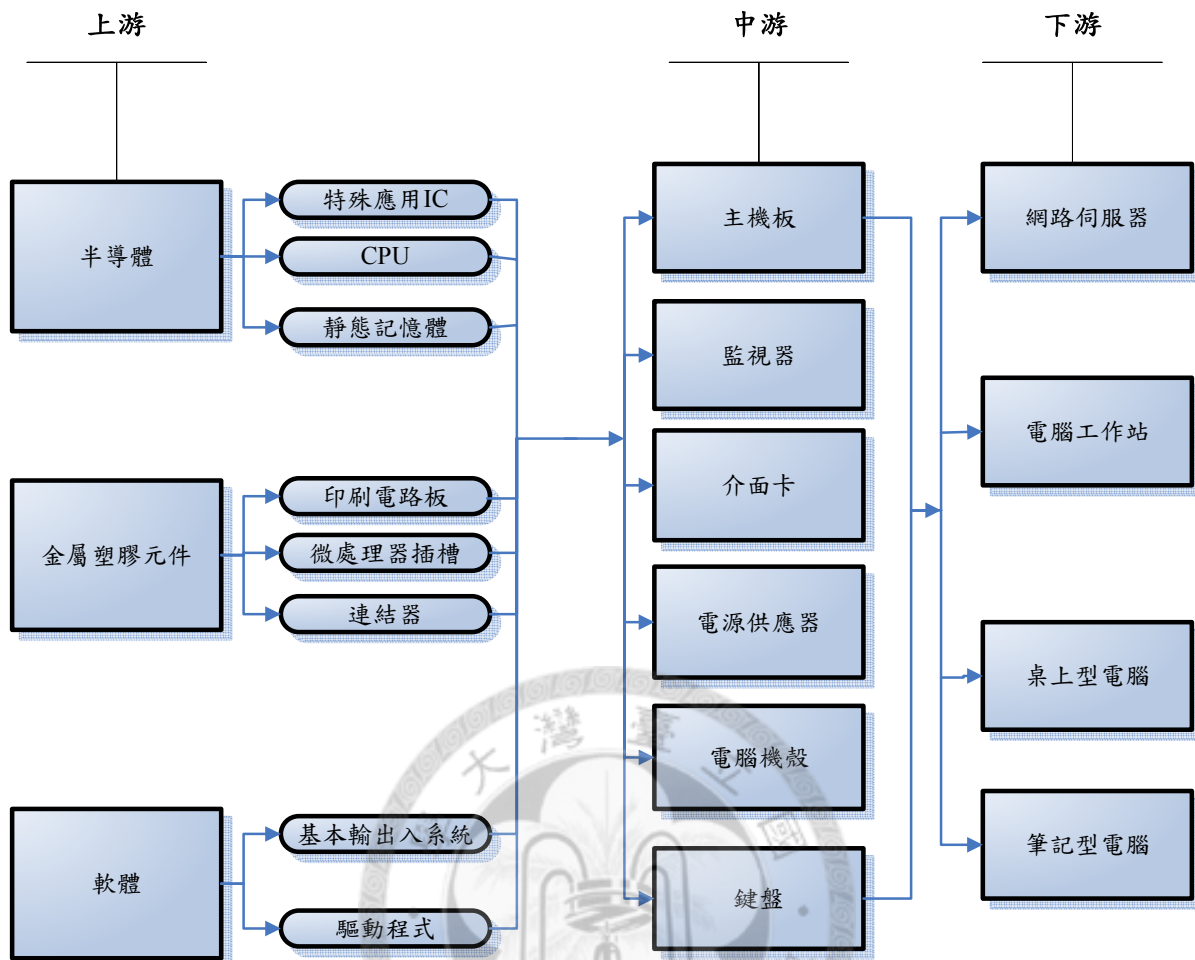
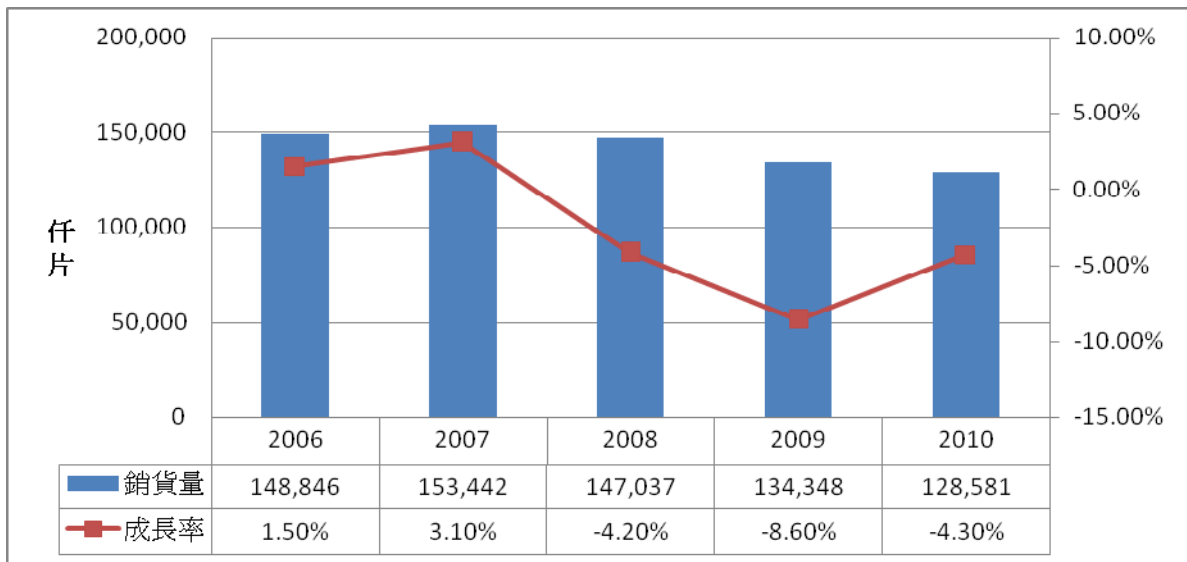


圖 B-1 電腦組裝之資訊產業上、中、下游產業結構圖
資料來源：技嘉科技股份有限公司 2011 年年報

3.1.2. 主機板產業發展現況及個案公司營運狀況

2010年起全球景氣雖較穩健，但仍有西歐債信危機爆發、中國大陸市場主機板需求疲軟等負面因素影響，導致主機板品牌業者出貨量不如預期理想，然而，由於商務機種換機需求力道浮現，全球桌上型電腦品牌業者代工訂單較2009年成長15%以上，因此2010年全球主機板市場雖持續衰退，但衰退幅度明顯大幅減少，銷貨成長率已有上揚的趨勢(如圖B-2)。



資料來源：資策會MIC經濟部ITIS計畫，2011年資訊工業年鑑
圖 B-2 全球主機板市場規模

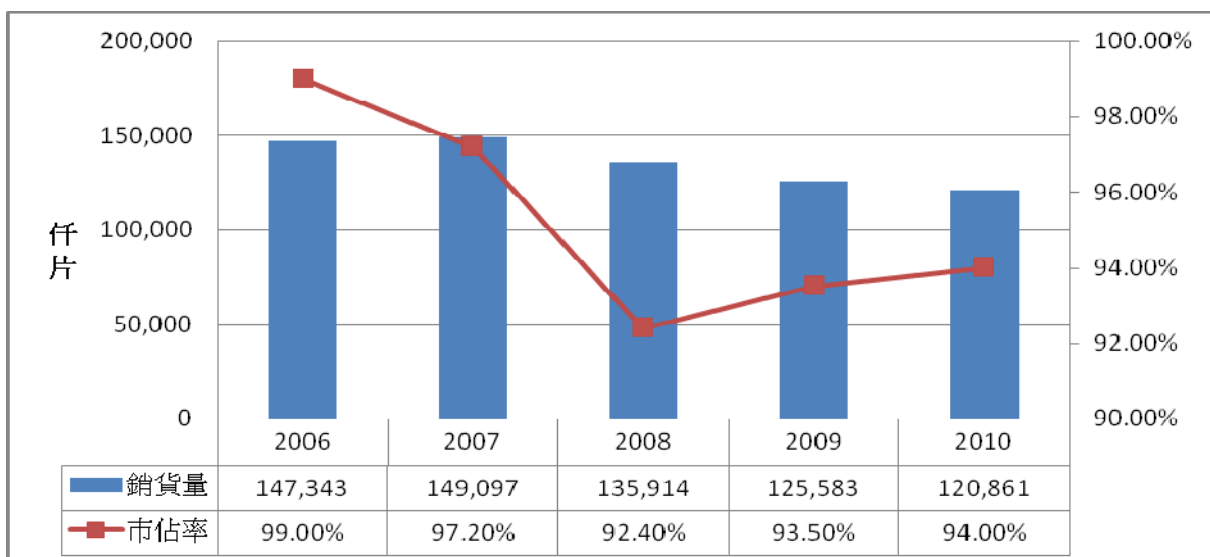
台灣主機板產量居於全世界之冠，也是全世界主機板供貨的第一大來源，從 2003 年起，台灣主機板出貨量佔全球之比率正式突破九成以上，2006 年時，台灣主機板佔全球主機板出貨量更高達 99%。至 2010 年止，我主機板產業佔全球主機板市場仍高達 94% (如表 B-4)，前五大製造商為華碩、技嘉、鴻海、微星與精英，總出貨量就佔全球主機板市場 74%。

依據圖 B-3 顯示，自 2007 年起台灣主機板在全球市佔率逐年降低，主要來自競爭國家，像是中國大陸和巴西；然而，自 2009 年起市佔率開始回升，至 2010 年市佔率提升至 94%，主要來自以下兩個原因：第一，由於中國大陸業者以中國大陸為主要發展市場，其產品多以低階產品為重心，且在 2010 年，加薪幅度無法跟上台灣業者而造成缺工現象，在價格上也無法滿足台灣主機板業者的要求，因而失去部分代工訂單，使其市佔率下滑至 4.3%；第二，巴西因受 2009 年金融體系信貸控管影響，造成業者進貨能力大幅衰退，連帶主機板銷貨量下滑至 0.7%，因此使得台灣出貨市佔率提升 (如圖 B-4)。

表 B-4 台灣主機板產業之全球排名變化

| 項目 | 2006 | 2007 | 2008 | 2009 | 2010 |
|-----------|---------|---------|---------|---------|---------|
| 台灣年產量(仟片) | 147,343 | 149,097 | 135,914 | 125,583 | 120,861 |
| 全球佔有率 | 99.0% | 97.2% | 92.4% | 93.5% | 94.0% |
| 海外生產比重 | 95.7% | 97.8% | 98.5% | 99.1% | 99.0% |
| 全球排名 | 1 | 1 | 1 | 1 | 1 |

資料來源：資策會 MIC 經濟部 ITIS 計畫，2011 年資訊工業年鑑



圖B-3 台灣主機板市場規模

資料來源：資策會 MIC 經濟部 ITIS 計畫，2011 年資訊工業年鑑

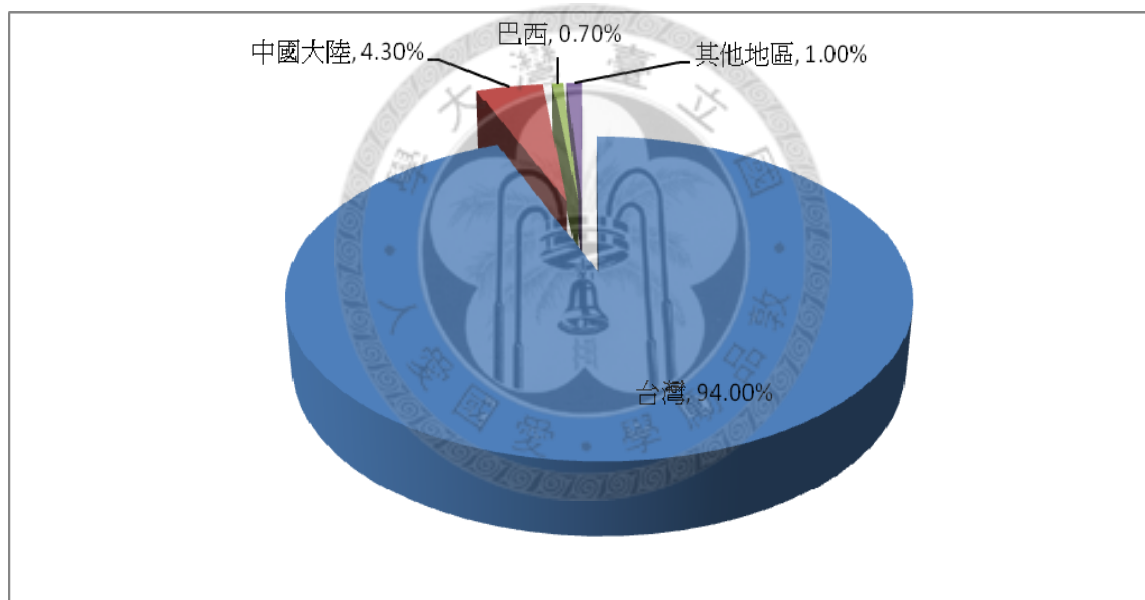


圖 B-4 全球主機板產業主要國家市佔率

資料來源：資策會 MIC 經濟部 ITIS 計畫(2011)；2011 年資訊工業年鑑；本研究整理。

台灣主機板廠商技嘉公司主要是以生產主機板為主，主機板近三年銷售額大約佔公司總營業額的 68%。公司持續專注於主機板技術的研發，並採取經營自有品牌(OBM)的策略，主機板經由銷售通路直接賣給顧客，讓玩家能自行組裝電腦系統，俾利滿足特定顧客的需求。OBM 的經營策略有別於 OEM/ODM，品牌經營主要致力於產品創新與差異化，提升顧客對產品價值的認知與信賴。為提升公司的競爭優勢，因此，每年最少提撥營業額 3%作為研發支出，確保掌握未來成長所需的關鍵技術。

然而，技嘉公司也警覺到以 OBM 型態的個人電腦與主機板全球市場比例逐年縮

減，漸由國際知名品牌大廠主導，所以，開始積極進入 OEM/ODM 的市場，其獲得的優勢在於，第一，主機板市場佔有率增加，提升整體經濟規模，據此，對上游零件組廠商形成一股較強的議價力量；第二，藉由提高代工產品所佔的比重，期望延攬全球知名電腦廠商對技嘉的研發、品質與服務水準保持高度信賴；透過全球眾多服務與維修的據點滿足顧客需求，維持顧客忠誠；並由現有的顧客行口碑力量，造成產品擴散，創造更多市場機會，間接也讓公司於全球市佔率能有持續成長的機會(如圖 B-5)。

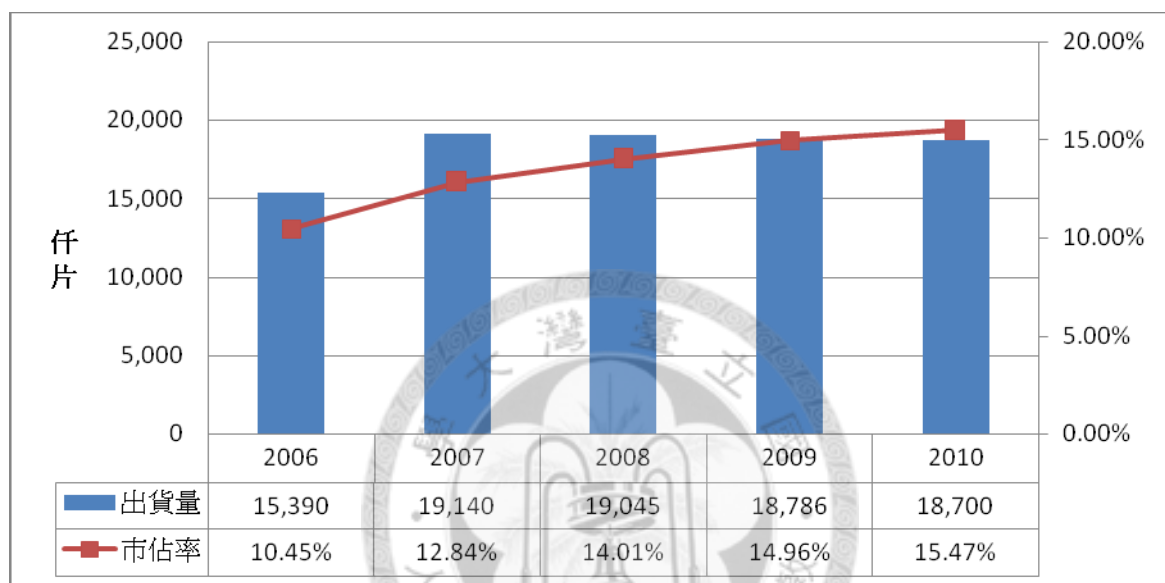


圖 B-5 技嘉主機板於全球出貨量與市佔率

資料來源：資策會MIC經濟部ITIS計畫(2011)；2011年資訊工業年鑑；2006~2011年公司年報；本研究整理。

公司在發展 OBM 的產品之餘，也積極促成與外部合作機會。首先，與上游關鍵零組大廠合作，例如，1993 年與 Intel 公司合作開發 Pentium 主機板，使其研發能力廣受業界肯定；1994 年與美國 Award Software 公司簽約取得關鍵 Bios 的使用權，這樣的合作機會也讓技嘉在短短幾年就學到技術，使其能在 1999 年首創 Dual Bios 專利技術，這也堪稱為主機板的一項新革命；2000 年時，與 Linux 廠商網虎國際集團取得策略聯盟，共同針對中小企業與一般用戶發展 Linux 作業平台之伺服器；2001 年與中國大陸聯想集團在香港成立合資公司，共同聯手邁向專業合同製造之領域，以擴大商產規模、降低成本，進而提升競爭力；2008 年時，與 Intel、中華電信策略聯盟，共同發表國內首款 MID(行動上網裝置)。

技嘉為進一步擴大營業績效，加強顧客服務滿意度，目前在西歐、東歐、中國、東北亞、東南亞，美洲等地區設有共 65 個服務據點，以專業工程師駐點提供售後技術指

導與產品顧問等服務。以最近五年各地區銷售比率來看，如圖 B-6 顯示，亞洲地區的銷售比率佔全球之冠，始終保持 41.06% 以上的市佔率，這是由於中國以及新興市場是近年來成長率最高的區域，技嘉已於多年之前完善整個布局。

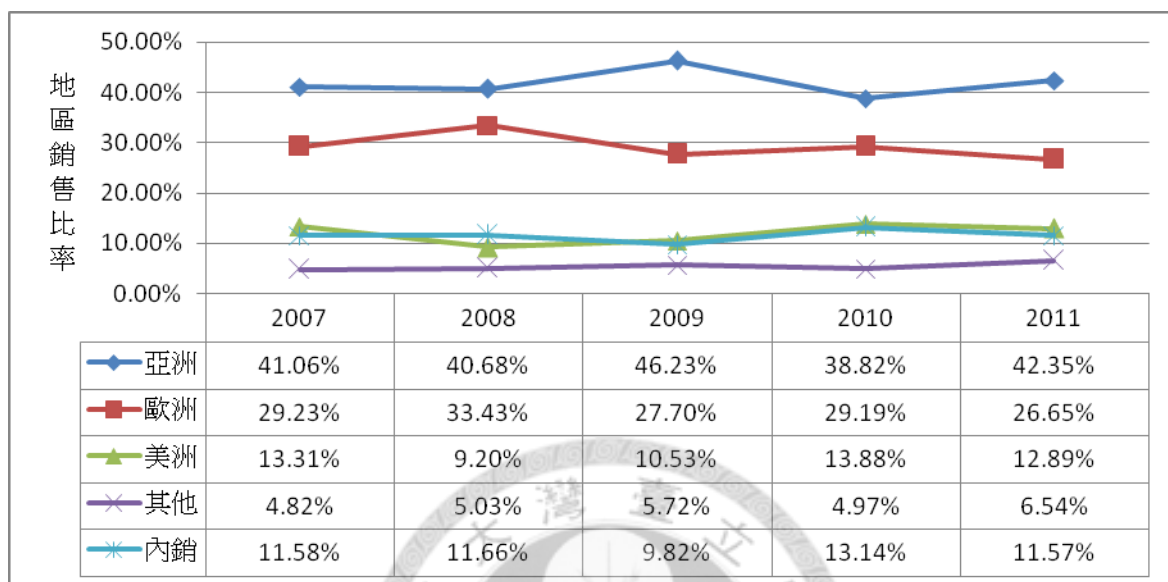


圖 B-6 技嘉主機板各地區銷售比率
資料來源：2006~2011年公司年報；本研究整理。

綜整以上資料，截至2011年，台灣廠商仍為全球主機板的第一大來源，佔全球出貨量高達94%以上。在內部，除發展OBM的策略外，近年也積極進行ODM/OEM策略，讓公司能藉由以多元化服務下游的知名委託代工廠商方式，達到經濟規模，降低成本的優勢利基，以利於在價格上與全球廠商競爭競爭。在外部，公司透過策略聯盟的合作方式，俾利在最短時間持續獲得研發主機板的人力、組織與技術資源，彌補本身因抵抗環境動態所造成的不足，與同業共生共榮。

3.2. 國巨公司

第二個個案公司是國巨股份有限公司，本研究羅列該公司的相關基本資料，包含產業別、成立時間、創業核心成員等，彙整如表 B-5:

表 B-5 公司基本資料

| | |
|----------|--|
| 公司名稱 | 國巨股份有限公司 |
| TEJ 產業別 | 電子業 |
| TEJ 子產業別 | 電子零組件 |
| 成立時間 | 1987/9/9 |
| 創業核心成員 | 兄弟: 陳木元、陳泰銘先生 |
| 董事長 | 陳泰銘先生 |
| 總經理 | 陳泰銘先生 |
| 員工人數 | 2,879 人 |
| 創業資本額 | 尚無資料 |
| 實收資本額 | 新台幣 22,053,083,820 元 |
| 股票上市時間 | 1993/10/22 |
| 主要產品 | 陶瓷電容(59.8%) 晶片電阻(30.4%) 機器設備(3.8%) |

資料來源：本研究整理。

3.2.1. 被動元件產業

被動元件(passive component)相對於主動元件(active component)而言，被動元件本身無法參與運動，而是必須藉由聯結主動元件才可運作的零組件。被動元件依功能主要可區分電阻器、電容器、電感器等三大類。

電阻器：應用在電路中的某個點位，用來限制通過該點的電流。

電容器：電容是以電荷的形式來儲存電能，藉由快速充電、放電，達到調整電壓與電流的功能。

電感器：用來防止電磁波干擾，除去雜質的功能。

就圖 B-7 顯示可知，整體被動元件產業，可從上游的原料供應商，至中游的被動元件製造商，到下游的其他零件組廠商與終端品牌廠商。被動元件可謂多種電力驅動產品之重要元件，目前運用在 3C 產品最多，約佔七成以上，其餘也用在工業、汽車及電源上。

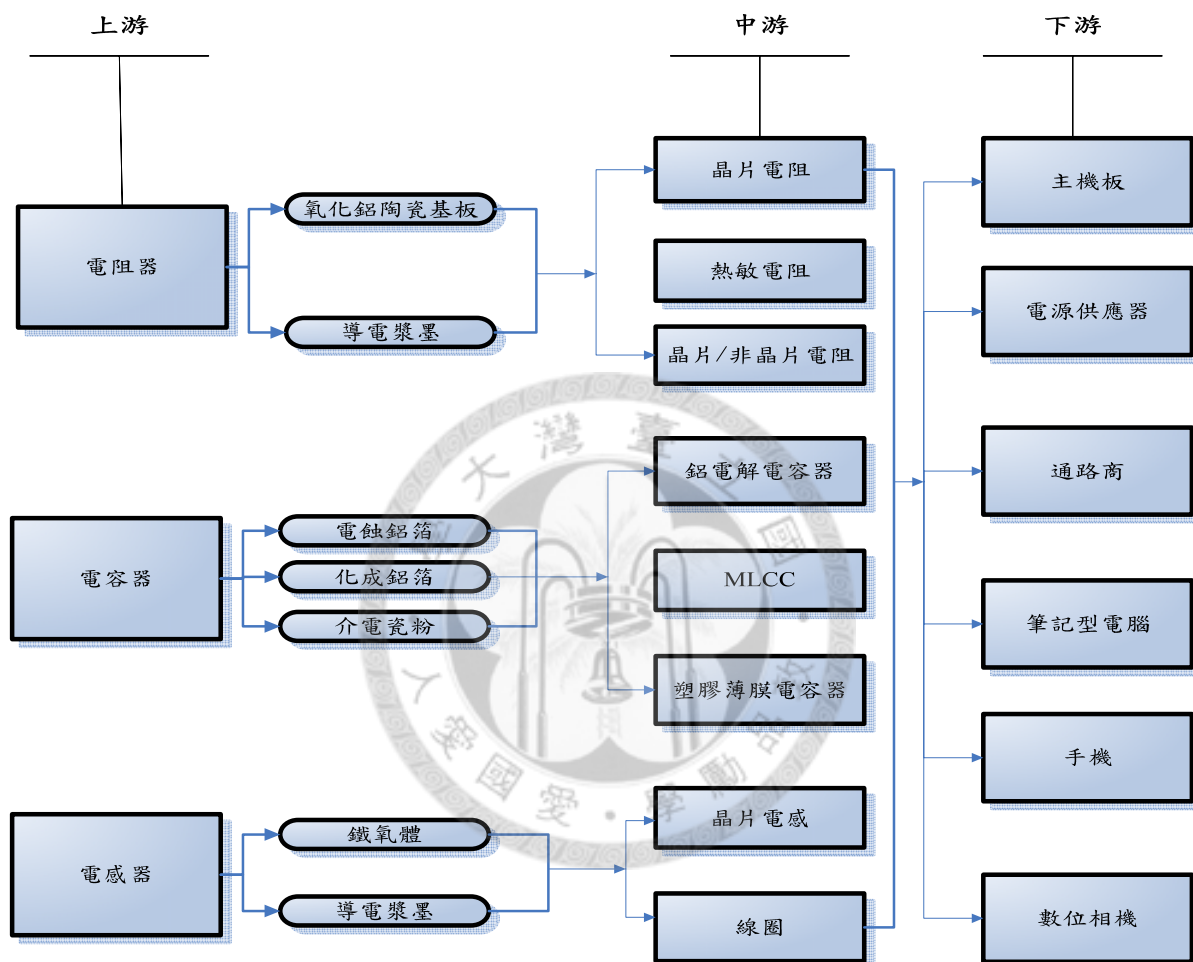


圖 B-7 被動元件產業上中下游結構關係圖

資料來源：2011 年電子零件組工業年鑑，本研究整理。

3.2.2. 被動元件發展現況及個案公司營運狀況

全球被動元件市場約有六成來自日本大廠，像是 Murata、TDK.....等；台灣廠商則約有一成的市佔率，像是國巨、華新科、禾伸堂.....等；韓國 SEMCO 則依賴其集團扶持，市佔率已超過 5%。全球被動元件市場中，以電容器規模最大，約佔整體產值五成，電阻次之，最後則是濾波器與振盪器(如圖 B-8)。電容器的廠商中以日本廠商市佔率最高，約達七成；而台灣廠商則在全球電阻器上保持優勢，市佔率約八成以上。

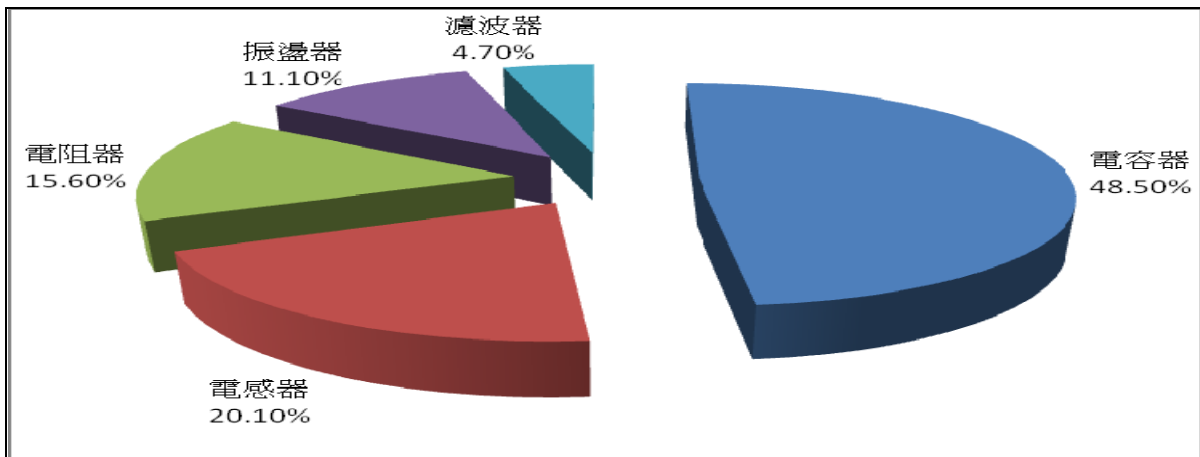


圖 B-8 全球被動元件各種重要產品市場規模

資料來源：工研院 IEK(2011)，2011 年電子零件組工業年鑑。

2006 至 2008 年，台灣被動元件產業大致上呈現穩定狀態，每年大約有新台幣 122 億的產值；直至 2008 年末，受到雷曼兄弟破產所帶來的金融海嘯影響，衝擊各類消費性電子產品的市場需求，也連帶席捲前端的被動元件產業整體市場規模，造成 2009 年國內被動元件產值大幅下降。然而，由於日本自 2008 年起，在經歷海嘯、震災與面臨日圓升值的重重壓力下，為台灣廠商帶來轉單效應，使得台灣被動元件於 2010 年衝破逆勢出現 13.8% 的高度成長(如圖 B-9)。

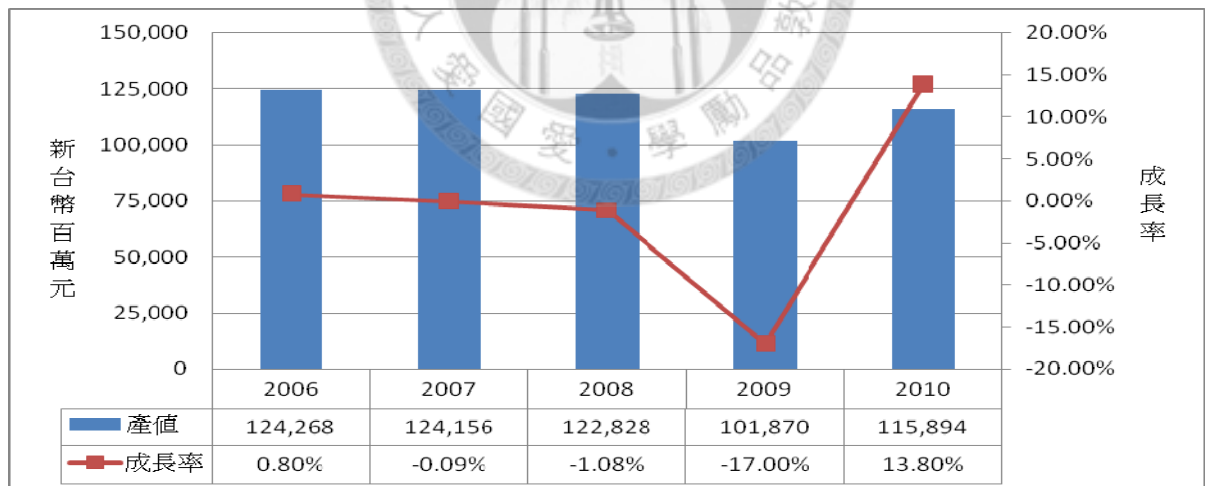


圖 B-9 台灣被動元件產業整體規模

資料來源：工研院 IEK(2011)，2011~2008 年電子零件組工業年鑑；本研究整理。

我國被動元件產業發展始於 1950 年代末，由台灣大新公司電機公司生產塑膠薄膜電容器，可謂台灣被動元件之先驅。1960 年代歐美與日本等被動元件大廠陸續來台灣設立加工或代工廠。由於早年被動元件幾乎是被日商所壟斷，所以台灣的被動元件發展除了專注本業外，也靠併購快速崛起，逐漸壯大，1970 年代國巨股份有限公司成立，

生產各類電阻與電容為主，1994 年開始透過逐年進行水平整合，以致成為現在國內的第一大廠(如圖 B-10)。最經典的是在 2000 年時，國巨公司耗資新台幣 180 億元併購飛利浦旗下的被動元件廠，躍居為全球第三大廠。目前台灣所有被動元件廠商在電阻器已經獨佔全球龍頭，佔有全球近八成市佔率；而國巨生產的電阻器在全球市佔率也高達 36%；此外，國巨的 MLCC(電容)產品雖然在全球市佔率不如電阻器，但也搶進全球前三強。就整體台灣被動元件產業而言，由於國巨歷經幾次併購與策略聯盟，規模已經凌駕國內其他廠商。截至 2010 年，國內被動元件廠商中以國巨市佔率為最大，其次為華新科，其餘廠商均不到 5% (如圖 B-11)。

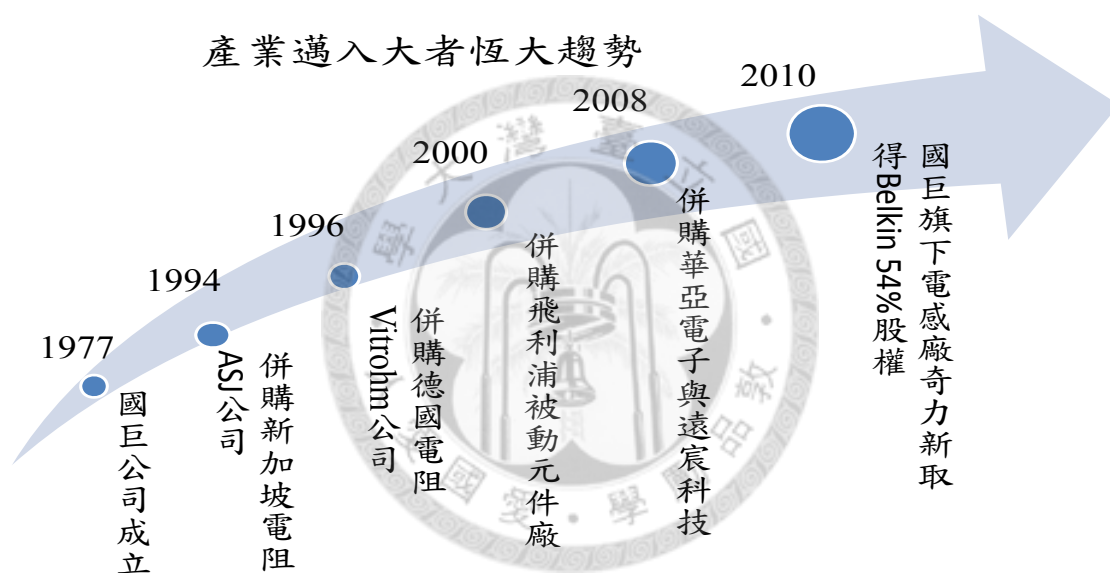


圖 B-10 國巨公司發展歷程
資料來源：本研究整理。

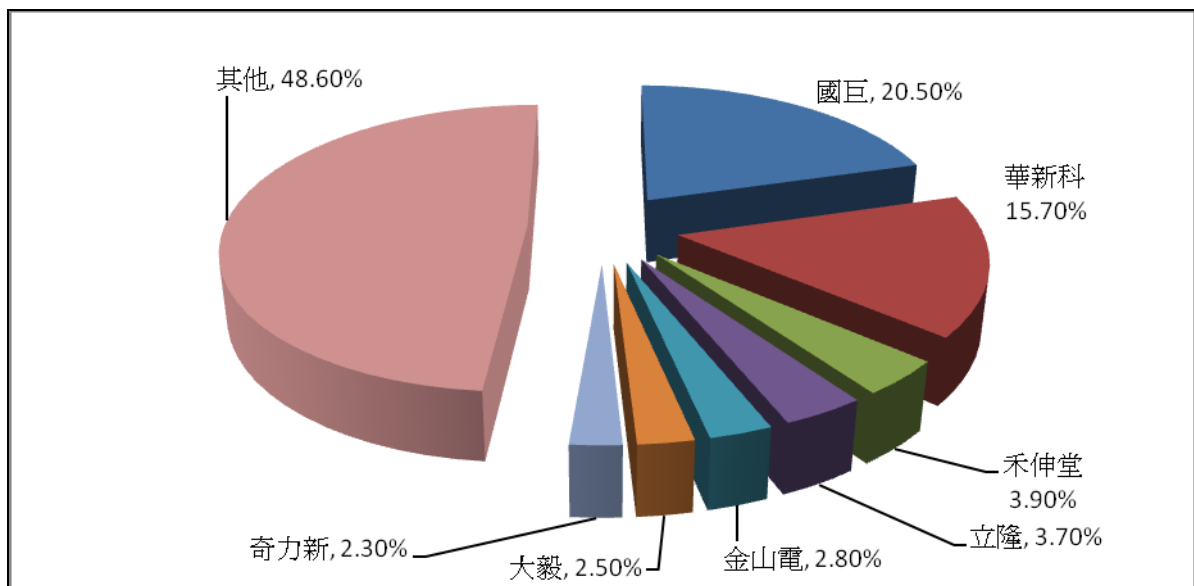


圖 B-11 國巨公司在台灣被動元件產業市佔率

資料來源：工研院 IEK(2011)，2011 年電子零件組工業年鑑。

綜上所述，台灣的被動元件產業已從上、中至下游形成完整的供應鏈，國巨公司是本土起家靠著原先內部研發技術和透過對外部併購、策略聯盟的方式，不斷取得累積內部所需資源，逐漸取代日本廠商在台灣競爭地位，儼然成為國內市場中高佔有率的廠商之一。

4. 個案訪談大綱

(1) Entrepreneurial Orientation (創業導向)

- a. 請您簡單介紹貴公司創業歷程?
- b. 您認為貴公司是否對產品或服務具有創新性(innovation)，對未來市場具有前瞻性(proactiveness)，以及基於外在環境的因素，具有採取「大範圍」行動的風險承受力(risk-taking)等創業導向(entrepreneurial orientation)?
- c. 公司具有的創業導向(包含創新性、前瞻性與風險承受力)與對於具有價值性/稀有性的資源與能力的取得與利用，有何關聯性?

(2) Industrial Environment

- a. 請描述公司產品製造在產業定位?
- b. 貴公司所位居產業集中度?
- c. 貴公司產品差異化程度?
- d. 貴公司在產業中退出障礙?
- e. 貴公司所生產的產品是否具有首動優勢(First-move-advantage)
- f. 公司在產業鏈上屬於垂直整合或是屬於垂直不整合的策略聯盟行為?
- g. 平均多久改變公司的營運模式或經營策略?
- h. 呈上題，如何改變，例如行銷或研發的實務工作上?
- i. 產業中產品變革程度?

(3) Resources and Capabilities(資源與能力)

- a. 擁有價值性(value)的資源與能力是否對公司績效的提升有所幫助?貴公司在創業導向對績效的實際作為上，可藉由哪幾種價值性(value)資源與能力的機制來作有效之提升?
- b. 擁有稀有性(rareness)的資源與能力是否對公司績效的提升有所幫助?貴公司在創業導向對績效的實際作為上，可藉由哪幾種稀有性(rareness)資源與能力的機制來作有效之提升?

- (4) 外部環境是很重要的影響因素，尤其在具有創業家導向公司的經營上，請問您認為產業競爭程度或營運模式變動頻率等所帶來的環境動態，對於公司在內部價值性與稀有性資源的取得與運用上，有何重大影響?

5. 個案分析結果

5.1 公司創業導向與價值性/稀有性資源的關聯性

通常在電子產業中，不論是面板、IC、主機板等高科技產業的公司會比其他傳統產業公司更有獲利能力。因為，這些高科技公司要拓展出更多的產品線或提高產品品質，必須在公司內部具備更多的高素質專業人力、專業知識、豐富的專利權、高研發水準與可運用的資金，如此才能為公司創造高經濟利益或高顧客滿意度等營業績效(Newbert, 2007; 2008)。就創業導向的公司對資源的運用而言，Penrose(1959)的公司成長理論與Schumpeter(1934)創業家精神觀點有異曲同工之妙。基本上，若公司內部的經理人和其他高階主管具有創業家精神，一定能被環境動態激起一股力量，從中找到具有價值性的資源，並培養運用資源的能力，力求新的成長機會，擴大企業規模。

公司在一開始的專業選擇與產業定位上，往往與進入產業前的家庭背景、專業教育背景與時代趨勢有極密切的關係。例如個案 A 的技嘉公司創辦人在開業前有電子學的專業知識與實際從事研發主機板經驗；個案 B 的國巨公司創辦人在開業前是具工程科學專業知識，並有電阻與電容等相關研發經驗。以下就這二間個案公司的創業過程與內部資源的運用進行分析。

技嘉公司副總經理：「我進公司服務已經有七、八年的時間，雖然我不是當初所謂五人創業小組之一，但曾聽聞馬先生的創業過程.....。當初是四位畢業於明新工專的同班同學畢業退伍後，在一場聚會中彼此分享台灣電子業未來的發展和機會，因此引發創業的夢想，隨後轉化成積極實際行動。當時，四位同學邀請仍在台北工專電機系就讀的同學加入技術研發團隊，這五位電子、電機科畢業的專科同學於 1986 年正式創立技嘉實業股份有限公司，就此展開一段艱苦的創業過程.....。這五位創辦人分別就是現今的董事長葉培城先生、總經理馬孟明先生、營運長劉明雄先生、柯聰源董事與廖德和董事。」

但是，在創立公司之前是因為如何的因緣機會投入主機板的製造?技嘉副總經理接著補充說明:

「其實公司創辦前，正值台灣七〇年代電玩機具的流行時期，幾位創辦人曾經學習製造電玩機具中的主機板，之後由於電玩弊案爆發加上公司與學校個人電腦開始逐漸普及，一群人憑著一股對主機板的興趣與熱忱，將製造電玩機具主機板的技術移植到電腦的主機板研發與製造，.....此時，剛好有一家國內主機板貿易商客戶要另立門戶，需要技術上的支援，所以他們 5 個人才集資不到百萬元，正式成立了技嘉實業，很幸運的，第一年營業額就高達 4000 萬元。」

但是，正當與 Intel 公司合作開發 Pentium 主機板，研發能力受到業界肯定之際，突如其來的大火將公司重要資產付之一炬，面臨最大的風險考驗。但公司具有風險承受能力，化險為夷。

副總表示：「1994 年春天，正當技嘉主機板業務已進入起飛階段，但一場突如其來的大火卻讓多年的努力付之一炬，當時技嘉還沒有自己的製造工廠，只有在新店寶新路設有後段測試與包裝工廠，……，可能是有人利用午休時間在後方天井處抽菸，不幸釀起了這場大火。不過當時副董事長劉明雄說，這場大火不僅沒有擊垮技嘉，反而更激發出公司上下的凝聚力，讓技嘉就如同浴火鳳凰般，再度一飛沖天……。至於這場大火的破壞性，使得放在防熱 1000 度保險箱內的 CPU(中央處理器)塑膠板全都熔化了，板上的 CPU 連帶也都報銷了，但當時公司只知道要往前衝，根本沒空往回看，……，經營階層更是每天工作到半夜 1~2 點。所幸客戶方面相當支持，紛紛將應付帳款提前匯入，讓技嘉能順利渡過難關，就在大家同心協力的打拚下，隔週供貨量即恢復至先前的 7~8 成，當年 7 月業績更突破歷史新高。」

該公司在草創期時決定經營方向，經營策略是以 OBM(自有品牌)為主而非以 OEM/ODM 代工，如此奠定邁向國際一流主機板廠商的實力。

副總表示：「由於技嘉追求精而美的品牌價值，終於在全球 CLONE(自行組裝)的主機板市場上居於領導地位，從最早經由貿易商銷售到今天真正建立屬於自己的主機板領導品牌，這樣的成果都是憑藉不斷領先的創新與創業精神，由此激發公司持續不畏風險的繼續投資，積極爭取研發人力與技術，並將研發技術與研發出的產品申請專利權以建立公司的智慧資產。」

國巨，是一則一對兄弟創業的故事。國巨是由陳泰銘的兄長陳木元先生所創立，兄弟倆出生台南麻豆，1977 年陳木元先生成立國巨股份有限公司，專門從事自動焊接機與碳膜電阻器生產；之後陳泰銘先生從成功大學工程科系畢業後，1987 年成立台灣阻抗公司，投入電阻、電容的製造與銷售。1989 國巨股份有限公司與台灣阻抗公司合併為國巨股份有限公司，開啟縱橫台灣被動元件產業的美好年代。

國巨協理：「陳木元，15 歲起投入電子科技業，對機械設計有著濃厚的熱情，終日埋首產品和設備的創新研發，扮演讓公司技術扎根的角色，30 年來，每天早上醒來，他都搞不清楚自己是在工作，還是在玩樂，……然而，弟弟陳泰銘自大學畢業退伍後放棄留美深造的機會，進入哥哥的公司從基層做起，充分發揮管理長才，扮演業務角色，巧妙操縱資金。陳木元本身兼具大膽心細與對

未來市場有策略雄心的性格，收購台灣飛利浦公司的被動元件部門，讓國巨躍居全世界第五大被動元件廠。陳木元與陳泰銘南轅北轍的個性，哥哥內向專注技術研發，弟弟積極進取的個性，賦有開創冒險的遠瞻能力，一起將公司推向世界級的企業之林。」

國巨協理：「國巨是一個在產品上具有高度創新，高風險承受力的公司，……基本上，國巨有兩大事業部，其一是晶片電阻(R-chip)，另一是陶瓷電容(multilayer ceramic condenser, MLCC)。在 R-chip 部門，公司除持續生產厚膜電阻外，並朝向薄膜電阻的研發，以滿足客戶的需求。在 MLCC 部門，基於陶瓷粉末製造與其製程技術領域持續進步，……MLCC 將持續研發微型化的技術能力，以滿足智慧型手機的市場需求。……公司在產品與製程上的創新源自於多種資源的投入，並且要學習如何使用資源，而研發的技術與智慧是重要的資源與能力，……當然，公司有足夠資金支持也是重要來源之一，所以，才引進美國私募基金公司(KKR)投資國巨……」

從創業家精神理論來看，過去研究指出當公司擁有創新、預期與風險承受性的創業導向特性時，就具備洞察市場機會與避免環境威脅的能力，且可辨認出能為公司帶來績效的人力、組織、財務、智慧與有形等價值性資源，並懂得如何運用能力來使用這些資源(Penrose, 1959; Schumpeter, 1934)，國巨和技嘉兩間公司都具有創業導向且擁有也有能力運用這些資源。像是，技嘉公司創業係由於五位同學預期(proactiveness)未來市場的發展，創業後廠房雖經過大火吞噬，但仍具有承受風險(risk-taking)的能力，持續經營創新(innovation)，終究發展自行組裝(CLONE)的 OBM 策略，進而積極爭取研發人力、技術、智慧資源來研發各項產品。另外，國巨公司的創業是來自一對兄弟，他們對未來市場的策略雄心俾利公司發展高瞻遠矚的預期能力(proactiveness)，並勇於承受風險地持續併購(risk-taking)，持續創新(innovation)，進而使用研發人力、技術與大量財務資源來研發微型電容與電阻等。

所以，創業家導向(包含創新、預期和風險承受能力)的公司，會更有企圖獲取有價值的資源和使用資源的能力，且這些資源與能力都必須是公司本身擁有，但其他競爭者所欠缺的稀有性資源與能力(Barney, 1991; Newbert, 2008)。綜合理論與個案結果，本研究建立以下的命題：

命題 1: 公司的創業導向會影響這間公司獲取並利用具有價值性的資源與能力。

命題 2: 公司的創業導向會影響這間公司獲取並利用具有稀有性的資源與能力。

5.2 公司的價值性或稀有性資源與其績效之關聯性

近年來，在高科技產業中，許多公司都想致力品牌的擁有，進而藉由品牌價值提升來贏得公司績效，然而，要打造自家品牌形象與品牌忠誠度就必須端賴足夠的研發人力、技術能力、自由現金流量、豐富專利權保護。根據資源基理論，公司內部擁有價值性或稀有性資源時，才能提升績效(Barney, 1991; Amit & Schoemaker, 1993)。

技嘉董事長劉明雄認為：「由於技術背景的緣故，技嘉創立時就希望藉由與別人有所不同，來提高產品附加價值的共識，.....之後更是堅持領先創新的精神，不斷推出市場上最具前瞻性的板卡產品，例如，Lotus 1-2-3 所使用的 8M EMS 卡（擴充記憶卡），加速系統運作速度的 i-RAM 等，都是頗具創新度的領先市場產品，並在 CLONE 玩家之間口耳相傳，成功建立技嘉在 CLONE 電腦市場上的品牌形象，以提高公司價值與績效。」

技嘉副總認為：「想要成功建立 CLONE 電腦市場上的品牌形象就必須建立人才培育方案，公司與國立○○大學成立專屬公司的 EMBA 課程，請專任教授至公司為中高階管理人員、研發工程師與技術人員上課，以培養具有價值性或其他公司沒有但是我們公司有的競爭性人力資源。」

技嘉董事長劉明雄指出：「台灣已經逐漸走出 MIT(Made in Taiwan)代工年代，逐漸走入 DIT(Design in Taiwan)的新時代。.....為了培養更多、更優秀的台灣工業設計人才，技嘉成立教育基金會並從 92 年開始舉辦「G-DESIGN 設計大賞」，.....希望藉由這個活動，能夠對台灣校園裡的年輕人作播種、扎根的工作，讓台灣在這個領域裡能夠真正蓬勃發展，甚至影響未來工業設計的方向，對台灣整個資訊產業有所貢獻，才是這個活動的真正目的，也是為何這個活動要堅持以學生為主要參與者的原因。」(自由時報記者林正智, 2006)

技嘉副總：「公司今日有這樣好的獲利，除了人力資源外，就內部而言主要來自公司財務的資源，因為靠”錢”才能打開通路與強化研發能力；另外，若倉儲的存貨若能降到最低又沒有呆帳的話，公司即有足夠的現金流量可運用，如此也可使公司達到好的績效，.....另外，組織資源也是重要獲利因素.....。」

「國巨發展品牌可說不遺餘力，..... 全球佈局初具規模的國巨，雖然還比不上產品線更廣、技術層次更高、上下游整合更強的日本廠商如村田（Murata）等，但可說是已經取得世界級挑戰賽的資格。國巨有些成熟性的產品品質不輸日商，惟品牌不夠強，但自 1996 年併購歐洲第一品牌公司德國電阻製造廠 Vitrohm 公司，2000 年時收購台灣飛利浦公司被動元件部門後，在行銷通

路和品牌形象上，會有幫助，是朝向世界級的努力，.....在快速全球化的同時，要讓公司的品牌在世界舞台上獲利，關鍵在於是否有人才，.....提高研發和技術能力，.....充足的研發經費.....」(遠見雜誌, 2001 年)

國巨協理：「公司的製程能力、研發技術、智慧結晶的專利權可說是同時具有價值與稀有性的資源。國巨的產品類別主要分為 R(電阻)與 MLCC(電容)，其中 R 因為在厚膜技術在產業中居於領導地位，.....由於研發技術異質性造成的稀有性使得產品差異化，如此讓 R 佔世界約 30-40%的市場，提升公司整體獲利。另外，公司持續投入薄膜技術的研發，以滿足筆記型電腦、平板電腦和智慧型手機的輕薄小要求，預期會未公司帶來更多績效。」

國巨副理：「另外，財務資金也是公司生存的重要來源，像之前的金融海嘯，私募基金公司(KKR)的介入讓公司有充裕資金能安全度過，.....所以資金是讓公司成功存活的重要有價值的資源之一。」

綜上所述，從資源基礎的觀點來看，在異質性與不可移動性的條件下，公司資源若具有價值性與稀有性，才有建立競爭優勢與績效的潛能(Amit & Schoemaker, 1993; Barney, 1991; Newbert, 2008)。依兩個個案公司訪談與文件資料顯示，公司不斷透過大型比賽活動與結合大學 EMBA 課程，發掘培養具有價值性與稀有性的人力，進而發展研發技術，且大量投入財務資金來支持研發與產品創新，使其能促進品牌形象與良好的產品品質，進而達到獲利水準。所以，人力、財務與技術資源，對這兩間公司來說，都是具有獲利的價值性與稀有性資源，如此發展培養出公司的核心能力，強化競爭地位，超越競爭對手，以提升經營績效。

命題 3: 公司本身擁有價值性的資源與能力會對其績效有所影響。

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5.3 創業導向、環境動態性與公司內部資源屬性之關聯性

當企業所在競爭愈來愈激烈，產業環境隨之愈來愈複雜，由此環境呈現高度動態，此時，企業要能生存就必須具有價值性與稀有性的資源。在此高度環境動態中，公司若擁有企業家精神，其對於資源使用的獨特眼光與認知，將有利於結合公司的價值性資源與能力，或稀有性的資源與能力 (Schumpeter, 1934)。在高科技產業中通常面對高度的產業競爭之動態環境，公司必須因應環境的刺激，盡可能提升擁有高價值/高稀有資源

與能力的可能性。個案公司究所面臨的產業環境包括有：產業中競爭程度、產業進入障礙、公司營運模式的變動頻率與產品差異化或成本領導之經營策略。

5.3.1 產業中競爭程度

產業經濟學者認為，產業內廠商分佈結構愈集中，則愈容易形成廠商間的隱性合謀 (tacit collusion)，身為隱性合謀的廠商可降低價格競爭程度，較容易預測與把持產業環境需求和產品價格，因此所面臨的環境動態性程度相對較低。

技嘉副總：「台灣主機板產業歷經近三十年的努力耕耘，秉持當初創業的精神，儼然成為全球主機板主要供應來源，.....近年來，台灣主機板產業佔全球主機板產業的 90%強，主機板產業的群聚效應，在上、中、下游以策略聯盟方式高度整合後，形成彼此合作共生共榮的產業鏈，.....主機板產業已進入成熟期，技嘉主機板的產量約佔全球的 15%，除了華碩主機板產量仍居龍頭外(約佔全球的 35%)，其餘幾家廠商大約也僅佔 10-20%左右。雖然，以全球來看，台灣主機板大廠幾乎已具壟斷世界主機板市場能力，產業內競爭程度也不高；但是，若以台灣前幾大廠商來看，除華碩外，其餘廠商都勢均力敵、平分秋色，似乎意味著在這個成熟產業中暗藏另外一股較高的產業競爭環境，這樣的環境氛圍逼使技嘉必須配合 CPU 廠商的創新，以提升主機板製程的整體技術創新，由此滿足市場中顧客的需求。」

技嘉副總：「台灣前五大主機板廠商在全球市佔率已高達 74%以上，產生所謂的規模經濟，使得新進廠商要進入並不容易，.....且台灣目前已具有完整 IT 上、中、下游產業鏈，以技嘉來說主機板在台灣可謂大廠之一，對國內上游零組件與半導體廠商而言具有議價能力，根本不需要垂直整合就有取得成本的優勢；唯一要擔心的是上游 CPU 大廠 Intel 的支配，但對 Intel 而言也不願意整併主機板廠商，且故意製造華碩、技嘉與微星等廠商之間的競價，但又不失生態平衡，這就是業界所謂的恐怖性平衡。」

技嘉副理：「老實說，主機板產業中還是以華碩為龍頭老大，他們家也做品牌，在產品的創新程度上，技嘉扮演著 follow 的角色，有別於華碩的差異化，傾向同質化的競爭.....」

國巨協理：「2000 年，國巨耗資新台幣 180 億元併購荷蘭飛利浦旗下的被動元件廠，已成為台灣被動元件第一大廠，.....目前，國巨在被動元件中的 R(電阻)領域全球第一位，全球市佔率達到 30%以上；另 MLCC(電容)領域，全球

市佔率達 12%左右，……所以，R 的產業集中高，產業競爭程度不高，然而，相對 R 來說，MLCC 的產業集中低，產業競爭程度高，……但 MLCC 在公司所佔銷售比例又高於 R……。」

根據 2011 年電子零件組產業年鑑資料顯示：「就全球來說，台灣被動元件市場的規模僅有 10%，……就國內整體被動元件產業來說，2010 年台灣被動元件產值以國巨最大(市佔率約為 20.5%)，其次為華新科(市佔率約為 15%)，……其餘像是禾伸堂、立隆……等各廠市佔率大約都不超過 4%，……」(電子零件組產業年鑑，2011)

國巨協理：「國巨在被動元件躍居於全國第一大廠，全世界前三大廠，近年來也持續發展晶電電阻的產品差異化，除成功研發厚膜技術，也進一步研發薄膜技術……」

『在經濟不景氣時，國巨一向強調的成本和效率顯得更重要。尤其對可說是「蠅頭小利」的被動元件來說，價格是以每千顆來計算，目前平均每千顆約 10、20 元，陳泰銘形容「連牙籤的價格也不如」，因此強調必須壓低成本。「國巨不管景氣好或景氣不好都專注在一件事，那就是製造成本的控制，不會因為景氣好，價格高，就不管，」國巨副總經理葉文進說。』(遠見雜誌，2001)

「嚴格的成本控管，當然也是特色，國巨董事長陳泰銘會親自彎腰撿起掉在地上的迴紋針，身體力行告訴員工：「成本控管很重要。」員工下回就知道，看到地上的迴紋針應該要撿起來。」(聯合報，2009/10/25)

綜上所述，雖然台灣前五大廠商的主機板產值在全球市佔率高達 74%，但是，除華碩(市佔約 35%)外，個案公司技嘉在國內主機板產業位居第二，其市佔率約 15%，市場可說已被華碩與技嘉獨佔，因此產業集中度高，競爭程度較低；此外，華碩為主機板的領導廠商，技嘉則緊逼華碩，成為主機板的第二大廠，與微星、鴻海平分剩餘的市場，產品差異化程度低，屬於同質化競爭，因此，技嘉所在產業中競爭程度屬於中高。

就台灣被動元件產業而言，其發展歷程可說是靠著併購快速崛起，過去這個產業幾乎是被日商所壟斷，像是 Murata 和 TDK 等兩大日商，台商靠著併購逐漸壯大，在 2000 年時，國巨併購飛利浦的被動元件廠，2005 年併購華亞等，近年來又持續在電阻晶片上發展產品差異化與客製化策略，使得國巨在電阻晶片(R-chip)上游其領導地位，再加上以併購方式拉開與競爭者之間的距離，支配國內市場，得以進一步在全球市場中有較高的佔有率。但是，在整體被動元件生產公司仍然以成本領導策略為主，因此在價格上陷入激烈競爭。目前，國巨生產的電阻晶片產值在全球被動元件產業中市佔率達

36%，整體被動元件產品在國內市佔率也達 20.5%，但是，其主要產品電容在市佔率上都僅維持 12%左右，且台灣整體被動元件在全球也僅占 10%，因此電容市場不論在全球或國內市場可說是進入極為競爭的局面。所以，整體而言所在產業競爭程度屬於較高。

5.3.2 產業進入障礙

當廠商利用不易克服的優勢(像是專利權、學習或經驗曲線效果和首動優勢)或進入後的激烈因素(如規模經濟)等建立進入障礙，使得產業集中度高，則產業內部競爭程度降低，廠商就有支配市場的力量，且有力量建構產業環境，因此，廠商所需面臨環境的動態性較低。

技嘉副總：「主機板產業的核心能力在於如何比其他競爭者，像華碩、微星，能在更短的時間內整合上游中央處理器(CPU)與各種晶片組等，開發出新產品，然而，除了對市場要有預期能力且需要承受開發新產品的風險外，還必須累積長久的經驗與 know-how，一般來說主機板技術學習曲線大約在 1.5-3 年，技術能力是需要一段時間的累積。」

技嘉董事長：「技嘉是台灣主機板產業中是屬於最早進入產業的廠商之一，且又是發展 OBM 的經營策略，成功建立技嘉在 CLONE 市場的領導地位，應該是具有首動優勢地位……」

國巨副理：「國巨雖然在被動元件中具有領導地位，但仍持續在陶瓷電容製程技術提升與降低成本，……國巨透過併購方式達到經濟規模，以求降低成本，提高市場佔有率……」

國巨副理：「國巨在電阻產品上持續研發薄膜技術和微型化電阻，力求與其他廠商有所差異，……」

「被動元件最大特色是用量大，以消費性電子產品為例，一台 NB 需要 1,000 顆被動元件，一台智慧型手機也需要 500-800 顆，……因此，經濟規模反而是重點，如何削減成本和提高市佔率才能在這個產業生存。」(電子零件組產業年鑑，2010)

綜上所述，為降低競爭者進入產業的程度，必須在產業內建立障礙，讓公司所面臨的環境動態程度盡可能降低，以利控制環境。像個案公司技嘉，其利用本身具有首動優勢、主機板技術經驗與學習曲線及發展 OBM 策略來阻絕競爭者進入。然而，個案公司

國巨則是以併購方式讓自己達到經濟規模，不但獲得國內高市佔率，且也提升在全球市佔率。如此，讓公司可最先快速預測下游廠商(如主機板廠商)甚至後端顧客(如知名電腦或手機品牌廠商)的需求，降低所處環境的動態性。

5.3.3 公司營運模式的變動頻率

公司所在的主要產業，其產品或服務技術容易改變，且經營模式與各實務策略也隨之改變，則產業中的環境動態性將提高(Miller, 1983)。

技嘉副總：「技嘉的營運模式與經營策略配合公司的所謂研發、行銷與清庫存的 3、6、1 策略，通常新產品的研發預計需時 3~4 個月的時間，接下來交給行銷部門讓產品上市銷售大約估計約 6 個月時間，最後清理剩餘庫存又需約 1 個月；也就是說產品經營模式大約每 12 個月就會有所變動。」

技嘉副總回憶近年的全球環境：「我們是在 IT 產業鏈中屬於中游廠商，但由於發展主機板 OBM 策略，所以必須清楚知道顧客需求，但由 2007 年受美國次級房貸風暴影響，全球經濟環境低迷狀況下，嚴重衝擊到資訊產業的經營，……所以，在環境動盪中，公司預期到個人組裝電腦的市場比例逐漸縮減，個人電腦也將由國際知名品牌大廠主導，所以 OEM/ODM 業務型態相形重要。因此，公司大膽承受風險的將原來的 OBM 經營策略轉變為 OBM 與 OEM/ODM 並行經營策略，以呼應大環境的變化。然而，發展新的經營策略需要有內部的資源來支持，因此，公司挹注大量資金，由當時副總裁親自領軍，挑選公司中優秀幹部，運用研發主機板所累積的技術與知識，成立 ODM 事業，……。」

技嘉副總繼續對產業環境變動補充：「這兩年，PC 市場成長有趨緩現象，原因來自於 Apple 推出熱門產品 i-Pad 替代傳統的 PC，受顧客對平板電腦偏好的影響，使得環境再次呈現動態，PC 的需求呈現疲軟的狀態，……但也就是受產業環境變動的影響，我們秉持創新與創業精神持續投入研發經發、研發人力與大力培養人才，如此推出 USB3.0 主機板領先業界推出 USB 3 倍的電力供應，提供 i-Pad 和 i-Pod 等目前受歡迎的 Apple 手持裝置快速充電功能，不但在開機或關機時可充電，而且可以快速充電。」

國巨副理：「我們老闆是業務出身，善於管理，敏捷度夠，不畏風險地不斷向前衝，即使遇到高度環境動態，也能重整組織、人力來解決問題，……尤其大膽又具創意的引進美國私募基金公司(Kohlberg Kravis Roberts & Co., KKR)來投資國巨，讓我們安全渡過金融海嘯危機……。」

高度環境動態性也許是公司成功的機會(Miller, 1983; Covin & Slevin, 1989), 公司若能有創業家精神掌握市場機會, 即使面臨環境威脅仍能善用策略, 並妥善配置資源, 並增加自己使用資源的能力(Schumpeter, 1934)。

國巨副理：「2010年我國被動元件產業，在經歷金融海嘯後，不少世界級的被動元件廠商受到衝擊，.....2011年3月在日本東北地區發生震災，導致日系被動元件大廠受到波及，訂單受惠於台灣廠商，.....此時，國巨仍投入大量資金與人力研發，推出業界最小尺寸的陶瓷雙頻天線，鎖定於平板電腦、智慧型手機與個人導航設備等薄型化產品市場，.....藉此開發國際型大客戶，俾利與美、日系廠競爭致力於高市佔率。」(2011年國巨年報)

根據 Schumpeter (1934)經濟發展理論的企業家精神觀點，認為具有企業家精神傾向的公司，高度環境動態有利於重新整合資源(Covin & Slevin, 1991; Lumpkin & Dess, 1996; Zahra, 1993)，另外，根據產業組織(Industrial Organization)理論，廠商的決策行為係由產業結構所決定，產業結構會深受產業中顧客需求、技術變革與政府政策改變等因素影響，而廠商行為的旨在建立市場力量，使廠商獲利高於產業的平均獲利水準。受外部環境動態影響下，使得具有創業家導向的企業會企圖積極爭取具有價值性(稀有性)的資源，並且培養自身使用這些資源的能力。

主機板產業投入的業者眾多，除華碩主機板有較大市佔率(36%)外，其餘各家廠商幾乎平分市場，但由於台灣主機板在全球市佔率及高(94%)，國內也自1990年代的200-300家中小型主機板廠商減少至目前約30-40家產業內競爭，且市場佔有率幾乎被前五大廠壟斷(楊英賢和范聖杰，2009)；尤其，以現階段來說，主機板產業發展已臻成熟，早年進入市場採取CLONE市場採OBM策略佈局的廠商，像是技嘉與華碩在CLONE市場佔有率約65%(技嘉公開說明書，2011)，具有首動優勢，因此形成進入障礙，使得產業內不具有極高的競爭程度。然而，相對於競爭對手華碩，技嘉研發創新以follow為主，在產品競爭上係屬於同質性競爭，且約一年時間就將產品推陳出新，經營模式亦隨之改變，產也內也維持一定程度的競爭。所以，整體而言技嘉的在主機板市場受產業競爭環境動態程度屬於中高。

就被動元件產業的龍頭，國巨公司而言，早年創辦人陳木元先生在電子本業上的付出，尤其電阻製程核心技術，就是在他手中改良，進而提高良率，並降低成本；再加上現任董事長陳泰銘先生負責管理與對外併購策略運用，兩人高度調合作互補將國巨快速壯大，也讓電阻的市佔在台灣市場能達30%以上。然而，日本仍為全球被動元件的龍頭(全球市佔率60%)，台灣所佔全世界規模也僅約10%。此外，在全世界被動元件中又以電容的市場規模最大，不幸，國巨在台灣電容市場也僅有12%左右，所以，國巨不論

是在全球的被動元件產業或是在台灣的電容市場仍具有激烈的競爭環境。雖然，國巨在電阻的市佔率較高，但電容的市佔率仍低，較無法達到經濟規模，以至於體質較好的廠商仍有進入的機會。所以，公司所在產業競爭程度高，所以面臨環境動態性也就相對提高。

雖然公司面對高度環境動態，但是公司仍持續在產品創新，對未來市場需求也具有遠瞻能力，並且風險性地大量投入資源於薄膜電阻與微型電容的研發技術上，這樣具有創業導向的公司面臨像是美國次級房貸所帶來經濟不振時，仍有能力且策略性地引進外資，使其有本錢持續投入研發經費與人力，達到被動元件產品差異化與改良製程技術降低成本的目標，以配合現今電子產品市場輕巧與低價格需求。

綜上所述，兩間個案公司在面對產業內的競爭性高或中高度環境動態時，公司本身必須對市場未來機會有預期能力(proactiveness)、創新能力(innovation)和不畏懼環境動態所帶來的風險(risk-taking)，這樣具有創業導向的公司才能對內部所需價值性資源有所認知與利用，像是不畏風險地持續投入研發經費、廠房設備與人力，使其成為我有但競爭者缺乏的稀有性資源。綜合理論與實務上的觀察，本研究建立命題如下：

命題 5: 受到環境動態的刺激，公司本身具有創新性、風險承受性與預期性的創業導向，會影響其爭取與培養價值性的資源與能力(財務、人力、智慧、組織等)。

命題 6: 受到環境動態的刺激，公司本身具有創新性、風險承受性與預期性的創業導向，會影響其爭取與培養稀有性的資源與能力(財務、人力、智慧、組織等)。

6. 結論

本研究旨在探討台灣上市櫃公司為何(why)具備創業家導向即可產生經營績效?過程中要如何(how)尋求有價值或稀有的資源與能力?尤其在環境動態中,這樣具創業家導向公司要如何(how)獲得價值性與稀有性的資源與能力?Yin(1994)的個案研究法提出,(1)若所提出的研究問題是屬於如何(how)與為何(why)兩種型;(2)研究必須包含情境中的條件,不需加以操控地將這些條件與真實現象區隔;(3)研究問題是反應在當代而非歷史性的。若符合上述三項條件,則比較適合選擇個案研究法,而本研究又進一步藉由個案研究法中的前置個案進行分析,透過文獻回顧、個案文件、檔案與訪談等資料蒐集分析形成命題,俾利於後續研究假設的發展與實證分析,以祈貫穿整個研究。

前置個案的選擇以容易接觸、可提供複雜的現象、正式營運且上市的事業為主。本研究以主機板產業公司與被動元件產業公司為研究對象,分別訪談二位高階主管。根據文件、檔案與受訪者陳述公司的經營發展歷程,可發現兩個個案相類似但又有所差異性。技嘉科技股份有限公司是屬於中高創業導向、中高環境動態與高資源屬性的個案公司。國巨股份有限公司是高創業導向、高動態環境與高資源屬性的個案公司。二個個案公司的創業導向、環境動態與資源屬性類型如圖 B-12 和 B-13。



圖 B-12 二個前置個案公司之創業導向與環境動態類型

資料來源：本研究自行整理。

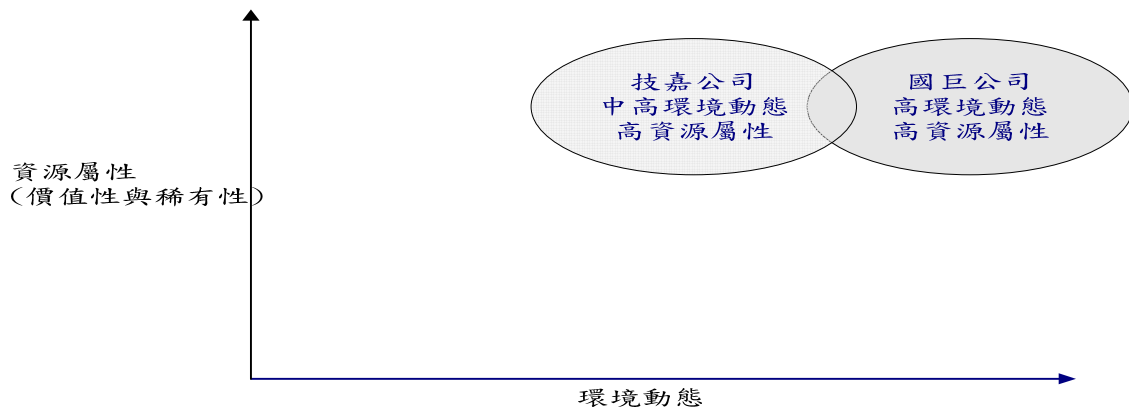


圖 B-13 二個前置個案公司之環境動態與資源屬性類型

資料來源：本研究自行整理。

最後，根據個案分析整理建構出「創業家導向、環境動態、資源屬性與公司績效」架構圖，如圖 B-14。其架構中，創業家導向包含創新性、預期性與風險承受性；資源屬性包含有(1)價值性的資源與能力，和(2)稀有性的資源與能力兩大因素。每個屬性又包含：實質、智慧、人力與財務等資源與能力。環境動態則包含產業內競爭程度、產業進入障礙與營運模式的變動頻率。本研究架構建立在資源基礎(resource-based view)、環境動態(environmental dynamism)與創業家精神(entrepreneurship)等相關理論上，形成由外而內(outside-in)與由內而外(inside-out)的整體策略邏輯，探討創業家導向、環境動態與資源屬性之關聯，進而探討資源屬性對公司績效之影響。

在個案分析與命題推演後，本研究再依理論發展研究假設進行實證研究，並進一步採用各種統計方法，像是 SEM、Multi-group analysis、OLS regression analysis、Sobel test、Bivariate analysis 來驗證理論模式，分析變數之間的關係(詳見第四章)。

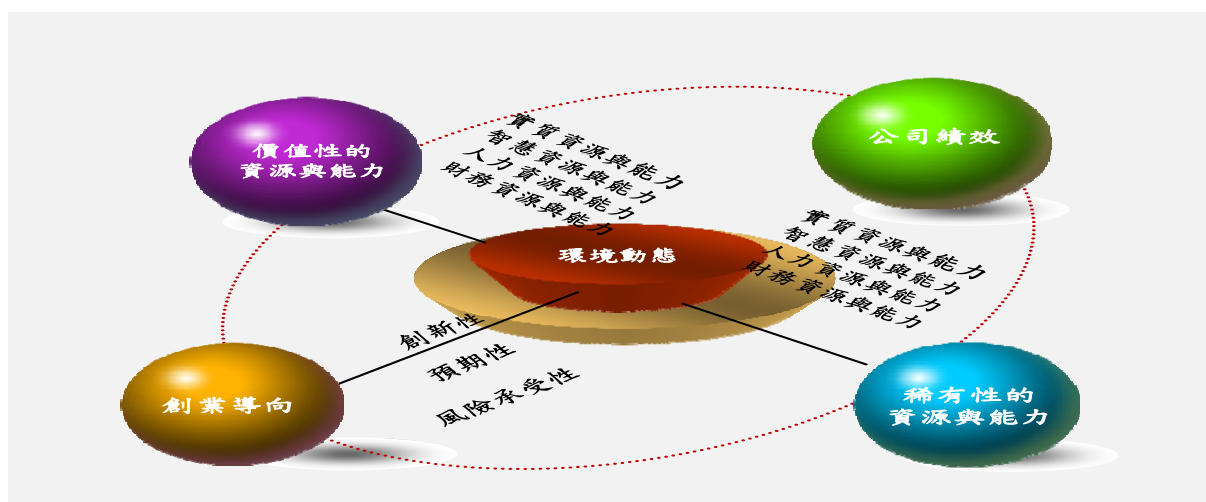


圖 B-14 創業家導向、環境動態、資源屬性與公司績效之架構

資料來源：本研究自行整理。