

## A CASE STUDY OF DYNAMIC COMPETITIVE ADVANTAGE

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### Abstract

The research of competitive advantage theory goes through four stages from the classical theory, the exogenous theory, the endogenous theory, and dynamic capabilities. The purpose of this paper was to empirically study the competitive advantage of dynamic capabilities. This study was based on case study method: mainly on literature reviewing, real data collecting and editing, and actual visiting. All materials were summarized and analyzed to discover their inter-relationship. The study found out four research propositions and proposals. And, the study also pointed out some suggestions for future research and managerial implications.

Key Words: Competitive Advantage, Dynamic Capabilities, Strategic Management, Triangle Audit System

## Introduction

How to create and maintain sustainable competitive advantages has been a focal issue in strategic management (Ambrosini and Bowman, 2009; Rumelt, Schendel and Teece, 1994; Teece, 2007; Wang and Ahmed, 2007). Competitive advantage theories evolve in four stages, i.e. early-period theories, exogenous theories, endogenous theories, and dynamic-capabilities theories. This evolution process moves from a focus to static mapping of internal and external environments to an emphasis on external environments of corporates, and from a zoom in on internal environment to the dynamic mapping of internal and external environments.

The early-day theories of competitive advantages are lacking in considerations of internal environment. In other words, corporates can only passively adapt to the environment. These theories ignore the capability to change the environment. Exogenous theories only look at the external environment (i.e. The industry) and overlook the effects of internal conditions (of corporates) on competitive advantages. Endogenous theories represent an important stage of the development of strategic theories, and they include Firm Growth Theory, Resources-Based Theory and Capabilities-Based View of Firm. The Firm Growth Theory studies corporate developments by analyzing the internal resources. It is the theoretic origin of Resources-Based

Theory. Resources- Based Theory to a certain degree makes up the insufficiency of exogenous theories. However, not all the resources can be the foundation of competitive advantages.

Meanwhile, Capabilities-Based View of Firm fails to provide effective and operable methods for the discerning, evaluation, maintenance, accumulation and renewal of core competences. Also, Capabilities-Based View of Firm tends to highlight the effects of techniques, resources and knowledge (i.e. objective manifestations) and to overlook subjective human factors. Dynamic capabilities theories argue that they are the capabilities of a firm to integrate, construct, and align the internal and external factors to adapt to the rapidly changing environment. They are the ultimate key to sustainable competitive advantages (Teece, et al., 1997; Teece, 2007; Wang and Ahmed, 2007). Hence, this study aimed to establish a deeper understanding of the development of competitive advantage theories and to explore, with a case study, the contents of dynamic capabilities described in competitive advantage theories.

## Literatures Review

### *Competitive Advantage Theories in Early Days*

The foundation for the development of strategy theories was laid down in this period. Chandler, Ansoff and Andrews

are the three representative scholars at that time. Chandler (1962) develops the implications of “structure follows strategy”. Ansoff (1965) suggested that the main tasks for senior executives are to formulate and implement strategic plans. Strategic development is a controlled and aware process of formal planning. Andrews (1971) proposed that strategic management consists of strategy formulation and strategy implementations. Strategy formulation consists of four elements, i.e. market opportunities, firm capabilities and resources, individuals and social responsibilities. Strategy implementations are accomplished with activities such as the allocation of firm resources, the design of organizational structures, incentives, control and leadership.

The competitive advantage theories in the early days came up with SWOT model, a robust framework and an important milestone for the development of strategy theories. In a SWOT model, the external environment stays constant. As long as the firm can adjust its own strengths and weaknesses to respond to the opportunities presented in the external environment and to avoid the threats of the external environment, it can maintain competitive.

The competitive advantage theories in the early days assume that the environments are predictable. In reality, the environment frequently changes due to information incompleteness, environ-

mental discontinuity, and uncertainties. Companies cannot change or control their environments. In fact, it is not even possible to accurately predict what will happen in their environments. Meanwhile, the early day theories fail to consider the internal environment by assuming that companies passively adapt and cannot change the environment.

### *Exogenous Theories of Competitive Advantages*

The competitive advantage theories focused on exogenous factors contribute competitive advantages to external environments. Bain and Porter are the representative scholars. Bain (1959) developed the model of “structure-behavior - performance”, and argued that competition is a structural issue. Market behavior or market performances are not a sufficient basis for the determination of the industry competitiveness. Rather, competition depends on market structure and entry barriers.

Porter (1980, 1985) further suggested that performances are a function of industry structures. Market structures determine firm behaviors and firm behaviors affect performances. Porter contributes the source of competitive advantages to industry attractiveness and relative market positions. Industry attractiveness explains the sustainability of competitive advantages, and relative market positions define

the strength/ weakness of competitive advantages.

Therefore, the selection of a suitable industry is the key for a firm to acquire competitive advantages. Porter proposed a Five Forces Model and three generic strategies for competitive advantages, i.e. cost leadership, differentiation, and concentration. Porter's competitive advantage theories demonstrate important implications but they are not without limitations. For example, companies focus on the external environment and they are limited to one of the three generic strategies, without considering the differentiation of firm resources.

In sum, exogenous theories of competitive advantages ignore the effects of internal conditions of a firm on competitive advantages. With the development of relevant theories and practices, exogenous theories of competitive advantages start to crack. Even in the same industry (i.e. The same external environment), there are huge differences in the profitability of different companies. It is difficult to use exogenous theories of competitive advantages to explain scientifically this phenomenon. The differences in profitability of different companies in the same industry often provoke questions on these theories more than the differences in profitability of different industries (Wernerfelt, 1984).

### *Endogenous Theories of Competitive Advantages*

This is an important stage in the development of strategy theories. The endogenous theories of competitive advantages include Firm Growth Theory, Resources-Based Theory, and Capabilities-Based View of Firm.

#### *Firm Growth Theory*

Penrose (1959) proposed the Firm Growth Theory, and emphasized that firms are the collection of resources. The process of constructing an analytical framework of firm resources-firm capabilities-firm growth can reveal the inner drivers of firm growth. Nelson and Winter (1982) developed evolutionary economics, and built an evolution model about firm capabilities and behavior. This approach examines the firm growth path from the evolutionary perspectives. It argues that firm growth path is a key determinant of whether a firm can establish competitive advantages. In sum, Firm Growth Theory is a theory about firm developments via the analysis of the internal resources of the firm. It is the foundation of Resources-Based Theory. Firm Growth Theory argues that the generation and accumulation of firm resources is constant and such constancy provides new drivers of growth for a firm.

### *Resources-Based Theory*

This is an important theoretic foundation for the endogenous theories of competitive advantages. Penrose, Wernerfelt, and Grant are the representative scholars and among them, Penrose lays down the theoretic foundation of Resources-Based Theory. Her book "Firm Growth Theory" (1959) is the first attempt that explores the relationship between firm resources and firm growth with economic theories. This approach goes beyond conceptual arguments as it is supported with economics (Foss, 1997). Wernerfelt (1984) published a paper "A Resource-based View of the Firm in Strategic Management Journal. It was not until that paper was selected the best one of the year that Resources-Based Theory received the recognition it deserved (Hoskisson et al., 1999). Wernerfelt (1984) suggested that internal resources of a firm are the key determinant whether it is able to acquire competitive advantages. Firm resources dictate the competitive advantages of a firm in the marketplace.

Grant was the first scholar that refers Resources-Based Theory as a theory. He coined the term "Resources-Based Theory" (RBT) in 1991. During the same year, he established the analytical framework of RBT, and suggested that strategic formulation consists of the analysis of firm resources, firm capabilities, potentials of both, the selection of strategies,

expansion and upgrade of firm resources and capabilities. In sum, RBT is the synthesis of the research on strategic management of its prior four decades (Hoskisson et al., 1999).

Barney (1986) introduced the concept of strategic factors market in the study of competitive advantages. He defined the strategic factors market as the market for the resources required for strategic implementations. It is the inventory of resources accumulated over time with the right path at the right time and the appropriate selection of asset flows. He made two presumptions, i.e. The heterogeneity and a lack of mobility of firm resources for this analytical framework. In other words, the resources of a firm must be valuable, scarce, not completely imitable and not completely replaceable, in order to maintain competitive advantages.

Barney (1991) suggested that competitive advantage is the value creating strategy that potential competitors cannot concurrently implement. Sustainable competitive advantages refer to the value creating strategy that current and potential competitors cannot concurrently implement, and cannot imitate or acquire the advantages a firm in question creates from that strategy. In brief, sustainable competitive advantages can last a long period of time. Peteraf (1993) established an analytical model for sustainable competitive advantages, and developed four

criteria for the resources required for sustainable competitive advantages. These four criteria are heterogeneity of resources, ex-post limitations to competition, imperfect mobility, and ex-ante limitation to competition. Hence, Resources-Based Theory holds that economic rents come from competitive advantages (Amit and Schoemaker, 1993; Barney, 1991; Grant, 1991; Peteraf, 1993).

In sum, Resources-Based Theory views that a firm is a collection of a series of resources and each resource serves its own purposes. Competitive advantages stem from the resources owned by a firm (Amit and Schoemaker, 1993; Barney, 1991; Grant, 1991; Peteraf, 1993). External market structures and market opportunities exert certain influence over the competitive advantage of a firm but they are by no means determining factors. Many resources can be acquired from market transactions. Only the capabilities to allocate, develop, protect, utilizes, and integrate resources are the sources of competitive advantages from deep within.

Although the Resources-Based Theory to a certain degree makes up the insufficiency of exogenous-factor theories of competitive advantages, not all the resources can be a source of competitive advantages. In relative competitive market, land, equipment or even human resources can be acquired via market transactions. Therefore, there may not be direct

causal relationship between competitive advantages and certain resources.

### *Capabilities-Based View of Firm*

This theory suggests that core capabilities are the key to create and maintain competitive advantages. Selznick (1957) is the first scholar that came up with the concept of “distinctive competence”. The unique capabilities of an organization are the result of different organization maturity and organization atmosphere. Prahalad and Hamel (1990) published a paper “The Core Competence of the Corporation” on Harvard Business Review. This study compared the development of GTE and NEC over the previous decade, and argued that NEC has maintained competitive advantages because it had established core competences. This study sparked a wave of research papers on firm capabilities.

Prahalad and Hamel defined core competences as the collective knowledge of an organization, particularly regarding the learning of how to coordinate a variety of skills and how to integrate the knowledge about different techniques. The three criteria for core competences are the ability to facilitate the entre to multiple markets, the provision of identifiable values to end users, and difficulty for competitors to imitate. Competitors may acquire certain techniques that core competences consist of but they will have difficulties copying the model of internal

coordination and learning. Leonard-Barton (1992) further argued that core competences are the collection of internal knowledge within a company. They comprise of the knowledge and skill sets of employees, technical systems, management systems, and values & norms. However, once core competences have been formed, the problems of core rigidities emerge. This means core competences often make it difficult to change accordingly in a rapidly changing environment. In such instances, core competences are no longer the source of sustainable competitive advantages. Rather, they become obstacles to competitive advantages. However, Leonard- Barton (1992) failed to provide good suggestions regarding how to overcome the problems of core rigidities.

Although Capabilities-Based View of Firm is an important milestone in the development strategic management theories, it is not without theoretic shortcomings. The theory fails to provide effective and operable methods concerning how to discriminate, evaluate, maintain, accumulate, and regenerate core competences. It is mostly about the study of the nature and characteristics of core competences. Capabilities-Based View of Firm focuses on the manifestation of objective factors such as techniques, resources, and knowledge and fails to elaborate on subjective, human factors. Resources-based and capabilities-based theories, particularly with regards to core competences, are hugely

challenged in the hyper competitive environment.

### *Dynamic Capabilities Theories of Competitive Advantages*

The representative scholars for dynamic capabilities theories of competitive advantages are Teece, Pisano, and Shuen (1997). Teece et al. (1997) indicated that dynamic capabilities are the capabilities with which a firm integrate, construct, and re-build capabilities internally and externally, so as to quickly adapt to the rapidly changing environment. They are the ultimately key to sustainable competitive advantages. Such capabilities are dynamic because a firm has to constantly regenerate its capabilities to respond to constant market changes. Capabilities are defined as the ability to renew capabilities (to integrate, construct, and rebuild skill sets and resources within and without an organization with strategic management to meet with the demands in a changing environment. Moreover, the three key factors to the construction of strategic structures with dynamic capabilities are organizational processes, positioning, and development path.

This structure consists of three dimensions: (1)organizational and management processes, i.e. The methods and habits of dealing with things, as well as current learning and implementation models. This contains three aspects, i.e. coordination and integration, organiza-

tional learning, and resources reconstructing and transformation; (2) positioning. The strategic position of a firm depends on its organizational processes and its specific assets, including tangible and intangible assets (e.g. techniques), complementary assets, financial assets, reputational assets, structural assets, system assets, and market assets; (3) development paths, i.e. path dependency with which a firm develops capabilities and functions. The materialization of this concept is an acknowledgment of historical significance. Where a firm is going is restricted to its current position and path ahead, and its current position is a function of the paths it has taken.

After Teece's concept about dynamic capabilities, different scholars started to explain, interpret, and elaborate dynamic capabilities with different points of view. Helfat (1997) indicated that dynamic capabilities are the capabilities that help to create new manufacturing processes or new products and to respond to market changes. Eisenhardt and Martin (2000) suggested that companies respond to or even create market changes through the process of integrating, reassembling, acquiring, and releasing resources. Hence, dynamic capabilities are the organizational and strategic routines with which a firm responds to market changes, conflicts, disconnections, evolutions, and destructions by creating new resource structures.

Subba Narasimha (2001) argued that a firm is essentially a stock of knowledge. Capabilities are a knowledge attribute. When a firm constantly acquires knowledge over time, it also establishes dynamic capabilities. Zollo and Winter (2002) indicated that dynamic capabilities are the capabilities to expand, adjust, or create the original capabilities. They are different from the usual capabilities because dynamic capabilities are changeable. They are the capabilities required to achieve new types of competitive advantages. Teece (2007) suggested that companies should be ambidextrous. The dynamic capabilities required are the capabilities in sensing the market, seizing the opportunities, and reconfiguring resources. In other words, dynamic capabilities are the transformation mechanism in response to environmental changes. Wang and Ahmed (2007) explored the evolution of dynamic capabilities hierarchy and their results highlight the importance of dynamic capabilities.

Finally, Ambrosini and Bowman (2009) proposed a research framework for dynamic capabilities in the value creation process. Also, dynamic capabilities generate four possible outcomes, i.e. The establishment of competitive advantages, transient situations, oppositions, and failures. In sum, dynamic capabilities theories emphasize that capabilities cannot stay static. Rather, they should change along with changes in internal and external environments. These theories establish



a deeper understanding of exogenous and endogenous theories of competitive advantages.

Dynamic capabilities are a major breakthrough in the development of firm capabilities theories. Different from traditional strategy theories, dynamic capabilities are dynamic, complex, pioneering, and capable. They are dynamic because companies can regenerate capabilities to cope with changes in external environments (Teece et al., 1997). They are complex because dynamic capabilities exhibit different characteristics in different environments (Eisenhardt & Martin, 2000). They are pioneering because their focus is in innovations and developments, i.e. The abilities to change a firm (Helfat, 1997). They are capable because it is necessary to build, integrate, and reconfigure internal and external capabilities to adapt to the changing environment (Zott, 2003).

Previous studies have examined the relationship between dynamic capabilities and competitive advantages and proposed different perspectives. This study classified the theoretic models of dynamic capabilities and competitive advantages into four types, i.e. capability hierarchy, organizational learning, a dual process, and strategic integration. The purpose is to pursue long-term competitive advantages, a result of the application of dynamic capabilities in a way faster, more effective, and more accurately than competitors (Zott, 2003). Capability hierarchy models

hold that dynamic capabilities are hierarchical. They comprise of organization regeneration capabilities, restructuring capabilities, and process re-engineering capabilities which are higher than the day-to-day operational capabilities. of course, they also contain even higher levels of the capabilities to create new capabilities (Cepeda & Vera, 2007; Wang & Ahmed, 2007; Zollo & Winter, 2002). Organizational learning models argue that dynamic capabilities is a process of organizational learning (Sapienza, Autio, George, and Zahra, 2006; Zollo & Winter, 2002), and this process allows the reconfiguration of organizational rules and the integration of core competences. Strategic integration models suggest that dynamic capabilities are comprehensive. They exhibit static strategic elements and dynamic process characteristics and can be used to assess the strategic status and adjustment features of a firm in a dynamic environment (Teece et al., 1997). Finally, dual process models contend that dynamic capabilities are the capabilities of dual processes, i.e. The transmission of original capabilities and monitoring and adjustment of original capabilities (Schreyogg & Kliesch-Eberl, 2007).

Lei et al. (1996) developed the concept of dynamic core competences, and suggested that dynamic core competences are the systematic meta learning, widely distributed throughout a firm. Meta learning is similar with self-learning, continuous, systematic, complex, and dynamic. It

is the redefinition of the exploration methods for implicit knowledge and the development of professional knowledge on the basis of dynamic procedures. The purpose is to mitigate uncertainties, to prompt a path dependency with fuzzy causality and ultimately to gain sustainable competitive advantages (Hamel, 1991). In fact, the dynamic core competences described by Lei et al. (1996) and the dynamic capabilities proposed by Teece et al. (1997) are similar.

This study referred to both Lei et al. (1996) and Teece et al. (1997) and anchored its discussion on four dynamic-capabilities models, i.e. capability hierarchy, organizational learning, a dual process, and strategic integration, in the context of pursuing long-term competitive advantages and the sources of dynamic competitive advantages.

### Research Method

This study followed the procedures developed by Yin (1994) and conducted

the research in six steps: (1) the research topics and purposes; (2) the establishment of the research structure; (3) the selection of analytic units; (4) the determination on the number of case studies and the selection of research objects; (5) the decision over data sources and collection methods; (6) data analyzes, interpretations, inferences, and conclusions.

The research topics and purposes were mentioned above. Figure 1. illustrated the conceptual structure. This study used firms as analytic units in the examination of dynamic capabilities, and explored competitive advantages of a firm with the perspectives of dynamic capabilities. This study selected LD Group as a case study because it is a mature, large-scale company that has gone through its growth period. The richness and complexity of this case study helped to shed light on the context and relationship of dynamic capabilities. This study gathered data with interviews, observations, information within the sampled organizations, documents, and individual experience as a consultant for over two years.

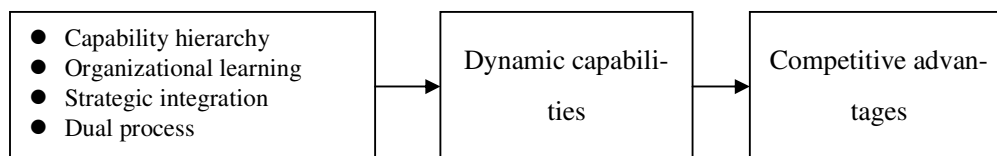


Figure 1. Conceptual Framework of Dynamic Competitive Advantages

When working as a consultant to the company in this case study, the author assisted the company with organizational

re-engineering and project improvements. The process involved with regular discussions with staff concerning the action

points, the collection of relevant data (e.g. on-the-spot diagnosis, photo-shooting, datasheet collections, workflow analysis, system reviews, interviews and communication with staff, and observations). Finally, it concluded with decision making over solutions and then started with attack plans. The PDCA cycle of “plans, do, check, act” was the foundation of the consultant’s journal, as well as the basis of consultant’s performance review. It was also the source of the data analyzed in this study. To ensure the effectiveness of implementations and the direction of the changes, dialogues with senior executives were scheduled on a monthly basis. The purpose was to examine the change process and reflect on the positives and negatives of the transformation strategy. It was worth mentioning that the consulting process in the case study was done by more than two consultants. Each consultant gathered data with different aspects, methods, and sources. The consultants then cross-checked each other’s data and brainstormed. This analysis and feedback helped with the accuracy of actions and enhanced the credibility of data interpretations and diagnosis reports. The process enhanced the validity and reliability of the case study, in the same way as Triangle Audit System (Yin, 1994).

This study analyzed data with a description of the development of the company in question by connecting the complex dots throughout the case study. The collection and analysis of data happened

concurrently. Gathered data was immediately collated and summarized. The result of the previous literature review served as a guideline for data analysis and all the data concerning the case-study company was generalized and synthesized. Clarifications were made concerning relationships between various factors and related procedures were linked. Finally, this study compared the outcome of strategic implementations by the case-study company with the findings in relevant literature.

#### Research Analysis

##### *Company Profile*

LD Group was established in 1988. Mr. Huang is the founder, CEO, and Chairman. He has 30 years of working experience in the infant products industry. Mr. Huang drives the strategic planning, business development, and day-to-day operations of the firm. The management philosophy of LD Group is “innovation, excellence, integrity, and pragmatism”. Innovations refer to the encouragement of new thinking and new ideas for business development. Excellence equates to the constant endeavor for the better, by improving production techniques and operational efficiency. Integrity is the sincere attitude and efforts to win trust and support within and outside the company. Pragmatism indicates a gradual approach to achieving sustainable growth.

LD Group is a designer, manufacturer, and marketer of products for infants and preschool children. Its product portfolio includes baby strollers, baby beds and play yards, highchairs, rocking chairs, infant seats for cars, motorized vehicles and other accessories. LD Group strives to produce innovative quality products in compliance with the highest safety standards around the world. LD Group has set up manufacturing facilities in Zhongshan, Guangdong and Shanghai, China. It has R&D centers in both Taiwan and China. The company works as an ODM with solid R&D efforts. In 2008, it had more than 366 products and 727 registered patents. LD Group is known for its manufacturing experience and product quality. Most of the company's products are sold to the U.S. and Europe.

To augment its supply chain, LD Group established GuoHong Plastic Manufacturing in Zhongshan City, Guangdong Province, in 1997, with a capitalization of NT\$150 million. The manufacturing site commands a total area of 12,000 square meters and it hires approximately 210 operators. It produces a variety of infant prams, baby beds, luggage wheels and plastic products. It started with the manufacturing of EVA foam wheels and extended to the manufacturing of compound plastic inflatable wheels and inflatable wheels made of environmental friendly materials. Its current offerings include foam wheels, inflatable wheels, and plastic products. It is the

first company that developed new materials for inflatable wheels, which are aesthetically attractive, practical, durable, and environmental friendly. These products are currently applying for patents in China. The firm emphasizes management, R&D, and professionalism, from molding to forming. In March 2000, it obtained the certification from ISO—9002 certification and in May 2003, got ISO--9001: 2000 certification.

To brace for the arrival of an aging society, the company established a division of medical devices and entered the market of motorized vehicles in 2001. In 2004, the company extended operations into the medical equipment markets in the Americas, Europe, Australia, and some Asian countries by designing, developing, and innovating mobility products for the disabled or the elderly. The offerings range from mobility aides and commode chair for stay-homes to motorized vehicles and wheelchairs for going-outs. The non- power products include wheelchairs, mobility aids, table chairs, bath chairs, elevated toilet seats, toilet racks, and monkey poles. Powered ranges include motorized vehicles, foldable electric wheelchairs, and stationary electric wheelchairs. Dedicating to R&D, the company aims to establish a global brand with global footprint, in order to create higher profits and value.

LD Group's infant products are sold all over the world under the brand name

“Angel”. Its products are renowned for quality, safety, and reliability. The company is widely recognized for its production capability, leading R&D, and designs that are able to keep up with those of the counterparts in the US and Europe. In September 2006, the company was awarded “Famous Brand in Guangdong”. In September 2007, it was recognized as a Chinese Top Brand. In December 2008, its products were given the “national inspection-free” status. LD Group offers a comprehensive portfolio of infant products (including strollers, beds, feeding products and other accessories). The brand name “Angel” conveys the message for an angel’s heart and parents’ love. LD Group spares no efforts in the design of the newest and best products for overseas and the introduction of such products to the Chinese market the earliest as possible. This is to make sure Chinese consumers can enjoy the premier products/services available to the international market.

LD Group decided to enter the Greater Chinese market to meet the needs of consumers. In August 2007, Zhongshan LD Qihang Co., Ltd. was established, to build the distribution network under the brand name “Henry & Jamy”. In 2008, the company set up branches in Guangdong, Guangxi and Fujian. It currently has over 30 chain stores. “Henry & Jamy” offers one-stop shopping for infant products of different brands. In 2008, LD Group started to extend its geographic

reach and intended to become No. 1 chain stores for infant products in China within three years.

## Research Findings

### *Capability Hierarchy of LD Group*

Over the past two decades, LD Group has been developing its core competences by matching capabilities with resources. With different dynamic capabilities by functions, LD Group has been extending cross-disciplinary capabilities on the top as well as operational specialization capabilities on the bottom. The purpose is to ensure the solidness of its abilities in the capability hierarchy. Meanwhile, LD Group has been, over the past 20 years, building three capabilities, i.e. capability acquisitions, capability regeneration, and capability allocations with strategic operations. Capability acquisition refers to the capability of technical knowhow and management. For example, to enter the motorized vehicle market, LD Group purchase some packaged patents for the knowhow covering the whole of a motorized vehicle from an Australian company. With regards to management capability, LD Group hires management consultants each year to assist in the construction and adjustment of its management system, in the establishment of the ISO quality control system, and in the certification of FDA licenses. To create entry barriers to competitors and make it impossible for others to imitate its techni-

cal knowhow, LD Group absorbs new knowledge and obtains new technologies and patents, and essentially enhances the regeneration of its capabilities. Its R&D in the controllers of motorized vehicles is the best example. The problems in sales department somehow affect the production department, and the quality of R&D projects affects the development of products. Also, the professionalism in engineering affects the conditions of production. It is worth noting that all these interdependent relationships vary in degree, depending on the level of technical sophistication. The allocation of capabilities is often the contributor to overall performances.

The results of the literature review suggested that dynamic capabilities are hierarchical. They comprise the low-level capability for day-to-day operations and the high-level capabilities for organization regenerating and restructuring, and workflow reengineering. These high-level capabilities also include the capabilities to acquire, allocate, and regenerate. At the highest level, there are the capabilities of strategic reasoning, new-capability creating, and environmental-adapting (Cepeda & Vera, 2007; Luo, 2000; Sanchez, 2004; Wang & Ahmed, 2007; Zollo & Winter, 2002). Hence, this study developed Proposition I.

*Proposition I: the hierarchy capability for various dynamic capabilities was the higher level capability in strate-*

*gic reasoning, new-capability creating, and environmental-adapting.*

### *Organizational Learning of LD Group*

The performances of LD during the previous two decades are driven by the momentum of organizational learning. LD Group obtains, digests, transforms, and utilizes knowledge through the processes of certification and redefinition of organizational norms so as to synthesize its core competences. In 1996, it acquired the certification for ISO 9002:1994. In 2000, it went for an IPO in Hong Kong. In 2002, it passed the assessment of the DNV: ISO 9001:2000 quality management system. In 2004, it made its first foray into the medical equipment market. In 2006, its infant stroller under the brand name "Angel" was recognized as a top brand in Guangdong Province. In 2007, it was awarded as a top brand in China. In the same year, its baby strollers and motorized vehicles obtained China Compulsory Certification and its prams under the brand name Angel was awarded "Chinese national inspection-free" status. In 2008, it passed the DNV: IECQ QC080000: 2005 certification for the control of hazardous substances in the manufacturing process.

LD Group implemented a five-pronged strategy to promote organizational learning through the certification of quality management systems. First, it chooses good suppliers able to meet its

standards and requirements. Second, it establishes a comprehensive system for the inspection of procurements to ensure the acceptable rate of its own products. Third, it promotes the control over manufacturing processes. Fourth, it ensures the quality of final products. Fifth, it sets up professional labs and equipment for inspection and quality assessments. In fact, the organizational learning within LD Group requires training of the personnel involved in inspection, testing, and management. The purpose is to establish standard procedures, achieve implementation requirements, and ensure quality management.

In addition, LD Group reports good results in the utilization of knowhow in lean production. It streamlines its manufacturing model by changing production workflows. To save manpower required on the assembly lines, LD Group trains its staff for multiple tasks. Starting in 2002, LD Group has been introducing automated cropping/cutting equipment from Spain to automate the processes from product design to forming.

The literature review also revealed that dynamic capabilities are a process of organizational learning. They include knowledge acquisition, knowledge digestion, knowledge transformation, and knowledge utilization to reconfigure or-

ganizational norms and synthesize core competences (Sapienza et al., 2006; Zollo & Winter, 2002; Zott, 2003). Hence, this study proposed Proposition II.

*Proposition II: Dynamic capabilities illustrated their formation and evolution process via organizational learning, so as to reconfigure organizational norms and synthesize core competences.*

#### *Strategic Integration within LD Group*

Figure 2. depicts the strategic integration within LD Group over the past 20 years. Founder Mr. Huang delivered a speech in a team-building offsite in 1995. “The year 1994 marked our sixth year of our efforts in the infant stroller market from our headquarters in Zhongshan, Guangdong. There are more than 15 competitors here alone and they all target at our market share. I believe that a global battle for the infant stroller market is imminent and it will be a tough one. We cannot back out and we can only march forward. We can only survive after we have defeated our opponents. and the only way to do so is to attack, time and again. How? Firstly, we need well designed products as our weapons. Secondly, we need to train employees as our warriors. Thirdly, we need a thorough strategy.

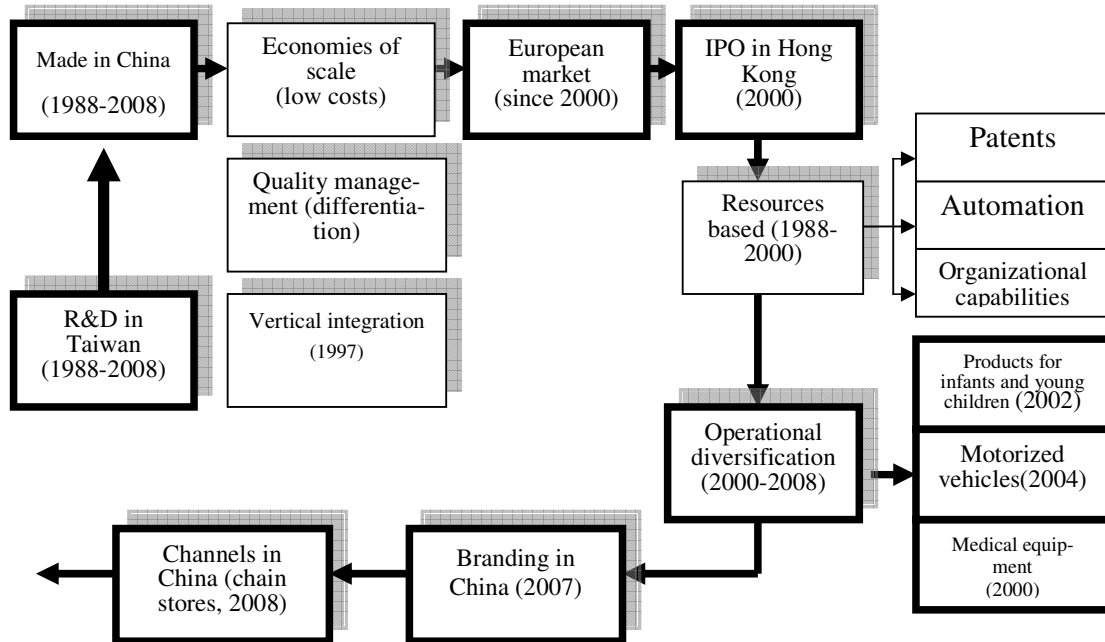


Figure 2. Strategic Integration with LD Group

Source: This study (bold lines indicating the process of capability transmissions and monitoring)

All these three require us to work together as a team, to fend off our enemies. Now, I would like to announce that we have managed to secure 50% market share in the US in 1995. We will be entering the Japanese market at the end of 1995 and we will have 50% market share in Japan by 1998. We will have at least 50% market share in Europe by 2000. I hope we become the largest and the best manufacturer in the world for infant strollers.” His audience gave an enthusiastic round of applause immediately after his talk. The atmosphere was joyful, amid big red banners, crimson table clothes, and colorful balloons.

In August 1996, LD Group’s facilities in Zhongshan acquired the ISO-9002

certification. In 1998, it established an electric toy department. In 2001, it set up a medical equipment department. In 2002, it obtained the ISO-9001:2000 certification. In 2005, its subsidiary in Taiwan and the headquarters in China received the ISO- 13485, ISO-9001 and the GMP certifications, respectively. During the same year, the company had a total of 592 patents around the world and a total of 268 patent applications pending. It had become the largest manufacturer of infant strollers in the world. The promise Mr. Huang gave in 1995 was indeed realized by LD Group.

The literature review found that dynamic capabilities are comprehensive. They include static strategic elements and



dynamic process characteristics. They can be used to evaluate the strategic positioning and adjustment features of a company in a dynamic environment (Teece et al., 1997). Hence, this study developed Proposition III.

*Proposition III: Dynamic capabilities were the dynamic evolution of static strategic elements and dynamic processes.*

#### *Dual Process of LD Group*

Figure 2. shows the process of LD Group's development over the past 20 years with R&D center in Taiwan and low-cost manufacturing in China. The company spent 12 years on the establishment of economies of scale, management of quality, and strategies for vertical integration. In 2000, LD Group pursued diversification on the top of the resources and capabilities it had accumulated, and the access to the capital market in Hong Kong. It entered the products for infants and young children, medical equipment, and motorized vehicles market. In 2007, it started to build its own brand and channel in China. The strategic dynamics in the adjustment to environmental changes and the establishment of its competitive advantages are also a transmission process of its dynamic capabilities.

The literature review suggested that dynamic capabilities are a process of capability transmissions and monitoring.

The monitoring of dynamic capabilities includes the examination of internal and external environments, the control over day-to-day operations of a firm, and the self-inspection of the predicament to organizational capabilities. The first two processes are elaborated in the traditional theories of organizational capabilities. The examination of internal and external environments is not only the basis for the management of daily operations, but also the foundation for decisions over strategic adjustments. The observation of daily activities and the adoption of timely and appropriate precautions are important to the assurance of effective implementations of existing strategies. The third process is unique to the process of dynamic capabilities. The monitoring of environment changes facilitates decisions over capability adjustments after the identification of potential challenges to firm capabilities and the detection of changes in either internal or external environments. The facilitation is achieved through path dependency, structural inertia, and psychological commitments. The ultimate goal is to ensure the realization of daily capabilities and the improvement of firm capabilities. In such instances, the transmission process of organizational capabilities is both the results of internal development of capabilities and the outcome of adjustments via capability monitoring. This also shows that the process of capability transmissions and flexible monitoring is organic and holistic. These elements form the framework of dynamic

capabilities (Schreyogg & Kliesch-Eberl, 2007). Hence, this study proposed Proposition IV.

*Proposition IV: Dynamic capabilities were dual-process capabilities. They comprised of the transmission process of existing capabilities and the process of monitoring and adjusting the existing capabilities.*

### Conclusion and Suggestions

#### *Practical Implications*

This study concluded the following four findings:

1. The hierarchy capability for various dynamic capabilities was the higher level capability in strategic reasoning, new-capability creating, and environmental-adapting.
2. Dynamic capabilities illustrated their formation and evolution process via organizational learning, so as to reconfigure organizational norms and synthesize core competences.
3. Dynamic capabilities were the dynamic evolution of static strategic elements and dynamic processes.
4. Dynamic capabilities were dual-process capabilities. They comprised of the transmission process of existing capa-

bilities and the process of monitoring and adjusting the existing capabilities.

Hence, this study suggested that dynamic capabilities were hierarchical. They were capabilities with dynamic evolution processes, as well as processing capabilities. They included the transmission process of existing capabilities and the adjustment of such existing capabilities via monitoring and organizational learning.

This study proposes the following two practical implications. Firstly, dynamic capabilities aimed to quickly adapt to the rapid changes of the external environment. They were the capabilities to build, integrate and reconfigure the capabilities of a firm internally and externally. Dynamic capabilities would be a habit acquired by an organization. They could adjust and change core competences in order to have effects on competitive advantages. Secondly, to achieve competitive advantages in a dynamic competition and respond to environmental changes, it was necessary to identify potential market opportunities, to reconfigure and transform resources internally and externally, to maintain organizational learning, to rapidly improve or innovate products/services, and to monitor/adjust existing capabilities.

#### *Suggestions for Follow-Up Studies*

This study made the following suggestions to follow-up research projects.

First, this study examined the sources of dynamic competitive advantages with four models, i.e. capability hierarchy, organizational learning, a dual process, and strategic integration. Subsequent studies might explore how these models interact with each other and what the influencing factors are. Second, this study conducted a case study in the investiga-

tion of dynamic competitive advantages. Follow-up studies might examine companies in different industries or conduct multiple case studies. Third, different factors such as the effects of the industrial structure, the effects of firm sizes, and differences in geographic locations could be included as modulating variables for further studies.

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