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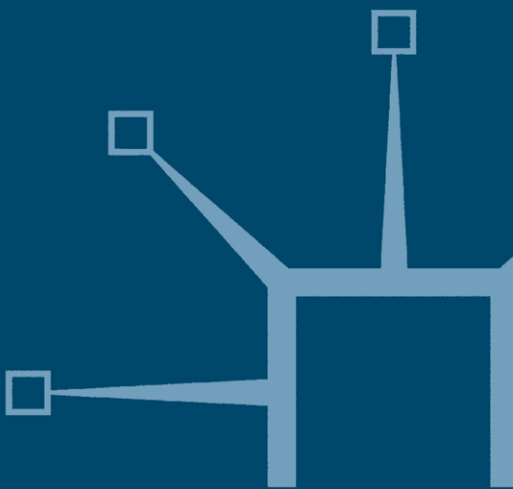
Marketing Competences and Strategic Flexibility in China

Yonggui Wang and Richard Li-Hua



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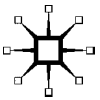

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Preface

Early in 2005, the *Journal of Sino-Foreign Management*, through its website and the distribution of questionnaires during the annual conference, conducted an interesting survey among Chinese entrepreneurs on 'whom should Chinese enterprises learn from'. The result shows that 57.1 per cent (website) and 59.4 per cent (conference questionnaires) believe that Chinese enterprises should now 'move forward on its own way' while only 28.6 per cent and 33.0 per cent believe that Chinese enterprises 'should continue to learn from the West'. This has aroused an interesting debate. However, there were different views expressed by three different 'schools' in the consultancy circle and the academia. Chinese business consultants who have education and research experiences and hold Western degrees believed that the Chinese management philosophy is essential to the Chinese enterprises while Western management knowledge is desirable to the Chinese enterprises. Foreign business consultants who work in China believed that Chinese enterprise have not yet been able to establish its own management style within only twenty years since the economic reform. Chinese consultants believed that the prevailing management theory today only benefits and fits well with the Western trans-national enterprises. Therefore, Chinese enterprises should look after themselves and develop indigenous capabilities. These were responses and perspectives from Chinese entrepreneurs and the management consultancy circle.

China's entry into the WTO will dramatically change the international business landscape in an economy that the world is counting on for growth in the coming years. The year 2005 witnessed that 'Made in China' aroused the curiosity across the world. *The Economist* had confidence that China would be successful in the establishment of world class companies. *Wall Street Daily* was surprised that from oil to iron mining, from chips to colour television, China is going global and Chinese companies are purchasing the 'whole world'. *The Financial Times* stated that China is a country where the high technology from the first world and the cheap labour and raw material from the third world are combined together. Legend, now known as Lenovo, which was established at Shenzhen in 1984, purchased the PC department of IBM with US$1.25 billion and would like to move its headquarters to New York in the near future. This enables Lenovo to become the third world largest provider of PCs after Dell and HP and increase its market share by

the combination of IMB's marketing channels and networks. However, Lenovo will be presented with challenges such as whether the original customers of IBM continue to trust Lenovo and how the ten thousand foreign employees and the original Chinese employees respond to the strategic vision and configuration of the company. Huawei, a telecommunication company, surpassed Ericsson in Netherlands with an overseas income of US$22 billion and achieved its aim to obtain its position in the international market. This has enabled Huawei to gain a position in the world top 50 telecommunication enterprises with a business coverage in 90 countries. Having secured ownership of British MG Rover, Nanjing Automobile, China's oldest carmaker, planned to develop an R&D and technical facility in the UK. Haier Group, Chinese electronic giant based in Qingdao, attempted takeover of Maytag, the US microwave oven and vacuum cleaner conglomerate while China National Offshore Oil Corporation (CNOOC) is looking for Unocol's technology and assets in the Asian region to leverage its own exploration opportunities and reinforce its own technology capacity.

However, the uncertainties and ambiguities prevalent in the Chinese business environment, in particular, in the area of creating of marketing competences and strategic flexibility in the Chinese context, are neither well understood nor effectively negotiated by the international investment community. In addition, the complexities in understanding the Chinese philosophy and Chinese management style have led to the anxieties and hesitation of foreign operators. As to the international investors, China's business environment continues to present many challenges, particularly in how to manage effective business networks and ensure smooth knowledge transfer, especially in international joint venture projects. In the meantime, Chinese investors are facing even more severe competition, both the internal and external business environment presents them with a double-edged sword with China's access into the WTO. Therefore, the ever-increasing challenging issues in the Chinese business environment have inspired the argument and the philosophy of the current study.

In the 1950s the American style management was prevailing across the world. And in the 1970s, the Japanese style management, which had created the amazing economic wonder, became known as the most popular in the world. However, the Chinese style management emerged in the 1980s, as the economic reform started in the late 1970s. How did Japanese style management become known? The answer will be that Japanese style management never became known without the wonder of Japanese economic development. So does the Chinese style management. China's legend is that China has become second only to the US in

GDP as expressed in purchasing power parity (PPP). This is a result of the radical economic reform introduced only in the last twenty years. There is an interesting comparison between American style management and Chinese style management. It has been understood that the American style management is embedded in the process of self-actualisation. For example, it focuses on 'management by objectives' and 'management by result'. However, the Chinese style management concentrates on the philosophy of 'self-disciplinary first and then managing people' under the philosophy of Confucius.

There is no doubt that Chinese style management will have an important position in the management field in the twenty-first century. However, this does not mean that Western style management will be replaced by Chinese style management. There is also little wonder that the twenty-first century is the century of those who are armed with Western management knowledge and experiences and also have a familiarity of Chinese management philosophy. The twenty-first century is an era where people need to have a combination of Chinese philosophy and Western management science and an integration of Chinese management wisdom and Western management ideology. These two elements are equally important. People, no matter where they are from, who neglect the two elements, will be lame ducks.

This book is timely and significant for theoretical, methodological and practical reasons as the world looks at China's economic expansion. In particular, the business sector domestically and internationally has a special sense of its potential market as it attempts to address the challenges in the turbulent Chinese business environment and highlights crucial elements and key resource-based determinants in creating marketing competences and strategic flexibility in the Chinese context.

Richard Li-Hua
Newcastle upon Tyne
6 April 2006

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Yonggui Wang
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3 April 2006

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1
Introduction

In the age of globalization, China presents a unique setting for organizations. The unprecedented growth of China's economy, which remains the fastest growing in the world, offers significant potential for both Chinese and foreign investors. Today, increased levels of competition in the wake of China's entry into the WTO have resulted in experimentation and risk-taking as ways of doing business in China. Business networking, as a form of social capital, has emerged as a growth strategy in China's emerging market economy. However, the uncertainties and ambiguities prevalent in the Chinese business environment, in particular, in the area of creating of marketing competences and strategic flexibility in the Chinese context, are neither well understood nor effectively negotiated by the international investment community. In addition, the complexities in understanding the Chinese philosophy and Chinese management style have led to the anxieties and hesitation of foreign operators. As to the international investors, China's business environment continues to present many challenges, particularly in how to manage effective business networks and ensure smooth knowledge transfer, especially in international joint venture projects. In the meantime, the Chinese investors are facing even more severe competition, both the internal and external business environment presents to them a double-edged sword with China's access into the WTO. Therefore, the ever-increasing challenging issues in the Chinese business environment have inspired the argument and the philosophy of the current study.

The nature of the study has resulted in the adoption of both the pilot study and the main study approach. Following the successful survey (both firm with 80 respondents and customer with 100 respondents) in Tianjin, a structured main study was undertaken in Beijing, Tianjin and Shenzhen. The main study has secured 187 valid responses from senior managers in companies and 367 valid responses from general

customers. Based on the data collected from China firms (the firm survey) in three big cities, Beijing, Tianjin and Shenzhen, and their customers (the customer survey), several structural equation models (including both mediated model and moderated models) are developed and empirical results show that most of the propositions are strongly supported and the key resource-based determinants such as organizational learning, technological competences, marketing competences, integrative competences and strategic flexibility do have significant impacts on different dimensions of customer-focused performance directly or indirectly. This also has implications as far as creating dynamic capabilities and the possible choices for a firm to strengthen its dynamic capabilities in turbulent environments in China for superior customer-focused performance. By taking a disaggregated approach, results of the structural equation models developed based on the data from the customer survey indicate that among the five service quality-related factors, four of them have significant but differentiated impacts on customer-perceived service quality with reliability as an exception. Furthermore, customer-perceived value has been studied as well. Not only the operationalization of customer-perceived value has been conducted and a valid measurement scale developed in the Chinese context but also results indicate that the majority of the five service-related factors have significant but differentiated effects on each dimension of customer-perceived value (functional value, social value, emotional value and perceived sacrifice) with the impact of reliability on perceived sacrifice as the only exception. In addition, the complex relationship between service quality, customer-perceived value and customer satisfaction has also been explored and tested in this study.

This chapter presents the background briefly and provides the justification of this book in aspects of theoretical significance, methodological significance and practical significance. Then the objectives and the key contributions of this book are summarized. Furthermore, the rationale for the selection of firms in China is provided.

Aims and objectives of the study

This study investigates the concept of customer-focused performance and its key determinants in the perspective of a resource-based theory of a firm. It aims at integrating service marketing literature with that of strategic management by understanding how firms build and leverage distinctive competences, capabilities of organizational learning and strategic flexibility to achieve superior customer-focused performance.

The study attempts to fill some of the gaps in the literature, and aims to define the concept of customer-focused performance, analyse the interactive relationships between its main components and identify the key determinants of customer-focused performance in perspective of a resource-based theory of a firm. Specifically, the objectives of the study are to investigate such research questions as follows:

- To define customer-focused performance, and its key dimensions and to test the interactive relationships among its key dimensions.
- To identify the key resource-based determinants of customer-focused performance and their relationships, especially the relationships among organizational learning, strategic flexibility and core competences.
- To build comprehensive structural equation models for investigating and testing the relationships between the key determinants and customer-focused performance, and uncovering how different competences interact with each other and with environment to impact the specific dimensions of customer-focused performance.
- To establish theoretic framework as to enabling firms build and leverage distinctive competences, capabilities of organizational learning and strategic flexibility to achieve superior customer-focused performance.

Background of the study

On the one hand, concepts such as customer orientation, staying 'close to customer', customer segmentation and niche marketing, customer as co-producer (Wikstrom, 1996), value co-production, critical co-developer of knowledge and competence (Sivula *et al.*, 1997) and co-opting customer knowledge (Gibbert *et al.*, 2001), all point to the much more significant role of customers in business success than ever before. This indicates that the arrival of a new customer-centered era and necessitates inevitably the priority of customer-focused performance. On the other hand, the increasingly dynamic and intensified nature of competition has made the improvement of organizational learning and the development of more effective methods for managing knowledge and other intangible resources a central concern of contemporary strategic management. Consequently, a new approach, the resources-based view of the firm, emphasizes the critical importance to sustainable competitive advantages and performance differentials of invaluable resources and competences such as customer relationship, marketing capabilities, learning culture, and employee skills and

knowledge (Barney, 1991; Teece *et al.*, 1997), has won increasing attention from both academic and practical circles although the traditional industrial organization economists argue that there are a rather deterministic association between market structure and profitability (Mason, 1939).

According to the resource-based view, firms are viewed as bundles of unique resources and the primary sources of performance differentials are the idiosyncratic accumulation of unique and non-imitable resources within firms. Resources are defined as those tangible or intangible assets that are tied semi-permanently to the firm (Maijoor and Witteloostuijn, 1996). Examples of such resources are: brand names, in-house knowledge of technology, skilled personnel, trade contracts, efficient procedures, organizational capabilities, marketing knowledge, etc. (Wernerfelt, 1984). However, not all kinds of resources of firms are equally important and only those that are valuable, rare, non-imitable and non-substitutable may generate sustainable performance differential (Barney, 1991). In order to test the so-called industry effects advocated by researchers in the tradition of the Mason/Bain structure–conduct–performance (SCP) paradigm that attributes differential firm performance to the structure nature of an industry, and the firm assets effects believed by resource-based theorists, several empirical studies have been conducted, and most of them have found that industry effects can only explain about 20 per cent of performance variance. Therefore, it is important for us to focus simultaneously on two things, i.e. servicing customers and leveraging resource-based sources of superior performance, and try to integrate them into an organic system with the former as a starting-point and an end-point at the same time.

In fact, in environments characterized by high-velocity change, accelerating product life cycles, narrowing customer niches, mass customization and technological discontinuities, today's product markets can appear and disappear quickly (D' Aveni, 1994), with traditional product-centered strategies providing little long-term advantage (Christensen, 1998). This has led to renewed efforts to understand how firms can develop dynamic capabilities which enable them to adapt, integrate, and reconfigure their skills and knowledge in order to adapt to a changing business environment. The dynamic process of developing resources and competences has also turned the attention of firms to collective learning (Prahalad and Hamel, 1990), a process through which organizations apply existing knowledge and develop new knowledge that shapes the development of new competences that are necessary in the changing environments (Kogut and Zander, 1992; Henderson and

Cockburn, 1994). Furthermore, this work has highlighted the need for a deeper understanding of how trajectories of knowledge and capabilities develop and how factors such as absorptive capability (Cohen and Levinthal, 1990) and 'lock in' (Dosi, 1988) influence the process of knowledge and capability development. However, up to now, there have been few systematic studies supported by empirical evidence in this field. Furthermore, there has been a strong trend for researchers and managers to try to explain the influential factors of competitive advantage and superior performance from their own perspective and ignore the rationality of views from other streams. Thus, little effort has been made to integrate knowledge management, organizational learning and competence-based competition with empirical investigations and, as a result, little research has been done to explore and examine the interactive relationship between knowledge acquisition, accumulation and sharing, organizational learning, and competence building and leveraging, and their impacts on customer satisfaction, customer-perceived service quality and other dimensions of business performance.

Furthermore, even though almost all researchers agree that firms competing in present and future situations will encounter a dynamic environment in which strategic flexibility and responsiveness will be paramount, few take strategic flexibility into account when they explore or test the links between different factors and firm performance. In addition, in today's turbulent environments, customers are playing an ever more important role in business competition, and many means have been advocated of understanding customer demands from the viewpoint of customers themselves, so that these demands can be translated into business language and actions. However, little progress has been achieved concerning customer-focused performance. Although many studies have been made of business performance, most of which are conducted with overall performance, market performance or new product performance as the focus. Therefore, drawing on a growing body of literature that distinguishes between a firm's products and its resources and capabilities (Snow and Hrebiniak 1980; Hitt and Ireland, 1985; Barney, 1991; Henderson and Cockburn, 1994; Markides and Williamson, 1996), that emphasizes organizational learning (Argyris, 1978, 1990; Senge, 1990), and that pays more attention to customer satisfaction, customer-perceived value and customer-perceived service quality (Gronroos, 1988; Zeithaml *et al.*, 1990; Parasuraman *et al.*, 1991; Anderson and Cockburn, 1994), this book will try to bridge gaps that currently exist in our understanding of business dynamics in turbulent environments and link what strategic management field argues with what service management emphasizes.

How was the study conducted?

The research project aims to investigate key aspects that underpin the creation of marketing competences and strategic flexibility and addresses the crucial issues in creating core competence and strategic flexibility in the turbulent Chinese business environment. The nature of the research has decided that the design concept of the research project has been a combination of both qualitative approach and the quantitative approach. Following the literature review, both a pilot study and a structured survey were designed to be an integral part of the research project. By taking a disaggregated approach, theoretic framework and the structural equation models has developed based on the data from the customer survey through conversation with senior Chinese business executives and a well structured survey in Beijing, Tianjin and Shenzhen, in PRC.

What is the intent of the book?

First and foremost, this book is a highly practical, technically limited, presentation of principles of key resource-based determinants in creating core competences, such as organizational learning, technological competences, marketing competences, integrative competences and strategic flexibility. Furthermore, the distinctiveness of the book lies in analysing turbulent business environments and key resource-based determinants that underpin organizational learning, technological competences, marketing competences, integrative competences and strategic flexibility. This will enable business executives in both the Chinese and international business community to identify the essential ingredients in approaching the Chinese market and in making strategic decision.

To whom is this book directed?

As it is addressed previously, this book has arguably a very wide range of readers. Researchers and academics may find the book interesting and useful because the study has successfully approached a pilot study and a well-structured survey in three major cities in China.

Besides the senior students and academics in the areas of international marketing, strategic management, organizational learning, economics, business administration and international management, will also find this book of value, as it touches a subject of considerable interest to many groups, such as government policymakers, international funding

agencies, and business executives. This book not only suits the business executives in the international joint venture companies, multi-national corporations, but also that of large-middle state-own enterprises and private operators in China.

Justification of the study

This book is timely and significant for theoretical, methodological and practical reasons as the world looks at China because of its economic expansion – in particular, the business sector, domestically and internationally, has a special sense of China's potential market.

Theoretical significance

With regard to theoretical significance, this book is important to the further development and testing of theories concerned in three ways as follows.

First, it integrates the research in the field of service marketing with that in the field of strategic management, especially those in perspective of a resource-based theory of the firm. Yet, as mentioned before, the literature on service marketing and the resource-based view in strategic management research runs in two parallel streams. Obviously, the lack of linking the resource-based view of the firm in strategic management field with service marketing has greatly limited service marketing's relevance to the growing field of strategic management. Similarly, lack of incorporating the role of service marketing in the context of strategic management studies may both limit our understanding of the roles of strategic resources and capabilities such as organizational learning, core competences and strategic flexibility in the sustaining of superior customer-focused performance and hinder the theory development of service marketing.

Given the importance of strategic resources and competences in service marketing and customer relationship management, some researchers have called for research on marketing capabilities or market-based assets. Along this line of inquiry, this book advances the literature by linking service marketing and the resource-based view of strategic management in a way of exploring the key resource-based determinants of different dimensions of customer-focused performance and investigating their interactive relationships. Thus exploring the dynamic relationships concerned provides the needed theoretical and empirical evidence for linking service-marketing theory with strategic management literature, which may greatly broaden the relevance of service-marketing theory.

Secondly, the book clearly defines the dimensions of customer-focused performance and constituents of the key resource-based determinants, especially the constituents of core competences. On the one hand, in spite of the extensive studies of resources and competences, much of the work has been descriptive in nature and relatively few empirical studies have been conducted. More specifically, strategy researchers have not succeeded in establishing more stable, immutable conceptualizations of core competences, organizational learning and strategic flexibility because of the lack of conceptual refinement and empirical tests. The lack of conceptual refinement has also lowered the ability of strategic resources and competences variables to explain variations in firm performance, especially in customer-focused performance. On the other hand, although extant studies in service marketing on customer-perceived service quality, customer-perceived value, customer-perceived sacrifice or customer satisfaction have been becoming more and more fruitful, less has been done systematically about the interrelationships between them, no general agreements have been arrived at about the conceptualizations and measurements except customer-perceived service quality, and few have taken them together and tried to integrate them into one comprehensive mode to reflect the superiority of customer-focused performance. For example, extant studies have never articulated well on which kinds of competences firms should focus to achieve superiority in some dimensions of customer-focused performance, and how different competences effectively impact different dimensions of customer-focused performance. Therefore, attempts to investigate customer-focused performance and its key resource-based determinants may not only broaden the focus of studies of service marketing and customer relationship management but also enhance our understanding of firm development and competitiveness building and leveraging, and thus enrich the strategic management theory.

Thirdly, previous studies on either the resource-based view of the firm or service marketing have been conducted mainly within the context of the well-established market economies and some highly related research findings have been achieved. In theory development and testing, however, these findings cannot be taken for granted excluding decisive influences of the context to which they may be applied. Firms in a transitional economy may differ from their western counterparts in many dimensions. A transitional economy refers to an economic situation where the economy is transiting from a planning oriented to a market oriented and both market power and non-market power play roles simultaneously in coordinating resources allocation. The context of this book will reinforce attempts to generalize the literature on service

marketing and the resource-based view of strategic management to a transitional economy. As indicated above, environmental characteristics in a transitional economy may lead the firms there to adopt different strategies and take different actions from their counterparts in a market economy. Yet, empirical studies in this stream are particularly scarce. This book represents an initiation to investigate the customer-focused performance and its key resource-based determinants in a transitional economy.

The methodological significance

The methodological significance of this book is related to the structural equation model building and the moderating effect testing by using Partial Least Square method. On the one hand, according to Hair *et al*. (1998), SEM is characterized by its ability to estimate multiple and interrelated dependent relationships simultaneously, and measure unobservable concepts in these relationships uncontaminated by measurement error. On the other hand, as one of the estimation techniques for structural equation model (SEM), although the PLS method is not as popular as the maximum likelihood (ML) based covariance structure analysis method, it does provide 'a way to avoid problems of improper solutions and factor indeterminacy as well as the violations of distributional assumptions' (Fornell and Cha, 1994). Furthermore, as for the testing of moderator effects, although traditional techniques such as analysis of variance (ANOVA, MANOVA, MANCOVA, ANCOVA) or moderated multiple regression (MMR) are frequently used, however, they may not be able to detect such interaction effects under conditions of measurement errors. For example, according to what has been concluded by Chin, *et al*. (1996, 2003), studies using analysis of variance approaches fail to report effect size estimates on the one hand while the regression and path analysis techniques, which do provide beta path coefficients, have few significant terms, small effect sizes and low statistical power, which can be overcome by the PLS method. Moreover, the usage of two different sources of data and making useful comparisons are also of methodological significance.

The practical significance

The book is also of practical significance. Both strategy and service marketing practitioners working in firms are at a disadvantage due to the lack of research and theory to support their contributions to their firms. This book provides empirical understanding of what kinds

of strategic resources and competences firms actually accumulate, and how these valuable resources help firms effectively adapt to external environments and achieve superior customer-focused performance and distinctive advantages. For those foreign firms that attempt to enter the China market, this book provides them much-needed evidence for learning how the Chinese firms compete and achieve success in a transitional economy, and results of the book also provide guidelines for foreign firms to enter this market. Finally, this book will benefit public policymaking and contribute to the national economic development in the long run.

Contributions to research

As described above, the book not only tries to identify the significance of customer-focused performance and its key determinants but also aims to find and test the dynamic relationships between them. Accordingly, the major contributions can be summarized as follows.

First, it connects the latest research findings in two different fields of management: service management and strategic management. Up to now, even though important conclusions have been made in each field, less efforts have been paid to connect them together empirically with the study of Aung and Heeler (2001) as an exception. Although some empirical research exists trying to establish the relationship between competences and performance, they mainly focus on the overall performance, market performance or new product development performance. In fact, the resource-based view in strategic management lays solid and sustainable foundations as well for achieving superior customer-focused performance. Thus in this research, it is expected that a linkage between such strategic resources as competences and strategic flexibility, and customer-focused performance will be built conceptually and empirically. For example, the mechanisms for organizational learning, technological competences, marketing competences, integrative competences and strategic flexibility to contribute to different dimensions of superior customer-focused performance, i.e. customer-perceived service quality, customer satisfaction and customer-perceived value, will be discussed and tested in this study.

Secondly, defining and identifying the key components and dynamics of customer-focused performance and its key determinants is one of the most innovative exploratory studies in related fields. Even though more and more agreements have been made about the important role of customers in business competition, little has been done systematically about customer-focused performance, especially the performance

evaluated by customers in the eyes of themselves, not the firm. In this book, the connotation of customer-focused performance, a performance system directly evaluated by customers outside the firms, will be analysed and its key dimensions will be identified. Based on the extensive literature review and in-depth focus group discussions, the measurement system will be developed and then the interactive relationships among the key dimensions will be discussed and tested systematically. Furthermore, in this research, much attention will be paid to the key dimensions of customer-perceived value as well so as to deepen our understanding of customer-perceived value and leverage it to build sustainable competitive advantages.

Thirdly, identifying and testing the different roles of marketing competences, technological competences and integrative competences in enhancing strategic flexibility and achieving superior performance is still a direction to be studied further. A number of studies have been undertaken of resources and competences in different perspectives up to now, some of which are empirical, however, it is too difficult to find any empirical findings specifying and testing the different roles and unique significance of these three broad constituents of core competences. In this research, it is expected that reliable and valid scales will be developed based on extant research work and in-depth interviews with senior managers in China. And then their proposed roles in core competences and unique contributions to superior customer-focused performance will be tested based on evidence from China.

Furthermore, analysing and discussing the special contribution of organizational learning to core competences and customer-focused performance is another point worthy of empirical investigations. It is easy for us to find many qualitative studies for organizational learning, however, more empirical studies are needed to propel its development further. Thus the impacts of the three dimensions of learning orientation, i.e. commitment, shared vision and open-mindedness, on core competences will be examined and tested conceptually and empirically in this book.

Finally, discussing the value of strategic flexibility to different dimensions of superior customer-focused performance is very helpful to enrich studies on strategic flexibility and useful for senior managers to understand strategic flexibility and leverage it more effectively in today's turbulent environments. Nowadays, although strategic flexibility has become one of the focal point for both academics and practitioners and some qualitative researches have been emerging rapidly, few empirical studies can be found and no research up to now has been done to link strategic flexibility to different dimensions

of customer-focused performance such as customer-perceived quality, customer-perceived value and customer satisfaction.

Rationale for the selection of firms in China

In this book, data are collected from firms in China, a country that is undergoing reforms from a centrally planning to a market economy. There are several reasons for this selection. The first is that investigating customer-focused performance and its key resource-based determinants within the context of a transitional economy is more critical than doing that within a market economy. The rationale for this proposition is that, on the one hand, market power is growing but the market infrastructure has not been well developed in a transitional economy (Nee, 1992; Peng and Health, 1996). Hence, application of marketing knowledge and emphasis on strategic resources and competences are rather limited. However, in a transitional economy, where marketing skills/resources are less available, firms that have such strategic resources and deploy them effectively are more likely to build up sustained differential advantages to achieve superior customer-focused performance and accordingly, superior financial performance. In fact, researchers have found that strategic resources and competences such as marketing skills/resources are more critical for a firm's performance in a transitional economy than in a market economy (Calantone *et al.*, 1996). Thus, it is important to understand the mechanisms through which a firm build and leverage competences and resources to deal with environmental situations resulting from market transition. On the other hand, comparatively speaking, less related knowledge has been accumulated to provide special guidance for the developing worlds than that for developed countries although more people belong to the former. So it is of significance to make studies of the specific phenomenon in developing countries and develop more knowledge for this majority of population in the world (Aung and Heeler, 2001). In addition, this book conducted within a context of the transitional economy in China can help to redress the balance of empirical work that is largely based on the North American and European data sets. As Shenkar and von Glinow (1994) point out, China is an ideal site for testing the generalizability of western organizational and management theories. Given China's distinctive culture, economic and political systems, particularly the size of its population, social and managerial theories must explore their implications in China to be complete. Compared with other transitional economies in Eastern Europe and their Post-Soviet republics, China's transitional process is more successful as far as the stable and incremental nature of reforms are concerned.

2
Philosophical Notions and Framework

Introduction

This chapter presents the philosophical notions, theoretical perspectives, models, and empirical findings in the literature that are highly related. The objective of this chapter is to provide a brief definition of philosophical notions and present framework of the book, identify the need for us to focus on customer-focus performance rather than traditional financial performance, define the notion of customer-focused performance, discuss its role in the overall firm performance, and to see which and how different factors influence firm performance. Furthermore, the possible determinants are discussed by examining different perspectives of what factors can exert significant influences on firm performance. To this end, this chapter is divided into four parts. In the first part, definitions of constructs and constituents of core competences in this book are discussed and the framework of this book is given. In the second part, customer-focused performance is discussed in detail based on extant literature and the limitations of traditional financial performance are reviewed. In the third part, determinants of firm performance are analysed, in which several key research streams are reviewed, for example, the environmental determinism such as industrial organizational economics perspective, institutionalism perspective, etc. the strategic adaptation stream, and the resource-based view. Finally, a chapter summary is provided.

Definitions of constructs and constituents of core competences

To delimit the study further and clarify the position in the research stream, this section provides some brief definitions of the specific terms and key constructs that are used in the book.

Customer-focused performance

By customer-focused performance, we do not mean the so-called market performance proposed by Spanos and Lioukas (2001), Venkatraman and Ramanujam (1986) and others. It refers to the performance that is perceived and evaluated directly by customers themselves outside a firm and such perceptions are totally based on what a company provides them (customers). So it is very clear that such measures as market share, absolute sales volume and increases in market share and sales are excluded, which are usually viewed as indicators of market performance or even performance from the so-called customer perspective (Kaplan and Norton, 1992)

Customer-perceived service quality

Although there are different definitions of service quality in the past years, we use a more widely accepted definition and view customer-perceived service quality as the difference between customer expectations and perceptions of services (Gronroos 1984; Parasuraman *et al.,* 1988, 1991)

Customer-perceived value

The growing body of research about customer-perceived value is quite fragmented and the definitions of customer-perceived value diverge although the significance of customer-perceived value has been widely recognized. This book concurs with the majority of researchers who define customer-perceived value in terms of 'get' (benefit) and 'give' (sacrifice) components, and views customer-perceived value as customer-perceived preferences for or evaluation of those product attributes, attribute performances and consequences arising from use that facilitate achieving the customer's goals and purposes (Zeithaml, 1988; Narver and Slater, 1990; Day, 1990; Slater and Narver, 1992; Mazumdar, 1993; Hass, 1995; Berry and Yadav, 1996; Ravald and Gronroos, 1996; Slater, 1997; Woodruff, 1997).

Customer satisfaction

Originally, satisfaction is defined as disconfirmation (Miller, 1976; Oliver, 1981) and later is equated with emotion (Westbrook, 1980; Westbrook and Oliver, 1991). In this paper, customer satisfaction refers to an overall evaluation based on the total purchase and consumption experiences with a product or service over time, which is called cumulative customer satisfaction by Fornell (1992) and Johnson and Fornell (1991), not the transaction-specific satisfaction. The latter is viewed as a post-choice evaluative judgment of a specific purchase occasion (Hunt, 1977; Oliver, 1977, 1993; Boulding *et al.*, 1993).

Core competences

There are several definitions of core competences in different perspective (Dierickx and Cool, 1989; Prahalad and Hamel, 1990; Barney, 1991; Grant, 1991, 1996; Leonard-Barton, 1992; Meyer and Utterback, 1993; Bogner and Thomas, 1994; Day, 1994; Hall, 1994; Hamel and Heene, 1994; Spanos and Lioukas, 2001), which will be discussed comprehensively in Chapter 3. In this book, we focus on core competences rather than secondary competences and, in line with most relevant studies, consider core competences as competences and capabilities that are rare, inimitable, and difficult to replicate, which enable a firm to deliver fundamental customer benefits by enabling it to integrate, build, and reconfigure internal and external capabilities and resources to address rapidly changing environments and lead to a stream of sustainable competitive advantages.

Technological competences

As one important constituent of core competences, technological competences refer to the superior and heterogeneous technical assets and ability to combine and transform a set of pieces of knowledge consisting of both practical and theoretical know-how, methods, procedures, experience and physical devices and equipment of a firm into designs and instructions for the creation of desired outcomes (Dosi, 1984; Miyazaki, 1994), which is closely related with product, design, process and information technologies and determines the capability to integrate various streams of technologies (Dosi, 1988; Wheelwright and Clark, 1992).

Marketing competences

As the second key constituent of core competences, marketing competences are defined as the processes designed to apply the collective knowledge, skills and resources of a firm to the market-related needs of the business, which add value to goods and services of the firm so as to meet the competitive demands of customers. Therefore, marketing competences are based on a profound understanding of customers' current and future needs, preferences, factors affecting them and knowledge of competitors' possible actions (Kohli and Jaworski, 1990; Narver and Slater 1990; Sanchez and Elola, 1991; Day, 1994; Griffin and Hauser, 1996; Li and Calantone, 1998; Li and Cavusgil, 2000; Douglas, 2000).

Integrative competences

As the third constituent of core competences, integrative competences refer to the capabilities to combine and deploy firm-addressable assets

and capabilities inside and outside the boundaries of the firm/business unit, the ability to combine different functional specialties and exploit synergies across business units or divisions and the abilities to integrate the whole dynamic competence building and leveraging process.

Organizational learning

Organizational learning was addressed by Cyert and March (1963) over 30 years ago as a process by which organizations as collectives learn through interaction with their environments, and a process that allows a continuous adaptation of firm-specific competences in the light of experiences and further information (Pavitt, 1991), and the way firms build and supplement their knowledge bases in technologies, marketing, products and processes, and develop and improve the use of the broad skills of their workforce (Dodgson, 1991).

Strategic flexibility

As a special competence of a firm to adapt to today's turbulent environments, the definition of strategic flexibility is rather divergent up to now. In this book, it refers to the ability of the organization to adapt to substantial, uncertain, and fast occurring environmental changes that have a meaningful impact on corporate strategy and organizational performance, which enables a firm to manage uncertain and fast-occurring markets effectively (Aaker and Mascarenhas, 1984).

Framework

As discussed in Chapter 1, this book aims at defining customer-focused performance in perspective of customers totally externally and identifying its key determinants on the basis of a resource-based view. It is divided into seven chapters. The first chapter provides an brief introduction of the book, which includes research background, justification, and objectives. Chapter 2 first of all, gives a brief definition of each philosophical notion involved in this book and presents its framework. Then attention is given to customer-focused performance and its potential determinants from different perspectives. In this chapter, a simple definition of customer-focused performance and its key role in the whole business performance system are given and the interactive relationships among different dimensions of performance are discussed. In Chapter 3, the current situations of high technology firms in China are analysed and the turbulent environments of high technology firms in China are discussed, which is of great significance in order for firms to compete successfully in the context of China. In Chapter 4,

the components and dynamics of customer-focused performance are analysed, the key resource-based determinants are identified and the comprehensive conceptual framework is provided. Furthermore, propositions are proposed accordingly. Chapter 5 introduces a structured survey in Beijing, Tianjin and Shenzhen, and gives the necessary information about methodology in this book, for example, the sampling process, questionnaire design, data collection procedures, characteristics of valid respondents and quantitative methods, and some data analysis results to increase the understanding of the importance of strategic flexibility and core competences for superior customer-focused performance. Chapter 6 provides detailed research findings and suggestions of building strategic flexibility and core competence. Finally, conclusions are drawn and implications are provided in Chapter 7.

Customer-focused performance and the whole performance system

Definition of customer-focused performance

Customer-focused performance, which is perceived and evaluated directly by customers themselves on the basis of what a company provides them, represents the key dimension in, and the decisive source of, a firm's competitive advantages. Only by addressing this can firms go beyond the traditional financial performance, understand the real requirements of their targeted customers, and act on the actual information flowing from customer demands, then deliver superior customer value and achieve higher satisfaction than their key competitors. This book believes that, in pursuing this goal, firms should define some of their performance measures based on the customer assessments and view their performance through their customers' eyes. In addition, this would be consistent with most firms' mission or vision statements, which pointedly refer to as the special significance of customers (Kaplan and Norton, 1992).

Therefore, how a firm is performing from its customers' perspective is inevitably a priority for top management, which reinforces the significance of customer-focused performance as defined here. In practice, it seems that some firms have begun to act unconsciously based on this idea. For example, the J.D. Powers quality survey has become the standard of performance of the automobile industry (Kaplan and Norton, 1992). Firms, therefore, need to maneuver all their resources, competences and operational activities around achieving superior customer-focused performance because this can provide a practical standard to see whether they are valued by their targeted customers or not.

The limitations of financial measures

Traditionally, firms are believed to exist for shareholders, and their performance is measured financially. They focus primarily on the character and rate of financial return, operating income and return on investment (Paple-Shields and Malhotra, 2001), taking sales and earnings growth, market share change and cash flow into account. However, with the increasingly stronger bargaining power of other stakeholders, the situation has changed significantly. With the current stronger trends such as the contraction of communication cycles, the blurring of industry boundaries, the deconstruction of traditional value chains and the fact that industries are being 'blown to bits', customers are playing an increasingly important role in business success. They have already moved out of the audience and onto the stage, and are fundamentally changing the dynamics of the marketplace and the market. As a result, the market has become a forum in which customers are playing an active role in creating and competing for value (Prahalad and Ramaswamy, 2000). On the contrary, financial measures have been criticized for their well-documented inadequacies, their backward-looking focus and their inability to reflect contemporary value-creating actions. Furthermore, these financial measures are only the results of operational actions and contribute almost nothing to the improvement of customer satisfaction and customer-perceived value, or customer-perceived service quality, cycle time and employee motivation.

The whole firm performance system based on different perspectives

Accordingly, different perspectives have been introduced to help firms compete successfully and survive in the long-term, for example, the special interests of other stakeholders such as customers (suppliers, dealer and ultimate clients), employees, managers, government and communities. Figure 2.1 shows the interactive relationships of customer-focused performance, shareholder-based performance and employee-based perception. As a well-known and useful measurement of performance, the balanced scorecard is one of the typical examples of the interactive relationship (Kaplan and Norton, 1992). It consists of customer perspective, internal business perspective, innovation and learning perspective and financial perspective. However, there are still some differences between what we call customer-focused performance here and what Kaplan and Norton define as from the customer's perspective. The former stresses what customers can see, feel, obtain and value, that is, what they can see and perceive for themselves, while some elements of the latter are not actually from the customers'

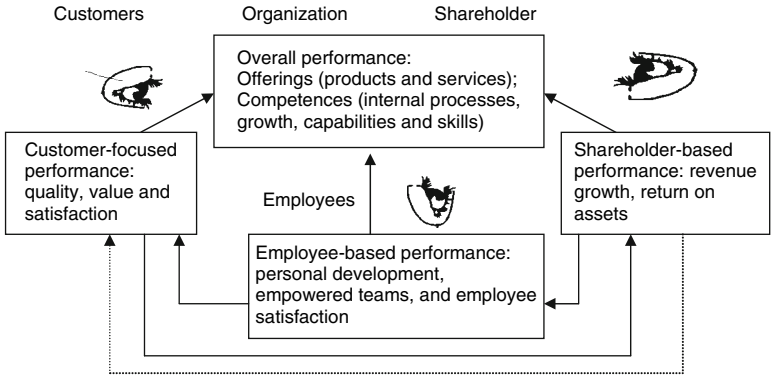


Figure 2.1 Different dimensions of firm performance: example from customers, employees and shareholders' perspectives

perspective by virtue. For example, customers show less concern for internal processes or information to produce or deliver a product or service, such as when a new product is launched, how innovative it is, the minutiae of its production, or the percentage of its sales, which are often considered performance measures from customer's perspective by Kaplan and Norton (1992). In comparison, customers show more interest in how much value they receive from a product or service, how good the product is, and the degree of satisfaction they gain, all of which are important external measures assessed directly by customers and constitute the customer-focused performance we have defined above. In fact, Kaplan and Norton's performance measures reflect, in a sense, a firm's internal view of customer perceptions.

The interactions of different dimensions of firm performance

As a whole system, all of the different perspectives (e.g. shareholder, customer, internal process and learning and growth) have their own benefits and emphases and also interact with one another continuously. Creating value for shareholders has been said to be the purpose of business. Shareholder value, however, is really the outcome of business success, not its intrinsic reason for being. Only if the real purpose, creating and providing valuable products and services for customers, is first met, can a firm provide shareholder value (Latitamaki, 1997). Therefore, as Drucker (1973) notes, business success is determined not by the producer but by the customer, and the customer-focused dimension should be the priority of managerial attention. This dimension not only acts as the key driver of the financial dimension but also

determines the character of the other two dimensions. In other words, the internal process and learning and growth dimensions act as the basis of the customer-focused dimension, enabling the latter to drive financial performance as a result. This can be seen easily as well in the service profit chain model of Heskett *et al*. (1997), which stipulates that there are direct and strong relationships between customer loyalty, customer satisfaction, value of goods and services delivered to customers, customer-perceived service quality and productivity, employee capability, satisfaction and loyalty, financial profit and growth. Similarly, the employee–customer profit chain model developed by Rucci *et al*. (1998) describes further the interactive relationships among different dimensions of business performance, and stresses that an attractive place to work provides solid support for an attractive place to shop and finally drives an attractive place to invest. Figure 2.1 shows the relationships between dimensions of performance from different perspectives. On the one hand, the greater the customer-perceived value, the more attractive and competitive the product, resulting in higher employee satisfaction and superior profitability. On the other hand, the greater the shareholder value, the more money there is for investment in R&D, training and customer service systems, and the more competitive again the product, resulting in superior customer-focused performance, which shows dynamically the cycles of interactive improvement.

In fact, customer-focused performance represents not only short-term competitiveness but also long-term or potential competitiveness. As a key indicator of customer-focused performance, customer satisfaction has often been considered one of the important dimensions of business performance no matter when competitiveness or performance is studied strategically or operationally. Enhanced customer satisfaction, greater customer loyalty, increased sales and productivity, high new product success, effectiveness of internal processes, innovation and improvement activities and higher employee satisfaction and empowerment are all inter-linked and will always lead to more sustainable competitive advantage (Meyers *et al*., 1999; Lipovatz *et al*., 2000). As for other aspects of customer-focused performance, Zeithaml *et al*. (1996) report a study of the links between customer-perceived service quality and customer behavior, in which the overall findings offer strong support for the intuitive notion that improving customer-perceived service quality can increase favorable behavioral intentions and decrease unfavorable intentions, implying great potential for higher profit. Rust *et al*. (1995) examine the links between customer-perceived service quality, customer satisfaction, loyalty and profitability, and provide strong support for the profit impact of improvements in customer-perceived service quality.

Similarly, Kordupleski (1995) provides empirical evidence that successful customer value-based strategy increases shareholder value. For example, AT&T research shows how improvement in revenue share growth is driven by improvements in customer-perceived value. Parasuraman (1997) gives further empirical evidence of a systematic, positive association between customer-perceived value and organizational value (stockholder), which provides an impetus for implementing value-based strategies in companies that might otherwise be reluctant to do so.

Therefore, the activities best suited to today's competitive environment may be those that help to achieve superior customer-focused performance, through which the interests of other stakeholders, such as shareholders and employees, can also be met, resulting in higher profitability. All other dimensions would serve as the basis of and provide support for customer-focused performance throughout the process, including investment in employee training, advertising, and strong career paths. In fact, as discussed above, a number of PIMS-related (Profit Impact of Market Strategies) studies have provided valuable empirical support for the positive quality-profitability relationships (e.g. Phillips *et al.*, 1983; Buzzell and Gale, 1987; Rust *et al.*, 1995; Zeithaml *et al.*, 1996; Chang and Chen, 1998). However, by emphasizing the increasingly important role of customer-focused performance, we do not mean that a firm should ignore the cost of improving customer-focused performance both in the short run and in the long run since financial measures are also important for the survival of a firm.

After reviewing customer-focused performance, we will discuss the theoretical perspectives and empirical findings pertaining to the determinants of firm performance in the next section.

Determinants of firm performance from different perspectives

There are several different streams regarding the determinants of firm performance, for example, the environmental determinism, strategic adaptation theory and the resource-based view of the firm, etc. Among them, the resource-based theory of the firm has won its popularity increasingly. Therefore, this section gives a brief review of some of these research streams respectively and with much emphasis on the resource-based theory of the firm.

Environmental determinism

The environmental determinism focuses mainly on the impact of environment on firm performance. Although we consider it as one of the

research streams concerned, it is comprised of several perspectives in fact, i.e. industrial organization economics (IOE), population ecology theory, institutionalism perspectives and organizational behavior perspective.

Industrial organization economics perspective

Mason, the father of Industrial organization economics (IOE), adopts an 'outside-in' perspective and argued in the late 1930s that there was a rather deterministic association between market structure and profitability (Mason, 1939). The dominant paradigm is the structure-conduct-performance (SCP) hypothesis articulated by Bain (1968). The logic of the argument rested on the premise that structural characteristics of the industry or market, inevitably place constraints on the conduct or strategies firms could adopt. The constrained conduct, in turn, led to industry-specific performance differentials among firms (Mason, 1939), leaving the role of management ignored. This view is also supported in organizational theory that emphasizes the deterministic role of environment (such as population ecology and natural selection). Since industry structure is assumed as the antecedent to firm conduct, most of these studies within industrial organization economics have examined the relationships between industry structure and firm performance (Scherer, 1980). Within industrial organization (IO) perspective, 'industry structure' is measured by such properties of the industry as the number of and size of the firms (industry concentration), advertising intensity, concentration of suppliers and customers, the degree of product differentiation, and barriers to entry. 'Conduct' is a firm's decision on prices, production capacity, advertising and R&D investment. 'Performance' is defined as social allocative efficiency and firm profitability. An important line of research within this stream concerns the role of firm size as a factor explaining differences in profitability (Baumol, 1967; Hall and Weiss, 1967). Size is a source of competitive advantage since larger firms are presumed to be relatively more efficient than smaller ones. However, the causal relationships between size and profitability have been widely tested, with ambiguous results (Prescott *et al.*, 1986). However, scholars within the IO tradition are primarily concerned with explaining and evaluating performance at the industry level, as opposed to firm level. They tend to view firms in an industry to be alike in all strategically important respects except for scale and therefore, the focus or unit of analysis is the industry.

As early strategy researchers challenge IO's inability to explain large performance variances within a single industry, Hunt (1972) proposes the strategic group level of analysis as a compromise between IO's

deterministic, industry level and the firm level studies by strategic management researchers (Hergert, 1983; Fiegenbaum and Thomas, 1990). However, Ketchen, *et al.*'s (1997) meta-analysis finds that only about 8 per cent of firm performance may be explained by strategic group membership.

The modified framework advanced by Porter (1980, 1985, 1990, 1996) departs markedly from the traditional IO theory in a number of important ways and offers the main theoretical basis for strategic management research on the determinants of firm performance since the late 1970s. For example, Porter focuses on firm rather than industry performance, acknowledges the role of firms' conduct in influencing performance together with industry structure explicitly, and views industry structure neither wholly exogenous nor stable, as commonly considered in traditional IO theory (Bain, 1968). The competitive forces approach pioneered by Porter (1985), i.e. the five industry-level forces (entry barriers, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among industry incumbents) determine the inherent profit potential of an industry or sub-segment of an industry. In other words, in Porter's framework, firm performance is a function of industry and firm effects (i.e. market positioning). Because industry structure is also susceptible to firm activities in some sense, these two determinants (industry effects and firm effects) are ultimately interrelated. The former affects the sustainability of firm performance, whereas the latter reflects the firm's ability to established competitive advantages over its rivals. A firm can exercise market power (Teece *et al.*, 1997) and thus gain monopoly-type rents[1] after obtaining such attractive position. So it is clear that this approach is very useful to help the firm find a favorable position in an industry from which it can best defend itself against competitive forces or influence them in its favor (Porter, 1980).

Central to Porter's view of strategy is the notion of activities and the firm is viewed as a bundle of strategic activities, aiming at creating a specific form of competitive advantage for which there exist two fundamental types: differentiation or low cost. Furthermore, Porter views resources occupying an inherently intermediate position in the chain of causality with respect to firm performance. However, in this vein resources are not valuable in and of themselves because they are attached to strategic activities. Maintaining or enhancing these assets demands reinvestment through continuously performing these activities and their significance critically depends on how well they support the strategy pursued and how well they fit industry structure, which indicates the inherently central role of industry either directly or indirectly in determining the sustainability of strategic positioning and hence of performance.

Another paradigm emphasizing the exploitation of market power is the so-called strategic conflict model (Shapiro, 1989). This approach utilizes the tools of game theory to analyse the nature of competitive interaction between rival firms. It is intended to reveal how a firm can influence the behavior and actions of rival firms and thus the market environment to increase its profits by taking strategic moves with irreversible commitments (Ghemawatt, 1991). This literature, together with the contestability literature, has led to a greater appreciation of the role of sunk costs as opposed to fixed costs in determining competitive outcomes (Teece *et al.*, 1997). Furthermore, strategic moves can also be designed to influence rivals' behavior through signaling.

Institutionalism perspective

Institutionalism perspective believes that firms operate within a social framework of norms, values and taken-for-granted assumptions about what constitutes appropriate or acceptable economic behavior. And many structures, programs and practices in organizations attain legitimacy through the social construction of reality (Meyer and Rowan, 1977). Scott (1987) states that institutionalism is viewed as the social process by which individuals come to accept a shared definition of social reality. So economic choices are constrained not only by the technological, informational, and income limits that neoclassical models emphasize but also by socially constructed limits that are distinctly human in origin, like norms, habits, and customs (Oliver, 1997). More importantly, unlike economic and strategic frameworks, which emphasize the extent to which firm behavior is rational and economically justified, institutional theorists focus on the extent to which firm behavior is compliant, habitual, unreflective, and socially defined. Therefore, firm performance may not be the result of rational decision-making based on the firm's strategic goals. Rather, it may be improved by achieving legitimacy and isomorphism. And conformity to social expectations contributes to organizational success and survival (Carroll and Hannan, 1989; Baum and Oliver, 1991; Oliver, 1991). So it is possible to predict the organizational practices and their performance impact from the perceptions of the legitimate behavior derived from cultural values, industry tradition, firm history, popular management folklore and so on (Eisenhardt, 1988).

Other streams of environmental determinism

Population ecology theory focuses on the selectivity of the environment that determines which organizations could survive (Hannan and Freeman, 1977). The key point of this view is that environmental resources

are structures in the form of niches whose existence and distribution across society are relatively intractable to manipulation by single organization (Astley and Van de Ven, 1983). So the environment selects certain organizations to continue and others to cease operating on the basis of their relative 'fit' with the specific environmental characteristics.

Different from the previous perspective, the organizational behavior perspective considers the environment as a source of information and resources critical to the organizations (Scott, 1992). The central view is that organizations need to enter into exchange with other groups in the environment through information processing and resource flows given that no individual organization generates all the resources required for its goal attainment or survival. Such an environment is referred to as task environment in which organizations produce a product or service that is exchanged in market such that they are rewarded for effective and efficient performance (Scott, 1992). Among them, Tsai *et al*. (1991) investigate two environmental characteristics: munificence and hostility. The former reflects the degree of richness or sparseness of the opportunity measured by the life cycle stage of the product, the number of immediate customers, and the growth of the market; the latter refers to the degree of fierceness of market competition.

The appraisal of environmental determinism

The research stream of environmental determinism has enriched our understanding of the external/industry forces affecting firm performance. Through different perspectives of the conceptualization of environments in varied ways, there is strong evidence to show that the environment plays a critical rule in shaping the resource opportunities of firms and then their performance (Sandberg, 1986; Eisenhardt and Schoonhoven, 1990).

However, there are several vital limitations underlying this stream. First, this stream has generally neglected the strategic proactiveness of firms. Though environment plays an important role in firm performance, it has been demonstrated again and again that firms may achieve different levels of performance under the same industry or even the same environmental condition. And also the different findings discussed above suggest that environment itself cannot explain enough variance of firm performance. Take ecological and institutional studies as an example, both of them investigate the organizational form-related issues at the population/industry level. This is not surprising given their fundamental focus on the evolution of populations of organizational forms (Hannan and Freeman, 1989). However, from a managerial perspective, these theories are based on macro-level context, which implies that they can provide little insight into how an individual

firm can achieve superior performance. In this respect, the strategic adaptation perspective offers a different point of view and will be discussed next.

Strategic adaptation stream

Given that there have been many empirical studies uncovering the important role of firm strategies in improving the strategic adaptability to environment and enhancing the competences of firms (Prahalad and Hamel, 1990; Chandler and Hanks, 1994), it is of great importance to investigate the interaction effect between environment and strategy. The strategic adaptation perspective is embedded in strategic management literature and focuses on the central role of strategy as a determinant of firm performance and views market environment as partly exogenous and partly subject to influences by firm actions, i.e. choice situation advanced by Hrebriniak and Joyce (1985). According to strategic adaptation theory (Child, 1972), firms are assumed to be open systems that confront and respond to challenges and opportunities in their environments. The actions or choices of a firm to adapt to an environment are taken as an explanation for organizational performance. In order to achieve superior performance, strategies that firms take should fit with a variety of organizational and environmental factors (Barney, 1986). As a typical example, rooted in Child's (1972) conceptualization of strategic choice, Miles and Snow (1978) assume that organizations act to create their own environments through a series of choices regarding markets, products, technologies, desired scale of operations and so on. The enacted environment is severely constrained by existing knowledge of alternative organizational forms and manager's beliefs about how people can and should be motivated (Miles and Snow, 1978). Furthermore, Miles and Snow (1978) identify three fundamental characteristics of this view: (a) managerial or strategic choice is considered as the primary link between the firm and its environment; (b) it focuses on management's ability to create, learn about and manage the firm's environment; and (c) there are multiple ways for a firm to respond to environmental situations.

In general, researchers have demonstrated that strategies that emphasize quality, incorporate a product or service's distinctive competencies, and focus on the core business are most likely to result in superior firm performance (Dacko and Sudharshan, 1996). And some even believe that adopting a combination strategy can result in superior performance in the long run (Buzzle and Gale, 1987; Helms *et al.*, 1997). Recently, research has extended the combination strategy perspective to suggest that a combination strategic orientation exists without trade-offs and is

associated with superior business performance (Helms *et al.*, 1997). In marketing field, there are also many empirical studies providing support for the marketing strategy-performance relationship (Buzzell and Gale, 1987; Cavusgil and Zou, 1994; Leonidou *et al.*, 2002).

It should be noted that this perspective accepts the resource-based contention that valuable resources should be the focal point for strategy development, but argues that the value of a resource can only be measured through its contribution as part of an effective strategy.

The resource-based view

The early emphasis on industry structures and other concepts from industrial organizational economics was joined in the mid-1980s by attention to the characteristics of individual firms, as typified by the now well-known resource-based view of the firm to provide satisfactory framework for understanding and managing the dynamics of strategic change in firms or industries. Then in the late 1980s, the field of strategic management underwent a major shift in the sources of sustainable competitive advantages and superior performance from industry to firm specific effects. A growing body of literature is looking at the importance of firm-specific factors (including competences, capabilities and strategic assets) as an explanation for significant performance differences among firms (Hamel and Heene, 1994; Sanchez *et al.*, 1996). And both researchers and practitioners get to focus on the resources and competences of firms and their unique roles in shaping competition brought a more dynamic and future-oriented focus to strategy. So the resource-based perspective provides an explanation for how a firm's resources and competence-which related to firm strategies (Wernerfelt, 1984; Prahalad and Hamel, 1990; Barney, 1991, 1986)-determine its subsequent performance.

Selznick's (1957) early use of the term core competence and Penrose's (1959) work on managerial competences and firm strategy suggest that looking within the firm to understand sources of competitive advantages is not a new idea. Nonetheless, renewed research attention by strategic management researchers has attempted to systematize the conditions under which resources and competences may serve as sustainable sources of rents. This research perspective has been associated with many labels that includes the term 'competence'-such as core competence (Prahalad and Hamel, 1990; Hamel and Prahalad, 1993; Henderson and Cockburn, 1994), competence-based competition (Hamel and Heene, 1994; Sanchez *et al.*, 1996) and competence-based strategic management (Heene, Sanchez, 1996; Sanchez *et al.*, 1996), as well as with 'resource-based view', 'strategic assets' Winter, 1987; Amit

and Schoemaker, 1993), 'dynamic capabilities' (Teece *et al*., 1994), core capabilities (Leonard-Barton, 1992) or just 'capabilities' (Ulrich and Lake, 1990; Stalk *et al*., 1992). Since the objectives of the current research are not to solve these disagreements, we gloss over any difference to characterize the resource-based view as a cohesive theory. We acknowledge that by glossing over differences we are to some extent ignoring efforts by many of the authors to differentiate their work from previous work in this tradition although there is no explicit distinction among the highly related labels mentioned above, and we do not intend to mislead the reader in believing that such difference are insignificant.

As Barney (1991) notes, much of the empirical literature informed by Porter's framework, choose to focus analysis on the environment–performance relationship, placing little emphasis on the impact of idiosyncratic firm attributes on performance. Unlike the SCP paradigm underlining a market power imperative, the resource-based view is fundamentally concerned with efficiency and focuses on the relationship between firm's internal characteristics and performance. It views a firm as a bundle of unique resources and argues that firms with superior systems and structures are more profitable not because they engage in strategic investments deterring entry or raising prices above long-run costs, but because they have markedly lower costs, or offer markedly higher quality or product/service performance. In this paradigm, there are two alternative assumptions: (a) firms may be heterogeneous in relation to the resources and capabilities on which they base their strategies; and (b) these resources and capabilities may not be perfectly mobile across firms, causing the heterogeneity among industry players. Consequently, the focus of this paradigm is on the rents accruing to the owners of scarce firm-specific resources rather than economic profits from product market positioning and views performance differential as a result of the firm's idiosyncratic and difficult-to-imitate resources.

In contrast, managers do have choices to make about strategic alternatives because of the constant environmental changes, but their options might be limited within the established framework of available resources. Therefore, it is clear that resources are valuable in and of themselves and the essence of strategies is and should be defined by the firm's unique resources and capabilities (Rumelt, 1984). Furthermore, the value creating potential of strategy, i.e. the firm's ability to establish and maintain a superior performance position depends primarily on the rent generating capacity of its underlying resources (Conner, 1991). In other words, persistent difference in firm's profitability is from acquiring and deploying valuable idiosyncratic assets rather than from industry structures. Resources are defined as those tangible or intangible assets that are

tied semi-permanently to the firm (Maijoor and Witteloostuijn, 1996). And examples of such resources are brand names, in-house knowledge of technology, skilled personnel, efficient procedures, etc. (Wernerfelt, 1984). However, not all resources are equally important for a firm at any time. A firm can achieve sustainable superior performance if and only if the resources used to conceive and implement its strategy are valuable, rare, non-imitable and non-substitutable (Barney, 1991).

In sum, different approaches view sources of wealth creation and superior firm performance differently. For example, the competitive forces framework considers it in terms of industry structure, entry deterrence, and positioning; game-theoretic models view it as one of interaction between rivals with certain expectations about how each other will behavior; resource-based perspectives have emphasized both the exploitation of firm-specific and firm-addressable assets and the dynamic enhancement process of these resources. However, it is worth noting that although the resource-based view of the firm emphasizes the firm effects and focuses on the critical role of developing and combining resources to achieve competitive advantages and superior performance, it does not deny the importance of external environmental factors, especially for the newly developed dynamic capability view (Teece *et al.*, 1997). This can be found easily from both the definition of strategic resources, core competence or distinctive capabilities and the fundamental characteristics for resources and competences to become the sources of sustainable competitive advantages. The notion is not new that competitive advantages and superior performance require both the exploitation of existing internal firm-specific and external firm-addressable capabilities, and development of new ones. It has been partially developed in Penrose (1959), Teece (1986), and Wernerfelt (1984). For example, just as what one of the representatives of the resource-based view, Wernerfelt (1984) has pointed out: Porter's framework and the resource-based approach constitute the two sides of the same coin. Intuitively, value creation stems from the fit between internal capabilities and the strategy, the strategy and competitive environments. According to Penrose (1959), environmental changes may change the significance of resources to the firm. In fact, that's why the term 'dynamic capability' becomes more and more popular nowadays with the increasingly turbulence environment and more and more firms begin to emphasize not only the competence leveraging process but also the competence building process (Sanchez *et al.*, 1996). Dynamic capability refers to the capacity to renew competences so as to achieve congruence with the changing business environment and the ability to adapt, integrate, and reconfigure internal and external

organizational skills, resources, and functional competences to match the requirements of a changing environment (Teece *et al.*, 1997). Therefore, dynamic capabilities determine a firm's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions (Leonard-Barton, 1992), especially for firms in turbulent environments.

Therefore, it is of both academic and practical usefulness to identify the key resource-based factors that have influential impacts on firm performance nowadays when environments become much more dynamic, uncertain and unpredictable.

Summary

In this chapter, we provide brief definitions of philosophical notions involved in this book, present the framework of this book, and discussed in detail customer-focused performance and its relationship with other dimensions of firm performance. Then much attention is given to the determinants of firm performance in general sense from different perspectives, such as environmental deterministic stream, strategic adaptation approach and the resource-based view. However, we do not focus much on the individual resource-based determinants in this chapter since we are going to examine them in detail in Chapter 4 to develop the theoretical framework and related propositions, which we believe that it might be easier for readers to understand what we are trying to address.

3
Turbulent Chinese Business Environment

Introduction

Globalization is beginning to affect international business environment bringing to the forefront the importance of studying management concepts as to their synergies or differences between West and East. It seems that the science and technology of the developed countries of the West, and now also Japan, dominates and controls the whole world. Most technologically based products and well-known Western and Japanese brands sell all over the world. However Arnold Toynbee (1889–1975) predicted that countries that are expected to have more influence in the world are not from Europe but China. Management science in the West concentrates on how Western businesses are operated, while Chinese business executives in China seem to be shifting the international business models. Management in China seems *old*; however, contemporary management is a challengeable subject, which has been a focus of considerable interest because it concerns not only Chinese business executives and Chinese government decision makers, but also international investors and funding agencies that operate in China. In the age of globalization, China presents a unique setting for organizations. The unprecedented growth of China's economy, which remains the fastest growing in the world, offers significant opportunities for both Chinese and foreign investors.

In the new era of hyper-competition, on the one hand, more multinational companies have established their presence in China while a large number of Chinese companies also go abroad and compete globally, which has attracted much attention all over the world. On the other hand, both technological and market driven innovations at the organizational level, process level or project level have been changing the nature of competition and the rules of success in the world. With no exception, companies established in China are facing increasingly dynamic competition domestically and internationally. Accordingly,

business environments in China have become much more turbulent than ever, especially after China enters the World Trade Organization. Many multinationals transferred their factories to China because of the relatively lower labor costs or large potential markets, and they brought new technology and knowledge at the same time, thus causing even much more rapid product and industry upgrading in China. Such a turbulent business environment is especially notable and representative in high technology industries. In this chapter, first we will discuss how foreign companies feel about the concept of 'Made in China', furthermore we will move on to high technology industries and discuss how they have been affected in the turbulent business environment in China. Finally, we will discuss the implication and potential impact of Chinese business practice upon international business environment.

Perspectives and curiosity concerning 'made in China'

The year 2004 witnessed that 'Made in China' aroused curiosity across the world. *The Economist* was confident that China would be successful in the establishment of world class companies. The *Wall Street Daily* was surprised that from oil to iron mining, from chips to color television, China was going global and Chinese companies are purchasing the 'whole world'. *The Financial Times* stated that China was a country where the high technology from the first world and the cheap labor and raw material from the third world are combined together.

Legend, now known as Lenovo, which was established at Shenzhen in 1984, purchased the PC department of IBM with US$1.25 billion and wants to move its headquarters to New York in the near future. This would enable Lenovo to become the third world largest provider of PC after Dell and HP and to increase its market share by the combination of IMB's marketing channels and networks. However, Lenovo will be presented with challenges such as whether the original customers of IBM continue to trust Lenovo and how the 10,000 foreign employees and the original Chinese employees respond to the strategic vision and configuration of the company.

Huawei, a telecommunication company, surpassed Ericsson in Netherlands with an overseas income of US$22 billion and achieved its aim to obtain its position in the international market. This has enabled Huawei to reach the position of one of the world top 50 telecommunication companies with business coverage in 90 countries. Having secured ownership of British MG Rover, Nanjing Automobile, China's oldest carmaker, planned to develop an R&D and technical facility in UK. Haier Group, the Chinese electronic giant based in Qingdao, attempted

a takeover of Maytag, the US microwave oven and vacuum cleaner conglomerate while China National Offshore Oil Corporation (CNOOC) is looking for Unocol's technology and assets in the Asian region to leverage its own exploration opportunities and reinforce its own technology capacity.

What do these companies have in common besides being Chinese-based companies? The answer to this question is definitely that they are all firms in high technology industries.

High technology industries in China

High technology is a dynamic concept and there is no precise definition so far. Generally speaking, there are several ways to define high technology industries. For example, one way is to define it in terms of certain characteristic of industries such as technology intensive and capital intensive. Accordingly, the organization for Economic Co-operation and Development (OECD)chooses pharmaceuticals (ISIC3522), medical, precision and optical instruments (ISIC383), radio, television and communication equipment (ISIC3832), aircraft and spacecraft (ISIC3845) and office, accounting and computing machinery as high technology industries based on International Standard Industrial Classification (ISIC). The alternative way of defining high technology industries is to define it according to certain quantitative criteria such as the ratio of R&D expenditure to gross industrial output value of high technology industries and the ratio of personnel for scientific and technological (S&T) to the total number of employees. For instance, the United States defines an industry whose ratio of R&D expenditure to sales value and S&T personnel to total employees is above 10 per cent as a high technology industry.

In China, high technology industries are usually defined in terms of product characteristics according to the statistical catalogue of high technology industry classifications enacted by the State Statistical Bureau. Accordingly, a total of five main industries are defined as high technology industries and they are the manufacture of medical and pharmaceutical products, the manufacture of aircraft and spacecraft, electronic and telecommunications equipment, the manufacture of computers and office equipments and the manufacture of medical equipment and meters. In the past two decades, high technology industries have been growing rapidly and steadily in China, and the trend will become even stronger in the next few years. A brief description of the status quo will deepen our understanding of high technology industries in China.

Industry scale

The gross output value of the high technology industries in China is as high as RMB2055.6 billion in 2003. And it takes up 16 per cent of the gross output value of manufacturing industries. Furthermore, high technology industries are expanding rapidly in recent years and 5,708 new high technology companies were founded in 2003, and almost half of the newly founded companies belong to electronic and telecommunication manufacturing industries. There were 38,565 high technology companies in total by the end of 2004. So the whole competition environment is very crucial and companies are facing very fierce competition.

Speed of growth

The average rate of growth of the gross industrial output value of high technology industries reached 23.8 per cent from 1995 to 2002, while the growth rate of the manufacturing industries was only 12.8 per cent. The added value of the gross output value of high technology industries takes up 29 per cent of the total added value of the manufacturing industries. The gross output value of high technology industries reached 2 trillion RMB in 2003, which is 503.4 billion more than in 2002. 'Three-capital' companies (i.e. those run with foreign funds only, Chinese-foreign joint ventures and cooperative companies) take up 32.4 per cent of the high technology companies. They bring new opportunities and intensify competition in the Chinese market. The employment rate of high technology industries rose up steadily with the increase of numbers of high technology companies and reaching 6.4 per cent in 2002. The average growth rate of the employment in high technology industries reached 4 million people per year and contributes 29.2 per cent of the employment rate rising in the manufacturing industries in 2002.

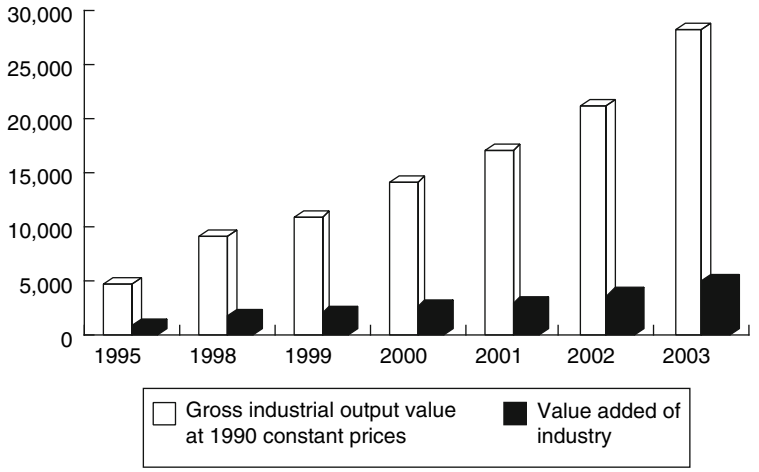
Industry distribution and regional distribution

Electronic and telecommunication manufacturing companies dominated high technology industries and those companies reached 5, 166 in 2003, which accounts for 42 per cent of high technology industries and the gross output value amounts to RMB 1021.7 billion. The scale of the medical and pharmaceutical products manufacturing industry is also large. It accounts for 14 per cent of high technology industries and the gross output value amounted to RMB289 billion in 2003.

Production efficiency

The productivity of high technology industries in China reached US$108,000 in 2003, which is much higher than the overall manufacturing industry. However, the value-added rate and the profitability

of output value are only 24.49 per cent and 7.13 per cent respectively, which is lower than the overall manufacturing industry – 26.77 per cent and 9.52 per cent. The fixed asset productivity of high technology industries is 0.91 RMB/Yuan, which is 0.52 RMB/Yuan higher than the overall manufacturing industry – 0.39 RMB/Yuan. Among high technology industries, computers and office equipment manufacturing industries reaches the highest all-personnel labor productivity and fixed asset productivity (171, 900 RMB/person and 1.82 RMB/Yuan). While its value-added rate and taxes and profitability of output value is the lowest, which is only 70 per cent and 49 per cent of the average level in high technology industries. And this indicates that the computers and office equipment manufacturing industry in China still remains in the lower stage of the industry labor division. On one hand, they have strong assembling ability; on the other hand, they have a lower value-added ratio because they need to import a great considerable number of expensive components such as CMOS chips. As shown in Figure 3.1, the gross industrial output value and the value added has grown rapidly in the past 10 years, and the growth rate of the value-added in the industry is much slower than the total output value.



Source: *China High Technology Industry Statistical Yearbook*, 2003 (China Statistics Press).
Note: Measuring unit: RMB100 million

Figure 3.1 Sustainable and rapid growth of high technology industries in China, 1995–2003

Investment

The fixed assets investment in high technology industries grows rapidly due to the considerable growth market potential of these industries. The fixed assets investment in high technology industries to RMB98.68 billion in 2002, which is 33.4 per cent higher than in 2001. The main reason for the rapid growth of investment in high technology industries is the entry of global high technology products manufacturing firms into China. One by one the multinationals have transferred their manufacturing processes for high technology products to China with the rearrangements of global high technology industries. The fixed assets investment by the foreign capital companies increased by 40.64 per cent more in 2000 than in 1999, and 30 per cent and 16.75 per cent in 2001 and 2002. The fixed assets investment by the 'three-capital' companies took up 40.4 per cent of the whole high technology industries investment in 2002.

Upgrading of new product

Rapid product renewal is one of the distinct characteristics of the development of high technology industries in China. The product renewal and new product introduction rate are important indicators of product innovation capability and marketing competences of high technology companies because they indicate the competitiveness and the core competences of high technology industries. Both the new product introduction rate and export rate of high technology industries are higher than the average level of the overall manufacturing industry from 1997 to 2003, which is shown in Table 3.1. The electronic and telecommunications equipment manufacturing industry has the largest new product development scale among high technology industries in China. About 5, 725 new product programs were launched in the electronic and telecommunications equipment manufacturing industry in 2002, which takes up 59.8 per cent of the high technology industries.

The incremental input in developing new products leads to upgrading of product structure and continuous improvement of the new product profitability. The revenue of new developed products accounted for 23.4 per cent of all the revenue of high technology products in 2002. This is twice the average level of the overall manufacturing industry.

Investment in new business venturing

Investment in establishing new high technology businesses is an important indicator of resource allocation in the market development of high technology industries of a country. Of all the new business venturing programs in China in 2003, 73.1 per cent of the programs

Table 3.1 New product introduction rate and export rate of high technology industries and manufacturing industries in China (%)

Indicator \ *Year*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*
New product introduction rate of high technology industries	14.3	18.3	19.5	24.8	23.9	23.4	22.1
New product export rate of high technology industries	18.7	22.7	22.1	27.3	24.6	26.2	31.4
New product introduction rate of manufacturing industries	6.7	7.9	9.2	10.6	10.9	11.5	11.3
New product export rate of manufacturing industries	13.2	14.5	13.6	16.7	15.9	16.4	18.3
New product introduction rate of 'Three capital' companies	9.3	16.4	18.2	24.9	24.9	34.4	18.3
New product export rate of 'Three capital' companies	40.1	39.5	33.1	39.3	31.3	30.5	44.3

Source: Calculate according to *China High Technology Industry Statistical Yearbook*, 2004 edited by the National Bureau of Statistics of China.

focused on high technology industries and the investment in it accounts for 79.8 per cent of the total investment of the new business. Table 3.2 shows the capital and program distribution of investment in the new business ventures.

Table 3.2 Industry distribution of the new business in China in 2003: capital and programs distribution

Industry	*Capital*	*Program*
Semiconductor	21.1	3.7
Traditional manufacturing	10.8	10.6
Internet	8.7	1.5
New material	8.0	9.6
Telecommunication	7.7	4.9
Agriculture	5.5	2.2
IT service	4.8	8.1

Table 3.2 (Continued)

Industry	*Capital*	*Program*
Biological technology	4.8	7.4
Others	4.6	6.4
Science & technology service	3.9	7.2
Finance	3.9	4.7
Health care	3.6	8.9
Integration of Photoelectron and electromechanical	1.7	4.7
Other IT industries	1.5	3.5
Media and entertainment	1.1	0.7
Consumption product and services	1.1	1.2
Resource development	1.0	0.7
Retail and wholesale	0.7	1.0
Environmental protection project	0.5	1.7
Nuclear application techniques	0.2	0.2
Computer hardware	0.1	1.2

Source: Songqi Wang, *The Development Report of New Business Venturing Investment in China for 2004*, 2004 (Beijing: Economics and Management Press of China).

Current situation and future trend of environmental turbulence in high technology industries in China

Based on the brief description of the status quo of high technology industries in China, it is obvious that the development is very fast and market competition is intense. In fact, no matter in terms of which kind of environmental turbulence, technological turbulence, market and consumer turbulence, competitive turbulence, or resource turbulence, high-tech industries in China display dynamically turbulent business environments. For example, in high technology industries, the speed of change of technologies is fast and its pace of change is large, the rapid emergence of new technology always has an fundamental impact on business activities, the technological changes are unpredictable, and demand and consumer tastes are almost unpredictable, and firms must change their marketing practices frequently to keep up with the market and competitors, etc.

Since the electronic and telecommunication manufacturing industry dominates high technology industries, the mobile communication equipment manufacturing industry will be taken as an example to analyse the current situation, possible causation and future trend of environmental turbulence in China. Evidence shows that China is the largest mobile communication market and mobile phone manufacturing base in the world today. The number of mobile phone user reached 390 million in 2005 and one-third of the mobile phones are

made in China. We can understand the environmental turbulence of this market in terms of two aspects of: technological turbulence and market turbulence.

Technological turbulence

Ten years ago, mobile phone was called 'boss's bulky phone' (Da Ge Da) in China because of its high price and bulky body, while today's mobile phone is neither bulky nor expensive. It has become small, delicate and a common piece of equipment for many people in China nowadays. This is, of course, due to the fast technological development and innovation of mobile communication equipments. Today, the mobile phone has changed its role from a communication tool to a multi-functional necessity for modern people.

The technology innovation in the mobile communication equipment industry has become grown and grown since 1996. In the past ten years, the mobile phone has changed from black and white to color display, from a big, brick-like phone to a small pocket-sized one, from a communication tool to a multifunctional tool, which combines the functions of a digital camera, game machine, MP3, walkman and even TV, fax and online computer, etc.! When someone is still keen on downloading and editing various sweet rings of mobile phone, music mobile phone has already walked into people's life and enables people to use mobile phone as their walkman! Furthermore, the data transfer model has changed from wire cable to infrared and nowadays Bluetooth, which bring us into the wireless age further and further. Today's mobile communication technology can also realize people's dreams of surfing on the internet with high speed using mobile phones with 3G techniques. Table 3.3 shows the milestones in mobile phone technique development in China market since 1996.

The fast technological development and fierce competition in the mobile phone market in China have fundamental impacts on the whole industry and force many local and foreign mobile phone manufacturers to leave the market. For example, Mitsubishi Electric claimed to have left the Chinese mobile phone market in February 2006 after Toshiba and Panasonic also left. Only about 30 China local mobile phone manufacturers remain in the Chinese market today and they represent only 30.18 per cent of the market. The foreign-owned mobile phone companies, however, took up 59.4 per cent of China mobile phone market in 2005 with its strong technical and capital background. On one hand, these companies, accelerate the product renewal and exploit new markets; on the other hand, they improve their product line and compete with the local brands on middle and low end products.

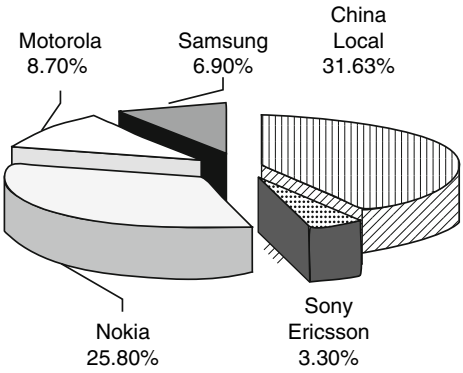
Table 3.3 Milestones of mobile phone technique development in China since 1996

Year	*Event*	*Company & type*
1996	First mobile phone combining functions of fax and computer	Nokia 9000Communicator
1998	First mobile phone with WAP(internet accord) build in	Nokia 7110
1998	First mobile phone with game	Nokia 6110
1999	First mobile phone with tri-frequency	Motorola L2000
2000	First all-Chinese interface mobile phone	Motorola CD928+
2000	First mobile phone with MP3 built in	Siemens SL45
2001	First Bluetooth mobile phone with external camera	Ericsson T39mc
2001	First 256 color Bluetooth mobile phone	Ericsson T68
2002	First mobile phone with camera built in	Nokia7650
2003	First Game mobile phone	Nokia N-Gage
2003	First Chinese handwriting mobile phone	Nokia6108
2004	First mobile phone with million pixel camera	SonyEricsson S700
2004	First mobile phone with camera of 3 times optics zooming and 5 million pixel	Samsung SPH-V7800
2005	First mobile phone with DVB-H TV inside	NokiaN92
2005	First mobile phone with 8 million pixel camera	Samsung SPH-V8200
2005	First mobile phone with 3GB hard disk	Samsung SGH-i300
2005	First music mobile phone with Walkman and camera	SonyEricsson W800i

Source: Cww.net.cn China report Hall

More than 50 mobile phone brands share the market in China and 80 per cent of these brands only take up 15 per cent of whole market totally. Figure 3.2 shows the market share of the main mobile phone brands in China.

Therefore, the mobile market in China will enter a mature stage in the near future. The rush of new technology will make the competition even much more intense and compel manufacturers and sales to cooperate more closely. Rearrangement of companies at different stages of the industry chain and more mergers and acquisitions will take place in



Source: 'Comment on mobile phone development and opportunity & challenge in 2006', by State Information Industry Bureau, China.

Figure 3.2 Market share of the main mobile phone brands in China, 2005

the industry. More companies will fall by the wayside as a result of the fast-developing technology and the increased industrial concentration in the mobile phone market.

Market turbulence

The fast technological innovation in the mobile phone and new mobile communication services has compelled the mobile phone manufacturers to develop new products to cater for customer tastes and the product lifecycle has become shorter and shorter. The mobile phone manufacturers in China have experienced two shake-ups because of this fierce competition.

The first shake-up

The first shake-up happened between Motorola and Nokia. Motorola used to be the leader of global mobile phone industry and applied the 'elite technology' strategy to focus on the high-end market although most of its products sold were middle and low end products in the Chinese market. While Nokia realized the potentially huge market demand for mobile phones and the fact that fast-developing technology had made it possible to change the mobile phone from being luxury technological product to a common consumer product, Nokia focused on cost-control and adjusted the product and price structure to make the mobile phone an affordable, popular product for the masses. Consequently, Nokia caught up with Motorola both globally and in terms of China's market share very quickly.

The second shake-up

The second shake-up came when Nokia gradually became involved with Samsung and SonyEricsson. While Nokia propelled the change of the mobile phone from being a high technology product towards a mass consumption product, it failed to realize that the mobile phone market was moving towards more customized products. Nokia did not notice this trend and failed to adjustment its brand management strategy. However, Samsung and SonyEricsson and applied their new technological and brand strategy to make the mobile phone a more customized product. For example, Samsung has successfully built a fashion brand image to satisfy the taste of the hedonists. SonyEricsson had also made technology fully personalized with its graceful looking, advanced functions and famous brand. The first music mobile phone launched by SonyEricsson in 2005 attracted huge attention and changed dramatically the original concept of mobile phone – it had already evolved from a common communication tool to a fashion entertainment one and even began to be an indication of a certain kind of lifestyle.

Therefore, mobile phone manufacturers have to treat mobile phone as personalized fashion products, and not only compete on the technological level, but also, more importantly, on proactively forecasting and creating customer demand level, otherwise a company will be able to compete. TCL is a typical example. TCL failed to predict the general trend of mobile phone from black and white to color, camera mobile phone and entertainment functional mobile phone, and continued focusing its resources and core technical force on PDA, a high-end product that only takes up 5 per cent of the market. The market share fell accordingly.

The increasing incomes of people in China in the past 10 years has made the upgrading of consumption structure occur at a faster rate. The demand for mobile phones is still high. The change of mobile phone functions and designs will speed up the product renewal and push the market by integrating technologies and functions in different streams. At the same time, the new communication technology creates more mobile services and will attract more consumers both in the mature market in cities and the new market in the country side. The new mobile clients in 2006 will remain at 48 million and the replacement rate of mobile phones will continue to increase with more new models and more functions. It is estimated that the replacement rate of mobile phones in China will rise from 30–40 per cent in 2005 to 40–50 per cent in 2006. The mobile manufacturers therefore, have to figure out the main trend and future demand of customer to beat the competition.

Therefore, the mobile phone industry in China is facing a turbulent environment with both opportunities and challenges in 2006. As

globalization has a greater impact on the market in China 2006, more and more people will have mobile phones and the new technology will be applied sooner earlier to meet the rapid preferences and changing demands of customers in China. More innovative functions will be built in to mobile phones. From the million pixel camera mobile phone to the rising of intellectualized mobile phone, music mobile phone and TV mobile phone, the perfect combination of new technology application from different streams and entertainment functions that have not been imagined before will surely make the market more colorful and competitive. Vertiginous consumer demands and fast technology innovation have become the theme of today's high technology industries in China. And the competition is just beginning . . .

Is Chinese business practice shifting the international business model?

Early in 2005, *the Journal of Sino-Foreign Management*, through its website and the distribution of questionnaires during the annual conference, conducted an interesting survey among Chinese entrepreneurs on 'whom should Chinese companies learn from'. The result shows that 57.1 per cent (website) and 59.4 per cent (conference questionnaires) believe that Chinese companies should now 'move forward on its own way' while only 28.6 per cent and 33.0 per cent believe that Chinese companies 'should continue to learn from the West'. However, there are different views expressed by three different schools in the consultancy circle and academia (Deng and Yang, 2005). Chinese business consultants who have education and research experiences and hold Western degrees believe that Chinese management philosophy is essential to Chinese companies while Western management knowledge is desirable for Chinese companies. Foreign business consultants who work in China believe that Chinese companies have not yet been able to establish their own management system within the 20 years since the economic reform. Chinese consultants believe that the prevailing management theory today only benefits and fits well with the Western transnational companies. Therefore, Chinese companies should look after themselves and develop indigenous capabilities. These are responses and perspectives from Chinese entrepreneurs and the management consultancy circle.

China's entry into the WTO dramatically changes the international business landscape in an economy that the world is counting on for growth in the coming years. According to investment bankers in Hong Kong, China has probably US$30 billion in assets that can be deployed quickly affect corporate takeover. Chinese companies are able to take

a 'cocktail' approach to overseas acquisitions, depending on the overseas entity that is the subject of a takeover (Lee and Evan-Jones, 2005). According to Ming-Jer Chen, a business professor at the University of Virginia, the author of a new book *'Inside Chinese Business'*, among many Chinese companies attempting takeover, Haier is going to be at or near the centre of what is happening in China's economy. In other words, what they do will have a big impact on foreign companies that are looking to succeed in China. Haier has been identified as a company with sophisticated approach and energetic leadership. However, the guiding genius behind Haier's success is its chief executive officer, Zhang Ruimin, whose management theories are strongly influenced by ancient Chinese philosophy (Flannery, 2001).

Responses from the transnational companies in China

As established previously, to some extent, Chinese business practice is shifting the international models. What are the responses from the transnational companies who are working in China? It was surprising in 2004 that many transnational corporations, including Motorola, Nokia, Intel and Siemens, recruited their CEOs from local Chinese rather than from foreign nationals, which indicates the significant change of the corporate policy and strategic views. Table 3.4 shows that the local

Table 3.4 The newly appointed senior managers in transnational companies in China

Zhou Hong	President of Yahoo
Sun Zhenyao	Vice President of HP Global and President of HP China
Guo Zunhua	President of VERITAS China
Yi Guoxiang	General Manager of Southern China, EMC
Lu Lei	President of NEC China Telecommunication
Zhou Xiaoyang	General Manager of Samsung China Radio
Zhang Yue	President of Philip China
He Qingyuan	President of Nokia China
Shi Dakuan	President of Motorola China
Zhang Zhiqiang	President and CEO of China Siemens Automobile and Electronic Group
Wu Yuzhang	Acting President of Volvo Asia and President and CEO of Volvo China
Ye Ying	Deputy President of Kodak
Su Jingshi	President of China Beisheng Food Group
Wei Zhe	President of B & Q
Peng Zhiyi	President of P & G China Media
Chen Ling	President of Bearing Point Management Consultancy China
Huang Jincai	CEO of Italian Zhongli Insurance Southeast Asia

Chinese have been currently appointed into the posts of Presidents, or Deputy Presidents or CEOs of their companies.

In the meantime, many other transnational corporations including Audi, BMW and General Motor, changed their CEOs frequently, which reveals the anxieties and uncertainties of the top management team towards the Chinese market today (Fang, 2005).

Summary

It is, however, evident that the current situation in China in terms of business environment presents both opportunities and challenges not only to Chinese business but also to the Western businesses. Today, the increased levels of competition which have been discussed in this chapter, in the wake of China's entry into the WTO have resulted in experimentation and risk-taking as ways of doing business in China. However, the uncertainties and ambiguities prevalent in the Chinese business environment, in particular, in the area of technology management, are neither well understood nor effectively negotiated by the international investment community. In addition, the complexities of technology and knowledge transfer have led to misunderstanding in the operation and the implementation of international joint venture projects in China. Therefore, as far as the international investors are concerned, China's business environment continues to present many challenges, particularly in how to manage effective business networks and ensure smooth knowledge transfer, especially in international joint venture projects. In the meantime, the Chinese investors are facing even more severe competition, with the internal and external business environments presenting a double-edged sword with China's access into the WTO.

In the 1950s American-style management was prevalent across the world, in the 1970s, Japanese-style management, which created an amazing economic situation, became known as the most popular in the world. However, Chinese-style management emerged in the 1980s as economic reform started in the late 1970s. How did Japanese style management become known? The answer is that Japanese-style management would never have become known without Japan's economic development. This also applies to Chinese-style management. China's legend is that China has become second only to the US in GDP as expressed in purchasing power parity (PPP). This is a result of the radical economic reform introduced only in the last 20 years. An Interesting comparison has been made between American-style management and Chinese-style management. It has been understood that the American-style management is embedded in the process of self-actualisation. For

example, it focuses on 'management by objectives' and 'management by result'. However, the Chinese-style management concentrates on the philosophy of 'self-disciplinary first and then managing people' under the philosophy of Confucius.

There is no doubt that Chinese-style management will have an important position in the management field in the twenty-first century. However, this does not mean that Western-style management will be replaced by Chinese-style management. There is little surprise that the twenty-first century is the century of those who are armed with Western management knowledge and experiences but also have a familiarity with Chinese management philosophy. The twenty-first century is an era where people need to have a combination of Chinese philosophy and Western management science and an integration of Chinese management wisdom and Western management ideology. These two elements are equally important. People, no matter where they are from, who neglect the two elements, will be unsuccessful.

4
Constructs and Constituents of Core Competences

Introduction

This chapter develops a theoretical framework for the key resource-based determinants of customer-focused performance based on the more focused literature review. The objective is to identify the resource-based determinants and the dimensions of customer-focused performance so that we can discuss the impact of each determinant on a specific dimension of customer-focused performance and develop propositions. To this end, this chapter is divided into six sections as follows: the first section presents the theoretical framework and gives some necessary descriptions. The second section makes a deep and systematic analysis of the dimensions of customer-focused performance and their relationships. In this section, the role of customer-focused performance in the theoretical framework is emphasized and each dimension of customer-focused performance is discussed, related literature is reviewed, their contributions in this research are analysed and important propositions are developed. The third section identifies the key resource-based determinants and examines their impacts. In this section, the specific role of each determinant in our theoretical framework is discussed, related literature is reviewed and important propositions are developed. In addition, in order to operationalize the complex construct-core competences, efforts have been made to separate it into three key constituents based on previous studies and our analysis. This will also deepen the understanding of core competences, and provide some insights and important suggestions for firms to build and leverage their core competences. In the fourth section, the moderating role of environmental turbulence is discussed and related propositions are developed. The fifth section provides a brief discussion after all the constructs in our theoretical framework are examined and propositions are developed as mentioned above. Then a chapter summary is given in the sixth section.

Theoretical framework

Customer-focused measures are so important that they may have critical influence or even determine the behavior of customers such as customer retention, repurchasing or 'word of mouth'. However, to make progressive improvements in these measures, a firm must devote the transformation of them into measures indicating what the firm must do in its business processes and how it should deploy its unique resources or competences internally to meet its targeted customers' expectations. Many studies, especially resource-based ones, witness that competitive advantage does not rest in industry structure or the firm's membership in a collective, but rather in its strategic resources and core competences, which are a complex combination of processes, routines, technologies and individual skills. This means that superior performance is always derived from the possession of unique difficult-to-imitate skills, knowledge, resources or competences and assets. For example, large-scale statistical studies of the industry effect, while they produce different quantitative estimates, generally agree that only 16–19 per cent of the total variations in profit between business units can be directly explained by industry variables (Rumelt, 1991). In fact, the resource-based view allows each action to be referenced to the satisfaction of customer needs; in other words, to the delivery of value (Hamel and Prahalad, 1989; Chiesa and Barbeschi, 1994) and believes that superior performance is based on the dynamic competence building and leveraging process. Thus, superior customer-focused performance could be achieved through a set of interlinked business processes and coordination of strategic resources whose goal is to satisfy customer needs with higher service/product quality and superior customer-perceived value. Such key determinants of performance as customer care, structure change, marketing effort, reputation, organizational redesign, distribution strength and staff skills (Petroni 2000) can all be reflected by the strategic resources and core competence of the firm as shown in Figure 4.1. It is the close interaction of these factors such as organizational learning (commitment, shared vision and open-mindedness), core competences (integrative competences, market competences and technological competences) and strategic flexibility (resource flexibility, coordination flexibility, excess resources and the ability to profit from diversity and changes) that lay a solid foundation for the distinctive capabilities of a firm, which are difficult to copy or imitate, and finally determine a firm's customer-focused performance and its sustainability. Furthermore, the contribution of these intertwined factors to customer-focused performance of a firm

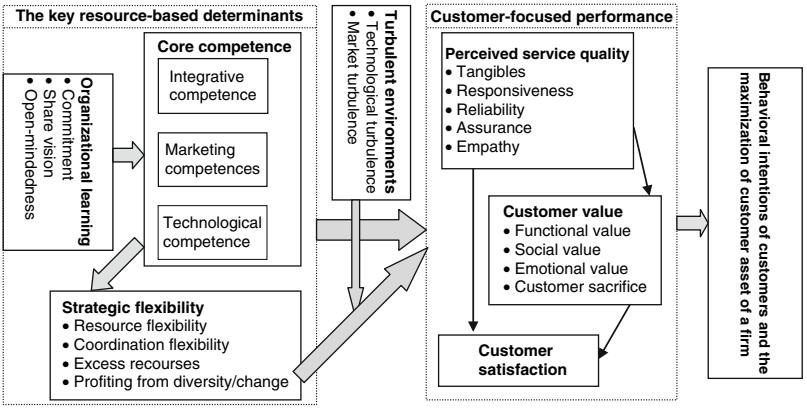


Figure 4.1 Theoretical framework: the key resource-based determinants of customer-focused performance

depends on the fitness between them and the level of environmental turbulence.

It has been widely recognized that the business environments are becoming increasingly turbulent with the current stronger trends such as the contraction of communication cycles, the blurring of industry boundaries, the deconstruction of traditional value chains, the globalization and intensity of business competition, and the fact that industries are being 'blown to bits', etc. Such turbulent environments characterized by dynamics, complexity and unpredictability determine the sustainability of existing core competences or competitive advantages and require organizations to make continual improvements to their existing products and processes, and foster the ability to introduce entirely new products with expanded capabilities to meet the rapid changing demands of customers so that superior customer-focused performance achieved can be sustained. This inevitably involves the competence building and leveraging processes at the same time, which determines the capability of a firm to meet any challenge from turbulent environments in a cost effective and efficient way, i.e. strategic flexibility.

Therefore, a firm must decide first at which competences it must excel and which critical technologies it needs to ensure continued market leadership and achieve sustainable superior customer-focused performance in the long run based on the unique strategic intent or strategic logic it may pursue. Then with competence building and leveraging in mind all the time, a firm must deploy all its resources, both firm-specific and firm-addressable, to build and upgrade its own competences through continuous organizational learning such as learning activities as

learning from product market, lead customers, major suppliers, strategic partners and key competitors, etc. which helps to identify trends in business, track performance of customer-perceived value delivery, deal with ambiguity and enable quick response. Furthermore, the continuous competence building and leveraging can also enable a firm to maintain a reasonable level of both potential and practical strategic flexibility so that it can respond to any environment changes rapidly and cost effectively or shape the environment towards the direction suitable for the leveraging of its existing competences, which, of course, contributes to the superior customer-focused performance expected by the firm.

However, all such activities never go without costs. Generally speaking, core competences, organizational learning, strategic flexibility and turbulent environments must maintain a healthy internal fit around the strategic positioning[1] of a firm based on its unique strategic intent. After a firm has decided its proper strategic positioning based on environment scanning and sensing capabilities and their existing core competences, then the new competence building and leveraging process can begin, and any changes in environment will be perceived by organizational learning activities coupled with an advanced real-time environment information system. With the existing core competences as catalysts, organizational learning in the resource market (from component suppliers, talented labor forces, shareholders, debtors, etc.) and in the product market (from dealers, customers, competitors and cooperators) will help firms find profitable opportunities to build new competences, leverage existing ones, reorient strategic positioning, create new market-space, and adapt effectively. This will enhance the strategic flexibility necessitated by the environmental turbulence, while improved strategic flexibility will propel the process of competence building and leveraging in line with changes in environment, which will exert critical influence on customer-focused performance and thus affect the behavioral intentions of customers.

It should be noted that this theoretical framework is applicable not only to manufacturing companies but also to service companies, given that both kinds of firms need to build and leverage their unique competences to achieve superior customer-focused performance. For example, Federal Express has achieved sustainable competitive advantages in the service market by building and leveraging competences in package transport and delivery such as bar-coding technologies and linear programming skills, which provide superior customer-perceived value and rapid responses. Wal-Mart has realized

rapid and sustainable growth based on its unique competences, such as its cross-dock transportation system, its inventory management skills, and its accumulated knowledge about delivering large amount of goods globally and rapidly. Wal-Mart has also developed meta-competences that enable it to transfer from the original location-based advantages to the more dynamic knowledge-based advantages. Similarly, the continuous building and leveraging processes of the competences in brand management of Coca Cola, the innovative capabilities of 3M, the particular imaging technologies of Canon, the lean production system of Toyota, the agile manufacturing techniques of Mazda, the mail-order sales management of Dell Computers, and the fast-flexible response of Boeing based on its multitask production equipment, enable all of these businesses to deliver high quality products/services and superior customer-perceived value and thus achieve higher customer satisfaction (Hamel and Heene, 1994), which may result in favorable customer behaviors and drive the financial performance of a firm.

Dimensions of customer-focused performance and their relationships

Customer-focused performance is driven by the need for businesses to redeploy and link their processes and build strong capabilities based on value innovation, in order to offer products and services of high quality, deliver superior customer-perceived value and achieve higher customer satisfaction. And it can be measured in several dimensions.

Many factors may constitute and influence customer-focused performance and become the focus of customers when they make their behavioral decisions in practice, and all have a significant impact on business performance, especially on profitability. However, all these factors that customers care most tend to fall into four categories: time, quality, cost (including price, effort, energy and other related cost such as ordering, scheduling and delivering), performance and service. In this book, we suggest that these factors mentioned above can be represented by service/product quality, customer-perceived value and customer satisfaction and they constitute the most effective and important dimensions of customer-focused performance. This is because these three dimensions are related directly to customer perceptions and, hence, their purchasing decisions. For example, on the one hand, time, quality and cost can all be reflected in terms of customer-perceived quality in some sense. On the other hand, the same attributes can be understood even better in terms of customer-perceived value if they are combined, and the

combination of performance and service can then measure how a firm's product and customer-perceived service quality contributes to creating value for its customers, which may determine the level of customer satisfaction. However, it should be noted here that researchers sometimes obscure the distinction between customer satisfaction and value. For example, when measuring value to customers, five measurement items are used by Tu *et al.* (2001), at least two of them are directly related to customer satisfaction. Therefore, one of the challenges encountered is how to distinguish the three dimension of customer-focused performance.

Customer-perceived service quality

It has been widely accepted that quality products can result not only in lower cost by reducing waste and deficiencies but also in higher competitiveness by establishing reputation, delivering superior customer-perceived value and realizing other positive attraction and retention effects. As a result, with the changing role of customers (Prahalad and Ramaswamy 2000), customer-perceived service quality has been given more attention for its specific contribution to business competitiveness.

The definition of quality

In the past two decades, an increasing number of research findings have appeared concerning quality. However, it is still worth noting that there are several distinct conceptualizations of quality. In marketing and economics, quality often has been viewed as dependent on the level of product attributes. In operations management, quality is defined as having two primary dimensions, fitness of use[2] and reliability[3]. In service literature, quality is viewed as an overall assessment (Parasuraman *et al.*, 1985). Among them, one of the most comprehensive definitions of quality is the one proposed by Garvin (1988) with the following eight attributes: performance, features, conformance, reliability, durability, serviceability, aesthetics and customer-perceived quality.[4] However, since this book emphasizes the generalizability of the findings and focuses on not only firms in manufacturing industries but also those in service industries, durability and aesthetics may not be relevant according to the results of our customer focus group discussions while other attributes of the Garvin's model can find their counterparts in related studies of customer-perceived service quality, which will be discussed below.

The key dimensions customer-perceived service quality

In fact, with the role of customers changing gradually (Prahalad and Ramaswamy, 2000), customer-perceived service quality has been given increasing attention for its specific contribution to the competitiveness of business and there have been a variety of studies on different issues pertaining to customer-perceived service quality over the past several years. Traditionally, customer-perceived service quality has been defined as the difference between customer expectations and perceptions of service (Gronroos, 1984; Parasuraman *et al.*, 1988, 1991). These researchers posit that measuring customer-perceived service quality as 'disconfirmation' (the difference between perceptions and expectations) is valid, and that such a model allows service providers to identify certain defined gaps in the service provided. However, several subsequent studies have found a poor 'fit' for the disconfirmation model in certain settings. As a result, the SERVQUAL scale (Parasuraman *et al.*, 1988), has been criticized by an increasing number of researchers on several grounds, including: (i) the use of gap scores; (ii) the measurement of expectations; (iii) positively and negatively worded items; (iv) the generalizability of its dimensions; and (v) the defining of a baseline standard for good quality (Cronin and Taylor, 1992; Brown *et al.*, 1993; Oliver, 1993; Teas, 1993; Spreng and Olshavsky, 1992). Further, problems of reliability, discriminant validity and variance restriction exist because of the computed difference scores. As a result, some researchers have tried to combine expectations and perceptions into a single measure to alleviate these problems, and found that this outperforms the SERVQUAL scale in terms of both reliability and validity (Babakus and Boller, 1992; Brown *et al.*, 1993; Andaleeb and Basu, 1994; Dabholkar *et al.*, 2000). Therefore, on the basis of these findings, the book measures customer-perceived service quality by customer perceptions only through the SERVPERF model (Cronin and Taylor, 1992). However, although there are major differences about the measurement of customer-perceived service quality between the SERVQUAL model and the SERVPERF model, the five dimensions identified and acknowledged are the same (Wang *et al.*, 2003). In fact, most of related studies have tested and supported this argument even though some have not found enough evidence to support the 'five dimension' conclusion. In this book, coinciding with most of related studies, we believe that 'Tangible', 'Reliability', 'Responsiveness', 'Assurance' and 'Empathy' are the key dimensions of customer-perceived service quality.

The impacts of service-related factors on customer-perceived service quality

In addition, as Dabholkar *et al.* (2000) have established, it is better to consider factors associated with customer-perceived service quality (such as 'Tangible', 'Reliability', 'Responsiveness', 'Assurance' and 'Empathy') as being antecedents to customer perceptions of service quality rather than as dimensions or components of the construct. As Dabholkar *et al.* (2000) have shown, such an approach offers greater understanding of the evolving customer-perceived service quality construct. For example, satisfaction was originally defined in terms of disconfirmation and, later, disconfirmation was considered an antecedent to satisfaction (Oliver, 1981). In addition, although satisfaction was originally equated with emotion, emotion has also later been viewed as another antecedent to satisfaction in attempts to 'fine tune' the construct (Westbrook and Oliver, 1991). Besides, such point of view has been tested and supported by the study of Wang *et al.* (2003) as well. As a result of the above discussion, we can make the following proposition:

> Proposition 1: Service-related factors have positive impacts on customer-perceived service quality.

Customer-perceived value

Driven by demanding customers, keen competition and rapid technological change, more and more firms are searching for new ways to achieve, retain, upgrade and leverage competitive advantages. As a result, many firms are transforming their focus from looking internally for improvement by way of quality management, downsizing, business process reengineering or lean production and agile manufacturing to pursuing superior customer-perceived value delivery (Day, 1990; Band, 1991; Gale, 1994; Naumann, 1995; Butz and Goodstein, 1996; Woodruff, 1997). Furthermore, as some researchers have concluded (Narver and Slater, 1990; Day, 1994), creating superior customer-perceived value is a major goal for market-driven firms, and delivering superior customer-perceived value is becoming one of the most important success factors. Therefore, knowledge about customer-perceived value and learning how to respond is playing a more important role in a firm's competitiveness. There is much evidence to support the key position of customer-perceived value for success of firms, for example, the experience of many companies such as AT&T, Federal Express and Xerox, and the findings of the positive relationship between market orientation and organizational performance (Slater and Narver, 1992, 1994; Jaworski

and Kohli, 1993). Accordingly, in today's hypercompetitive environments, any firm which aims at achieving competitiveness and superior performance must have ample knowledge about customer-perceived value and its definitions, processes, key drivers and effective management practices. Learning about the process of customer perception of value and value delivery has become the focus, along with the sources and drivers of customer-perceived value in increasingly competitive environments.

Definition of customer-perceived value

Although the significance of customer-perceived value is widely recognized, the growing body of research about customer-perceived value is quite fragmented and the definitions of customer-perceived value diverge. Zeithaml (1988) considers value as the customer's overall assessment of the utility of a product based on the perception of what is received and what is given. Dodds *et al.* (1991) argue that buyers' perceptions of value represent a trade-off between the quality/benefits they received in the product relative to the sacrifice they perceive in paying the price. Gale (1994) considers it as market perceived quality adjusted for the relative price of the product. Butz and Goodstein (1996) define it as the emotional bond established between a customer and a producer after the customer has used a salient product or service produced by that supplier. Woodruff (1997) defines value as customer-perceived preference for or evaluation of those product attributes, attribute performances and consequences arising from use that facilitate achieving the customer's goals and purposes. Woodruff's definition is based on empirical research into how customers think about value. However, it is obvious that there are some areas of consensus among the different concepts mentioned above. For example, customer-perceived value is inherent in some products or services, or is linked through their use. customer-perceived value is something perceived by customers rather than objectively determined by sellers or other stakeholders and those perception processes typically involve a trade-off between what customers receive, such as quality, benefits and utilities, and what they sacrifice, such as price, and opportunity, maintenance and learning costs. This book concurs with the majority of researchers who define customer-perceived value in terms of 'get' (benefit) and 'give' (sacrifice) components (Zeithaml, 1988; Day, 1990; Narver and Slater, 1990; Slater and Narver, 1992; Mazumdar, 1993; Hass, 1995; Berry and Yadav, 1996; Ravald and Gronroos, 1996; Slater, 1997; Woodruff, 1997), although some researchers argue that perceived value consists only of benefits (Hunt and Morgan, 1995; Hamel and Prahalad, 1994).

Customer-perceived sacrifice

As is discussed above, customer-perceived value has a relation to not only what customers can get but also to what they have to give up, that is, customer-perceived sacrifice. Sacrifice refers to what is given up or sacrificed to acquire a product or service (Zeithaml, 1988; Heskett *et al*., 1997). For example, Lapierre (2000) identifies the key drivers of customer-perceived value and clarifies sacrifice as one of the two key factors (the other is benefits). However, not only is price considered an element of sacrifice, but also other non-monetary factors are believed to be closely related to sacrifice. As Carothers and Adams (1991) have reported, 'Many customers count time rather than dollar cost as their most precious asset'. Therefore, generally speaking, there are two broad kinds of sacrifice: monetary costs and non-monetary costs. The former can be assesses by a direct measure of the dollar price of the service or product and the latter can be defined as the time, effort, energy, distance and conflict invested by customers to obtain products or services or to establish a relationship with a supplier.

The key dimension of customer-perceived value

As far as the significance of customer-perceived value is concerned, researchers are now paying more attention to the operationalization of this concept. Among them, Sheth *et al*. (1991) develop a broad theoretical framework. They suggest five dimensions of value, i.e. social, emotional, functional, epistemic and conditional value, which provide the best foundation for extending the existing value construct. However, it is worth noting that not all the dimensions have equal significance at any time, although they are related in some sense. In fact, different value dimensions may have different importance in different situation or industries over time. Recently, Sweeney and Soutar (2001) decompose the functional value into two separate parts, i.e. quality and price, and develop the so-called 'PERVAL' model based on evidence from durable good market at a brand level, which seems rather convincing and reasonable since it provides the best foundation for extending existing value constructs. In their model, epistemic value that relates to the surprise or novelty aspect of a product, and conditional value that refers to the conditional effects of a specific situation on value perceptions are excluded since these two dimensions are not applicable or possibly less important when considering the purchase of a durable good. Since studies in this book are primarily cross section design and both service and manufacturing firms are examined, we adopt the 'PERVAL' model. However, we expect to extend the price dimension and consider customer sacrifices instead

of price only. Based on the above discussion, we can propose the following:

> Proposition 2: customer-perceived value can be characterized along four dimensions: 'Functional value', 'Social value', 'Emotional value' and 'Customer-perceived sacrifices'.

The impacts of service-related factors on customer-perceived value

As mentioned above, it is clear that factors influencing the benefits customers receive or sacrifices customers have to make will cause different evaluations of customer-perceived value, even though different customers may form different opinions over time. For example, product-related factors such as product quality, and product customization, service-related factors such as responsiveness, flexibility, reliability and technical competencies and relationship related factors such as image, time/effort/energy and solidarity are all customer-perceived value drivers or sources (Zeithaml, 1988; Bolton and Drew, 1991b; Ravald and Gronroos, 1996; Lapierre, 2000). However, it is very difficult to distinguish these factors sometimes, especially in service industries. In this book, service-related factors are preferred to represent most of the positive drivers of customer-perceived value since most of the elements of both product-related factors and relationship-related factors have already been included in the factors associated with customer-perceived service quality mentioned above, for which readers can find related support from the individual measuring items of customer-perceived service quality. Furthermore, several empirical studies published recently also find support for the view that higher customer-perceived service quality helps to drive superior customer-perceived value (Oh, 1999; Dabholkar *et al.*, 2000; Ralston, 2003; Wang and Lo, 2003). In addition, taking the key dimensions of customer-perceived value into consideration, we can make efforts to decompose the effects of customer-perceived service quality on customer-perceived value and examine the specific influence of each service-related factor on each dimension of customer-perceived value, which has never been given enough attention in the academic field. However, it is of great significance for practitioners since such kind of research is able to provide enough valuable information for managers to decide in which areas they should invest more resources that are very limited for any firm to achieve big improvements. Therefore, based on the above discussions, we believe that service-related factors such as 'Tangible', 'Reliability','Responsiveness', 'Assurance' and 'Empathy' are the key drivers of each dimensions

of customer-perceived value. Thus, we can make the following proposition:

> Proposition 3: Service-related factors have different influences on each dimensions of customer-perceived value.

Customer satisfaction

By nature, the study of customer satisfaction typically falls within the domain of marketing (Rust and Zahorik, 1993; Anderson *et al.*, 1994; Dean and Bowen, 1994). It is perceived to be a key indicator of a firm's market share and profitability and portrayed as an important indicator of a firm's overall financial health. Simply stated, a satisfied customer will repeat the purchase of the goods or services, increasing a firm's market share and profits, which signifies its significance to successful competition in customer-centered era.

The definition of customer satisfaction

Originally, satisfaction is defined as disconfirmation (Miller, 1976; Oliver, 1981) and later is equated with emotion (Westbrook, 1980; Westbrook and Oliver, 1991). Generally speaking, there are at least two different conceptualizations of customer satisfaction: one is transaction-specific, and the other is cumulative (Boulding *et al.*, 1993). On the one hand, from a transaction-specific perspective, customer satisfaction is viewed as a post-choice evaluative judgment of a specific purchase occasion (Hunt 1977, Oliver 1977, 1981, 1993). Up to now, behavioral researchers have developed a rich body of literature focusing on the antecedents and consequences of this type of customer satisfaction at the individual level (Zeithaml, 1988). On the other hand, cumulative customer satisfaction is an overall evaluation based on the total purchase and consumption experiences with a product or service over time (Johnson and Fornell, 1991; Fornell, 1992), which is a more fundamental indicator of the firm's past, present and future performance. It is the cumulative customer satisfaction that motivates a firm's investment in customer satisfaction, for which we prefer treating customer satisfaction as cumulative in our theoretical framework in this book.

The key drivers of customer satisfaction

As we mentioned before, the three dimensions of customer-focused performance, i.e. customer-perceived service quality, customer-perceived value and customer satisfaction, also interact dynamically with one another. However, findings have been somewhat different

across extant studies and the relationships between customer satisfaction and other constructs mentioned in the book have, up to now, been less discussed, which implies the necessity of more related research. For example, the nature of the link between customer satisfaction and customer-perceived service quality is so complex an issue characterized by the confusion about the distinction between the two constructs that the causal direction of their relationship is very controversial. On the one side, some researchers (e.g. Parasuraman, Berry and Zeithaml, 1988; Bitner, 1990; Carman 1990; Bolton and Drew, 1991a) in the past have distinguished the two according to the level at which they are measured and posited that an accumulation of transaction-specific assessments leads to a global assessment (i.e. the direction of causality is from customer satisfaction to customer-perceived service quality). One the other side, some recent studies (Woodside *et al.*, 1989; Reidenbach and Sandifer-Smallwood, 1990; Cronin and Taylor, 1992) have modeled customer-perceived service quality as an antecedent of customer satisfaction. For example, Oliver (1993) first suggests that customer-perceived service quality should be antecedent to customer satisfaction regardless of whether these dimensions are measured for a given experience or over time. In fact, even Parasuraman *et al.* (1994) acknowledge themselves that the original causal relationship between customer-perceived service quality and customer satisfaction proposed by them in 1988 may need to be revised. Furthermore, McDougall and Levesque (2000) identify two key drivers of customer satisfaction: customer-perceived service quality and customer-perceived value. Similarly, Patterson and Spreng (1997) identify the dynamic interactive relationship among customer-perceived service quality, customer-perceived value and satisfaction, and its impact on purchase behaviors. At the same time, other researchers have also found empirical support for the point of view mentioned above (Anderson and Mary, 1993; Spreng and Mackoym, 1996), wherein customer satisfaction is a consequence of customer-perceived service quality and customer-perceived value, as shown in Figure 4.1. In addition, customer-perceived value may be the most important factor in determining the superiority of customer-focused performance, because customer satisfaction can generally be considered the consequence of customer-perceived value and customer-perceived service quality, which are the two antecedents of customer satisfaction. That is to say, only customers who obtain superior customer-perceived value in the form of higher quality, lower sacrifice, or a combination thereof, may be satisfied. Besides, only by first providing quality products, can firms deliver superior customer-perceived value. Customers who buy products of quality lower than the threshold level will not feel value for money

at all.[5] As mentioned in above, four dimensions of customer-perceived value are identified and they are emotional value, social value, functional value and customer-perceived sacrifices. It is clear that each of them will inevitably have an impact on customer satisfaction. Therefore, based on the above discussions, we believe that both customer-perceived value and customer-perceived service quality contribute positively to customer satisfaction. However, now that functional value is the overall customer-perceived service quality by nature, the following proposition can be made:

> Proposition 4: Each dimension of customer-perceived value has a significant impact on customer satisfaction.

Behavioral intentions of customers and the maximization of customer asset

In today's customer-centered era, there are so much evidence that customers are playing more and more important role in successful competition and their roles are changing increasingly from passive buyers towards more proactive purchasers with a variety of choices, co-producer of offerings and co-developer of core competences of a firm. As a result, more firms tends to consider customers as their strategic assets and focus on how to maximize customer asset by way of driving positive behaviors and avoiding any negative behaviors of customers.

Behavioral intentions of customers

Up to now, many studies have enumerated the key benefits of high customer satisfaction for a firm. Taking customer satisfaction as an example, high customer satisfaction should indicate increased loyalty of current customers, reduced price elasticity (Garvin, 1988), insulation of current customers from competitive pressure, lower costs of future transactions, reduced failure costs, and low cost of attracting new customers, and enhanced reputation for the firm in general. Increased current loyalty means more customers will repurchase (be retained) in future and ensures a steady stream of future cash flow (Reichheld and Sasser, 1990). The enhanced overall reputation of a firm helps to aid in introducing new products by providing instant awareness and lowering the buyers' risk of trial (Robertson and Gatignon, 1986). Furthermore, reputation also can be beneficial in establishing and maintaining relationships with key suppliers, distributors, and potential allies (Anderson and Weitz, 1989). It is very clear that all such benefits help to drive customer's behaviors.

However, empirical studies have, for most part, not addressed the differential effects of customer-perceived service quality, customer-perceived value and customer satisfaction on customer-behavior intentions. In fact, just as pointed out by Anthanassopoulos (2000), research examining the effects of customer-perceived value and customer satisfaction on behavior intentions has received very limited attention in the marketing literature. However, Rust and Oliver's call (1994) do not go unanswered. Bagozzi's model suggests that initial service evaluation leads to an emotional reaction, which, in turn, drives behaviors of customers (Bagozzi *et al.* 1991). It has also been suggested that customer-perceived value leads to favorable behavior intentions (Chang and Wildt, 1994, Gale, 1994; Cronin *et al.*, 1997; Cronin *et al.*, 2000). Similarly, customer satisfaction drives favorable behavior intentions of customers too (Anderson *et al.*, 1994; Hallowell, 1996; Ennew and Binks, 1999; Andreassen, 2000; Cronin *et al.*, 2000; Swanson and Kelley 2001). Furthermore, Taylor and Baker's study (1994) support the view that both customer-perceived service quality and customer satisfaction drives the purchasing intentions of customers. Therefore, we can propose that customer-perceived service quality, customer-perceived value and customer satisfaction help to drive the behavioral intentions of customers. Now that functional value, as one of the four key dimensions of customer-perceived value (others are social value, emotional value and customer-perceived sacrifices), represents the same meaning as overall customer-perceived service quality, the following propositions can be made:

Proposition 5: Each dimension of customer-perceived value has a significant impact on behavioral intentions of customers.

Proposition 6: Customer satisfaction has a positive impact on behavioral intentions of customers.

Maximization of customer asset

In the context of the new economy, more and more firms are selling services rather than products only. This means that the focus is moving away from a transactional and toward a relational approach to customers. Thus, firms are formulating goals of retaining and attracting customers with the customers' life-time value or customer profitability as the focus. We use customer asset to denote the value of customer base of a firm in this book. Customer asset is attracting more interest from practitioners and scholars. For example, as Hansotia (2004) points out, the concept of customer asset views customers as a firm's strategic asset,

since ultimately cash flows are based on customer-generated revenues and the investments made to generate those revenues. Jan Duffy (2000) considers that customer asset is represented by the value of customer relationships and the contribution this value makes to future growth prospects. Rust *et al.* (2000) argue that the customer asset is made up of three subcomponents: value equity, brand equity and retention equity. Thus customer asset can be viewed as the total of the discounted lifetime values summed over all of the firm's current and potential customers. For any firm, if it wants to increase the value of customer asset, motivating all kinds of customer behaviors towards a more favorable way in perspective of the firm may be the only choice. In other words, both purchasing behaviors and positive non-purchasing behaviors of customers such as word of mouth of customers usually reflect the increments of customer asset (Berger *et al.*, 2002; Bolton *et al.*, 2004). Furthermore, as suggested by Stahl *et al.* (2003), the value sources of customer asset consist of base potential, growth potential, network potential and learning potential, so knowledge contribution of customers should also be included and considered as the important value sources of customer asset besides others. Furthermore, extant studies have concluded that relationship benefits (comprised of customer satisfaction, trust, etc.) may play an important role in influencing relational outcomes (e.g. Hennig-Thurau *et al.*, 2002). In the meanwhile, as Rust *et al.* (2000) argue, customer asset can be increased by increasing customer convenience, saving customer's time, providing customers with information, and so forth.

The key resource-based determinants and their impacts

As far as the complicated nature of customer-focused performance is concerned, there are many factors that may exert strong influences on it, which has been discussed above and in Chapter 2. In this book, we focus on those key determinants of customer-focused performance in perspective of the resource-based theory, which emphasize the important role of heterogeneous resources and competences of a firm in explaining performance differentials of firms. Furthermore, in today's turbulent environment, those factors such as organizational learning and strategic flexibility should not be ignored since they are playing increasingly significant role in successful competition and satisfying the rapid changing demands of customers, which has been widely recognized recently.

Core competences

Bogner and Thomas (1994) define core competences as firm-specific skills and cognitive traits directed towards the attainment of the highest possible levels of customer satisfaction *vis-à-vis* competitors. They are the least definable kinds of productive resources, and consist of complex bundles of constituent skills and technologies, collective learning, and both tacit and explicit knowledge, contributing to competitiveness through organizational processes that ensure superior coordination of functional activities (Prahalad and Hamel, 1990). These have often been referred to as abilities, technologies (Prahalad and Hamel, 1990) or simply skills and resources (Reed and DeFillippi, 1990) in the contexts of functional areas (Snow and Hrebiniak, 1980).

Furthermore, they can provide the conceptual glue that gives shared meaning to all the separate functional activities and programs and serve to coordinate the competitive actions driven by the unique strategic positioning of a firm. Even though these competences are in general a by-product of past activities, what matters at any point is the range of future activities that they make possible and the fact that they constitute the fundamental sources of sustainable competitive advantages (Prahalad and Hamel, 1990; Leonard-Barton, 1992; Lei *et al.*, 1996). At the same time, core competences represent both the underlying knowledge base and the set of skills required to compete successfully. Furthermore, a firm's current core competences serve as platforms for the ongoing development and application of those new competences needed to sustain competitive advantages in the future, which evolve through an iteration of repeated doing and learning and with each sequence expanding knowledge and enriching core competences of the firm (Bogner and Thomas, 1994). This may explain why firms are being increasingly seen as portfolios of core competences, which admits a proactive construction of competence, sees competence as spanning multiple businesses, and sees competition as being over the acquisition and development of competences.

In addition, as concluded by Barney (1991) and Grant (1991, 1993, 1996), to sustain those advantages, core competences must add value, must be difficult to replace by substitute processes, be difficult for competitors to imitate and should be immobile across firm boundaries. Similarly, Prahalad and Hamel (1990) and Hamel and Heene (1994) also argue that a capability must meet the following requirements to qualify as a core competence: it must be a close integration of skills or technologies, be competitively unique, and must contribute to customer-perceived value and provide an entry into new markets. Besides, at least four mechanisms related to core

competence such as time-compression diseconomies, asset mass efficiencies, assetinterconnectedness and causal ambiguity (Dierickx and Cool, 1989) could impede cheap and rapid asset accumulation and sustain the competitive advantage resulting from core competences.

The constituents of core competences

Today, there are many different ways to view core competences with different emphasis and different constituents of core competences are proposed. Among them, most researchers tend to focus on technological competences as the basis for core competences. However, other knowledge-based or experiential assets may underlie core competences as well. For example, Meyer and Utterback (1993) emphasize the special role of technology and single out R&D competence, production and manufacturing competence, and marketing competence. Barney (1986) argues that organizational culture could also be a fundamental source of core competences and sustained competitive advantages. Dosi and Teece (1993) define core competences as allocative competence, transactional competence, administrative competence and technical competence. Leonard-Barton (1992) emphasizes the importance of knowledge, and considers core competence as a complex knowledge system that includes employee skills and learning, and the technological, managerial and value systems of the firm. Hamel and Heene (1994) distinguish market-access competences, integrity-related competences and functionality-related competences. Bogner and Thomas (1994) argue that core competence is comprised of three fundamental components: shared value systems, recipes and routines, and tacit understanding of interaction. Hall (1994) believes those functional, cultural, positional and regulatory capabilities as a whole constitute and determine the competitiveness of the firm. In addition, in one empirical study, Spanos and Lioukas (2001) propose that the idiosyncratic firm assets include organizational capabilities, marketing capabilities and technical capabilities. Besides, Fowler *et al*. (2000) argue that there exist three types of competencies: technological, market-driven and integration competencies.

However, although these divergent arguments have their own emphasis and basis, some consensus should not be ignored. For example, they agree that the resources constituting core competence should be scarce, unique, specific, intangible, immobile and difficult to substitute and imitate Oliver (1997). And they also believe that core competences often go beyond the traditional boundary of functions, result from capabilities integrated across functional lines, and are deployed across multiple product-markets to leverage firm-specific value-added activities

and processes. This implies that there is also another type of important competences besides the technological aspect of core competences as emphasized by researchers such as Meyer and Utterback (1993) and Prahalad and Hamel (1990) and the marketing aspect of core competences as suggested by scholars such as Day (1994), Vorhies, Harker and Rao (1999), Srivastava, Fahey, and Christensen (2001), Srivastava *et al.* (1998). This special and important type of competences is defined as integrative competences in this book. It is for the existence of integrative competences that determines that it is not wise to consider core competences at functional level, tactical level or to emphasize single capability of a firm. Otherwise, there is a strong tendency for us to ignore integrative competences, which is much more important, if not the most important. Therefore, based on extant studies mentioned above, we can classify all these competences into three broad types, i.e. technological competences, marketing competences and integrative competences, which constitute core competences of a firm as collectives (Wang *et al.*, 2004). Such classification is very similar to what Fowler *et al.* (2000) suggest. Each of these makes a different contribution to the core competences of a firm and represents a complex competence system constituted by a set of specific capabilities of a firm. For example, marketing competences include market-access competences, channel management capability, market scanning capability, etc. Integrative competences consist of interface management capability, coordination capability, and knowledge sharing mechanisms and so on (Douglas, 2000). Technological competences are constituted by technical competence, employee skills and technological knowledge, etc. In addition, for other kinds of core competences proposed by others, it is not difficult to find that each particular competence or capability can be assigned into one of the broad kinds of competences mentioned above if the core competences of a firm are decomposed at full length, or each competence or capability can find itself constituted by such elements as marketing, technological, integrative element or their combination.

Technological competences

Technological competences refer to the ability to develop and design new products and processes and combine knowledge about the physical world in unique ways, transforming this knowledge into designs and instructions for the creation of desired outcomes. So they are more than the mastery of technological capabilities; they are the capability to deploy and expand the range of core competences, integrate various streams of technologies, and effectively mobilize resources across firms (Miyazaki, 1994). More concretely, technological competences are a

set of pieces of knowledge consisting of both practical and theoretical know-how, methods, procedures, experience and physical devices and equipment (Dosi, 1984). They also refer to superior and heterogeneous technical assets of a firm, which are closely related with product, design, process and information technologies. Technological competences require a deep understanding of scientific principles, as well as the ability to generate new knowledge, although they are different from science in that they are usually implicit in experience and skills (Dosi, 1988; Wheelwright and Clark, 1992). In particular, technological competences represent an important potential source of competitive advantage in technologically competitive markets (e.g. Tyler, 2001). Only if aligned with customer demand, can this potential source become a powerful tool for success.

Market competences

As one more important element of core competences, market competences are defined as the processes designed to apply the collective knowledge, skills and resources of the firm to the market related needs of the business, which add value to its goods and services so as to meet the competitive demands of customers. Therefore, they are based on a profound understanding of customers' current and future needs, preferences, factors affecting them and knowledge of competitors' possible action (Kohli and Jaworski, 1990). So there are two important elements of market competences in nature: competitor knowledge and customer knowledge and access, which are usually supported mainly by input assets, channel assets, customer assets and market knowledge assets identified by Paul and Peter in 1994.

Superior market competence is characterized by a set of cultural values and beliefs that put customer interests and current and potential customer demands first; that is, it is market-oriented. With such competences in action, the firm can have strong capacity to sense events and trends in its rapidly changing markets ahead of its major competitors, and focus its most intensive efforts on understanding the market and on developing strategies in response to market opportunities or threats. It can anticipate more accurately the response to actions designed to retain or attract customers, improve channel relations or thwart competitors, and act on market information in a timely, coherent manner, which has significant implications for attainment and sustainability of competitive advantage. To help organizations deal with market events and trends, specific internal supporting processes can be developed to harness valuable data from customer surveys and other market research, to learn what buyers want, and to deliver the value they desire (Moller

and Anttila, 1987; Slater and Narver, 1994). This may include formal and informal approaches for gathering, processing, communicating and interpreting marketing information, such as data on customer visits, customer complaints, customer-targeting, customer value determination, and competitor offerings. Of these, marketing strategy planning processes and the related value generating processes, such as customer-perceived value delivery processes, mass customization processes and integrated marketing processes, used to analyze and leverage market knowledge, are cited as being among the most important (Moller and Anttila, 1987) and as being the most adaptable as market conditions change (Tuominen *et al.*, 1997). Recently, Vorhies *et al.* (1999) identify six dimensions of marketing competences: marketing research capabilities, pricing capabilities, product development capabilities, channels/distribution capabilities, promotion capabilities and marketing management/planning capabilities. For each dimension, several items are used to measure effectively.

Integrative competence

Even though unique marketing competences for understanding customers and markets, and technological competences for making innovative use of technological developments are strategically important, not all firms in possession of them achieve above industry average performance (Teece, 1986; Teece *et al.*, 1997). In practice, to compete successfully, firms need one more important competence: integrative competence. In fact, it is this competence that helps to achieve the positive interaction among elements of the dynamic competence building and leveraging process, to enhance the strategic alignments and fitness among elements such as different competences, organizational learning, strategic flexibility, turbulent environments and strategic positioning, and finally to determine the ultimate results of competition. Given that core competences are complex, the capability to weave the individual strands, both internal and external, into one complex thread requires a rich pattern of cross-discipline communication and learning, which is very important strategically. Furthermore, as there is no value for customers if marketing competences or technological competences are isolated, it is vital for the firm to integrate both competences to reflect both customer demands and technological trends, and to use new technology to realize innovative services and products. In addition, since internalization of skills and knowledge gained from outside and their integration with internal resources has become central to a resource-based strategy, integrative competences are playing an ever more important role. In turbulent

environments, firms must analyze products and services beyond the industry boundary, especially those complementary to current offerings, define or even redefine the targeted customer segmentation, identify attributes whose performance is either beyond or below the standard level, and integrate them together to create new market-space continuously. Integrative competences enable firms to combine the wide-ranging capabilities, information, perspectives and knowledge necessary to develop products or services in the market-space (Grant, 1996). Therefore, they are sometimes also called combinative competences, which often draw on firms' 'architectural competence' (Henderson and Cockburn, 1994), organizational routines (Nelson and Winter, 1982) or principles, in order to create, transfer and combine knowledge from within and outside the firms. In addition, integrative competences enable firms to generate new applications of existing knowledge (Kogut and Zander, 1992) and guide the problem-solving strategies that shape the development of new competence (Henderson and Cockburn, 1994). For example, marketing competences are developed when the firm's marketing employees repeatedly apply their knowledge and skills to solving marketing problems, or create unique combinations of intangible and tangible resources. Therefore, integrative competences here have at least four implications: the ability of the firm to integrate different technological specialties; the ability to combine different functional specialties; the ability to exploit synergies across business units or divisions; and the ability to integrate the whole dynamic competence building and leveraging process.

The impacts of core competences on customer-focused performance

Recent theoretical developments and empirical evidence have shown that firms with superior competences are better generators of information about customer wants and needs and are also better at developing and marketing goods or services to meet these wants and needs by well-coordinated activities. Furthermore, superior competences also give firms the capability to generate and act on knowledge about competitor actions and reactions, which help them to develop the basis for competitive advantages (Bharadwaj *et al.*, 1993; Naver and Slater 1990; Tuominen *et al.*, 1997; Woodruff, 1997). As mentioned above, one of the criteria for core competences to sustain those advantages, they must add value (Prahalad and Hamel, 1990; Barney, 1991; Grant, 1991, 1996; Hamel and Heene, 1994), which implies that core competences really contribute to the creation and delivery of customer-perceived value. In fact, core competences, as the important sources of sustainable competitive advantages, can be leveraged directly to satisfy existing customer

needs, or indirectly to develop a range of core products or core services, based on which a stream of final products or services of higher quality is delivered. Therefore, core competences are skills that enable a firm to deliver fundamental customer benefits (Hamel and Heene, 1994) by enabling the firm to establish, enhance, upgrade and utilize proprietary access to those resources that lead to a stream of sustainable competitive advantages. So there is enough theoretical and empirical evidence to believe that core competences contribute positively to superior customer-focused performance.

Generally speaking, technological competences determine which products or services can be provided technically at one time; marketing competences determine which offering demanded by targeted customers can be detected timely; and integrative competences reflect the degree of fitness between the above first two competences and the effectiveness and efficiency of delivering offerings with superior customer-perceived value and higher quality. It is with theses integrative competences, e.g. human capital and knowledge learning culture, that a firm can encompass its unique human, physical, organizational and coordinating resources, deploy its resources in ways that can lead to competitive advantages and respond to a variety of changing environmental conditions to serve targeted customers more effectively. Based on the discussions mentioned above, we can propose that the three constituents of core competences contribute differently to the customer-focused performance of a firm. Taking technological competences as an example, a firm with superior competences can make' full use of its technological advantages to provide offerings of higher quality by, for example, improving its manufacturing processes, create superior customer-perceived value in more innovative ways and thus have more probability to achieve higher customer satisfaction. Therefore, we can have the following proposition:

> Proposition 7: Each constituent of core competences has a different impact on customer-focused performance.

Strategic flexibility

The increasing speed and cost of technological change, the rapid shifting of customer preferences and market upheavals, the discontinuous innovations,[6] the convergence of high-technology industries, and the emergence of new global competitors all promise an increasingly uncertain business environment. These dynamically interactive forces demand organizations to be not only efficient and innovative but also to

be strategically flexible. However, despite increasing recognition of the importance of strategic flexibility as a new competitive advantage, there have to date been few influential empirical studies exploring the sources and measurement of strategic flexibility or examining its relationship with business performance or competitiveness.

The definition of strategic flexibility

The term strategic flexibility has been widely used by researchers and practitioners to denote a firm's ability to respond to various demands in dynamic competitive environments. Accordingly, research on strategic flexibility has ranged from limited empirical investigations of the relative flexibility of firms, to managing environment volatilities, to conceptual assessments of the freedom available to managers to do things differently. For example, strategic flexibility has been defined by Aaker and Mascarenhas (1984) as 'the ability of the organization to adapt to substantial, uncertain, and fast occurring environmental changes that have a meaningful impact on the organizational performance, which enables firms to manage uncertain and fast-occurring markets effectively.' Harrigan (1985) studies the flexibility of 'alliances and vertically integrated firms' and looks at strategic flexibility in terms of a firm's ability to reposition itself in a market or to change its strategies when its customers cease to be attracted. Carlsson (1989) considers strategic flexibility as one of the three dimensions of flexibility: operational flexibility, tactical flexibility and strategic flexibility; and argues that two aspects of strategic flexibility are particularly important. One is the way in which firms positions themselves with respect to future changes in products and the concomitant changes in the manufacturing process, and the other is the attitude towards change and how that is fostered or encumbered by organizational structure. Evans (1991) studies the strategic flexibility in high technology product markets characterized by 'products, manufacturing processes, markets, distribution channels, and competitive boundaries that are in a state of continuous flux,' and regards strategic flexibility as an expedient capability for managing capricious settings. Sanchez (1991, 1993, 1995) sees strategic flexibility as alternative courses of action or strategic options available to the firm for competing in a dynamic market, which can bestow on a firm the ability to respond promptly to market opportunities and changing technologies. Base on the work mentioned above, we define strategic flexibility in this book as the ability of an firm to respond to changes in the environment in a timely and appropriate manner with due regard to the competitive forces in the marketplace or to shape the environmental development towards a more favorable way purposely,

which will have significant influence on business competitiveness and performance.

The sources and measurement of strategic flexibility

Despite the fact that the criticality of strategic flexibility in the new competitive landscape characterized by dynamics, uncertainty and unpredictability has been widely recognized, little research exists that examines the major sources and measurement for firm strategic flexibility. The empirical research that does exist has mostly been piecemeal focusing on particular strategies as a way for firms to achieve more strategic flexibility (e.g. strategic alliances) or expect to examine strategic flexibility in a manufacturing perspective or a product-based view, which tends to make more confusions and contributes a few, if any, to the deep and systematic understanding of the sources and measurement of strategic flexibility. The study made by Ybarra and Wiersema (1999) can be a typical example of the first case. They look at strategic flexibility in information technology alliances from a perspective of both transaction cost economics and social exchange theory and try to find the main determinants of two types of strategic flexibility, i.e. exit flexibility and modification flexibility. For the second case, the study of Worren *et al.* (2002) is an example that examines strategic flexibility with a product-based view. They make a further study of strategic flexibility in the home appliance area, and try to operationalize strategic flexibility with mode1 variety, model introduction rate and new product introduction rate. Furthermore, a recent study made by Grewal and Tansuhaj (2001) provides a good example to measure strategic flexibility with multiple items such as building excess resources by hedging and sharing investments across business activities, a firm's emphasis on deriving benefits from diversity in the environment, the importance the firm puts on benefiting from opportunities arising from variability in environments, and a firm's emphasis on managing macro environment risk. However, this research is designed to explore the strategic flexibility in context of economic crises and emphasize the building of excess and liquid resources and creating the capacity to be agile and versatile, which inevitably constrains the generalization of such sources and measurements of strategic flexibility.

However, some extant fruitful conceptual studies provide us many valuable insights. As suggested by Sanchez (1995), strategic flexibility can be represented by resource flexibility and coordination flexibility. As for resource flexibility, there are three key influential dimensions: the range of alternative uses, the cost and difficulty of switching from

one use of a resource to an alternative use, and the time required in switching to an alternative resource use. On the other hand, coordination flexibility involves three processes as follows: (1) defining the firm's product strategies in terms of which products the firm intends to offer and which market segments it will target; (2) configuring chains of resources the firm can use in developing, distributing, and marketing its intended products to targeted markets; (3) and deploying resources through organizational structures that support the firm's strategies. However, when examining either resource flexibility or coordination flexibility, we have to focus on three major dimensions as suggested by Das (1995). That is to say, strategic flexibility needs to be understood in terms of three major dimensions: speed of change, cost of change and degree of change. Speed of change means how quickly the firm can adapt to change in the market, which can be measured by the time required for implementing changes in key elements of the firm's strategy. Cost of change, i.e. cost efficiency means that the cost incurred by the firm should be less or at least not greater than the benefits of the expected increased flexibility, which results in reasonable cost structure and lower overall cost of delivering products when compared with major competitors. The degree of change is another important factor in the assessment of strategic flexibility. Once the firm is committed to a particular degree of flexibility in its strategy, it becomes a constraining element, which implies that strategic flexibility does not mean infinite choices for a firm.

In addition, no matter how to understand the sources of strategic flexibility, either the resource flexibility or coordination flexibility suggested by Sanchez (1995), or three dimensions proposed by Das (1995), core competences of a firm always exert great influence on strategic flexibility. In other words, core competences of a firm constitute the major source of strategic flexibility and determine the level of strategic flexibility to a great extent. For example, the level of marketing competences can determine the speed of a firm to detect any market changes and influence the cost for such a detection process. Similarly, integrative competences can affect the actual response of a firm to any environmental change for the significant role they may play in coordination process. For technological competences, they can play a significant role in enabling the firm to provide technologically new products to respond to the rapid changing needs of customers. Therefore, the following proposition can be made:

> Proposition 8: Each constituent of core competences has a positive impact on strategic flexibility.

The performance consequence of strategic flexibility

As can be seen, scholars have various perspectives with regard to the definition, sources and measurement of strategic flexibility. However, several important common views can be inferred from the above discussions of strategic flexibility. First, firms need strategic flexibility for the rapid change of their business environment. In other words, strategic flexibility is necessitated by the turbulent nature of environments. Secondly, strategic flexibility is an important capability that firms can purposely build and leverage, which implies that firms can actively adapt to environments or initiate actions to change environments. Thirdly, firms try to improve strategic flexibility for its performance implications. Furthermore, as many related studies noted, strategic flexibility can be considered a special capability of a firm to enable itself to deal with environmental turbulence in an effective and efficient way, which inevitably helps to improve customer-focused performance of a firm. For example, if current technologies come to cease to be effective in front of the change of technological environment, it is likely that a firm with higher strategic flexibility will identify such changes in a timely and cost effective way. Then the firm may respond rapidly by seeking potential technologies and make them commercialized quickly to improve its current offerings or launch completely innovative offerings, which implies a possibility of improving customer-perceived service quality, delivering superior customer-perceived value, achieving higher customer satisfaction, or their combinations.

In fact, in the studies mentioned above, strategic flexibility is usually hypothesized to have a positive influence on the competitiveness of enterprises in unstable environments. In these environments, business units need to quickly adjust existing operations or strategic orientation to dynamic environmental changes such as frequent demand fluctuation and technological innovation. Strategic flexibility is also expected to increase the effectiveness of both communication and of plans and strategies, which, coupled with adapted product offerings and other aspects of market mix, should enhance firm performance (Miles and Snow, 1978). Furthermore, Das (1995) considers strategic flexibility as key to effective performance. Michael *et al.* (1998) conclude that success in the 21st century organization will depend first on building strategic flexibility, which, interacting with core competences, contributes significantly to business competitiveness. Based on the above discussions, we can have the following proposition:

> Proposition 9: Strategic flexibility has a positive impact on customer-focused performance.

Organizational learning

Many researchers have drawn the same conclusion that, in today's knowledge intensive society, the only ultimate source of competitive advantages for a firm is to learn faster than its competitor. For example, firms must gather market intelligence, analyze and disseminate the marketing knowledge developed across departments and work groups, identify technological market development trends and use them to develop appropriate strategies and tactics to combine both market knowledge and sensitive technological knowledge skillfully and timely.

The definition of organizational learning

Organizational learning was addressed by Cyert and March (1963) over 30 years ago. And they regard organizational learning as a process by which organizations as collectives learn through interaction with their environments. Members within the organization share information, creating organizational memory in the form of shared beliefs, assumptions and norms, which will guide individual and organizational actions. In practice, each organization may have its own unique style and capabilities to learn and makes use of different ways of learning. Among them, the adaptive, single-loop learning and the generative, double-loop learning are the two typical forms. The former (i.e. adaptive, single-loop learning) is sufficient to motivate tactical adjustments to operations, production and planning. The latter (i.e. generative, double-loop learning) is typically prerequisite to more fundamental strategic shifts in those areas vital to the survival of a firm since it reflects an organization's capacity to change its 'view of the world' by unlearning obsolete perspectives, systems and procedures, and proactively replacing them with approaches that are capable of creating or maintaining competitive advantages (Day, 1991; Dickson, 1996). However, either of them is needed for any firm to compete successfully in turbulent environment. Furthermore, organizational learning is not enough for firms to compete successfully in practice. To succeed, the following requirements have to be met. First, in the long run, must be able to learn at a rate at least equal to the environment change if they are to develop and maintain core competences that have value in the market. Secondly, the rate of learning within an organization must be at least equal to that of competitors if changes in market performance are to be expected. Thirdly, the success of the learning activities should be addressed by performance measures (Prahalad and Hamel, 1990), which means that learning activities have influential impacts on business competitiveness. Only in this way, can businesses that possess the ability to learn rapidly about changing environments and act timely on them be best positioned to achieve competitive advantage.

Therefore, in this book, our focus is not such distinguishing aspects of organizational learning, but the learning process and learning consequences. In other words, by learning, we mean the acquisition, integration and application of new and unique knowledge through experimentation, improvement and innovation by ways of internal activities, such as learning by doing, using, failing and reflecting, and by learning outside in resource markets and product markets from customers, competitors, suppliers, technological sources and other key stakeholders.

The divergent nature of relevant studies

Although the increasingly significant role of organizational learning in business success in today's turbulent environment has been widely acknowledged, extant studies of organization learning are rather divergent due to the complexity and dynamics of this construct, and no well-accepted scale of organizational learning has been identified up to now.

In extant studies, some researchers tend to confuse organizational learning with an even much broader concept, i.e. knowledge management. For example, Huber (1991) describes the following four organizational learning-related constructs: knowledge acquisition, information distribution, information interpretation, and organizational memory,[7] which makes it much more difficult to conceptualize and operationalize the construct of organizational learning. Similarly, Nevis *et al.* (1995) suggest that the learning process includes three basic stages such as knowledge acquisition, knowledge sharing and knowledge utilization. In order to conceptualize the stages mentioned above, they have developed a comprehensive model of organizational learning that includes seven learning orientation and ten facilitating factors. Later, Boydell and Leary (1996) and Chaston *et al.* (1999) argue that organizational learning should be operationalized and tested in term of implementing, improving and integrating. In other typical studies, some researchers tend to analyze organization learning in terms of a learning environment or learning orientation in a narrow sense. For example, Goh and Richards (1997) try to conceptualize organizational learning by five dimensions such as clarity of purpose and mission, leadership commitment and empowerment, experimentation, transfer of knowledge and teamwork and group-problem solving. Similarly, Sinkula *et al.* (1997) and Baker and Sinkula (1999) prefer discussing and measuring organizational learning by three dimensions such as commitment to learning, shared vision and open-mindedness.

Based on above discussions, it becomes easy to recognize the divergent nature of related studies of organization learning. Since this

book is not intended to discuss which is the best and the most accurateconceptualization of organizational learning but to explore the influence of organizational learning on core competences, we tend to follow Sinkula *et al.* (1997) and Baker and Sinkula (1999) and understand organizational learning in a narrow sense in terms of learning orientation. In practice, it is the learning environment or orientation that fundamentally determines the learning propensity of a firm, the learning process it may adopt, the effectiveness, efficiency and sustainability of such learning process, and thus determines finally the dynamic competence upgrading and leveraging process of the firm finally. As our in-depth manager interviews shown, with such a favorable learning environment, it is not surprising for a firm to build and upgrade its competences relevant to information processing, communication, knowledge transfer, inter-unit coordination, and the capabilities to develop trusting relationships and negotiation, which is the key to make sure the fitness between core competences of a firm and its turbulent environment. Therefore, the three dimensions suggested by Sinkula *et al.* (1997) and Baker and Sinkula (1999), i.e. commitment, shared vision and open-mindedness, will be reexamined and discussed in this book. Furthermore, it is expected that we can decompose the effect of each dimension of organizational learning on specific constituents of core competences.

The effects of organizational learning on core competences

As Chaston *et al.* (1999) have noted that organizational learning functions as an antecedent of organizational competences. Furthermore, organizational learning brings employees and other resources together, firms develop processes upon which competences are built, and employees continuously apply their knowledge and skills to operational or strategic problems, so that a deeper knowledge base develops and thus also enhance competences. In turbulent environments, not only do firms seek specific information to remain competitive and sustain their core competences but they also learn how to acquire, process, store and retrieve information effectively and efficiently. This enables a firm to determine the information needed to upgrade, redeploy or reconfigure its core competences after careful and continuous environmental scanning and sensing. For example, it has been concluded that competences lie in the embedded knowledge and skills of the firm and are accumulated through the processes of continuous learning (Anderson and Narus, 1984; Hamel and Prahalad, 1993), and also that the process of experimentation and improvement is the key to competitive success (Senge, 1990). Indeed, given the nature of the cumulative

development of competences, their improvement requires continuous and collective learning. In fact, it is one of the hallmarks of competence development for business to learn through repetition and doing (Prahalad and Hamel, 1990; Grant, 1991; Sinkula, 1994; Tuominen *et al.*, 1997). Therefore, learning is a process that allows a continuous adaptation of firm-specific competences in the light of experience and further information, and can be defined as the way firms build and supplement their knowledge bases in technologies, marketing, products and processes, and develop and improve the use of the broad skills of their workforce (Dodgson, 1991). As a result, competence building and upgrading can be achieved by cultivating organizational learning orientations such as open-mindedness, share vision and commitment in turbulent environment. Therefore, we believe that organizational learning has a positive influence on core competences of a firm, which results in the proposition as follows:

> Proposition 10: Each dimension of organizational learning has a positive impact on core competences.

Moderating role of environmental turbulence

Although the key resource-based determinants interact with each other and should have significant influence on customer-focused performance as proposed above, the process to enhance core competences, upgrading organizational learning capability and improve strategic flexibility always means the increment of costs of a firm. Therefore, if environment turbulence moderates the interactive relationship among them, a firm can achieve superior customer-focused performance in a more cost effective manner by seeking the appropriate level of each determinant based on the level of environment turbulence. According to the resource dependence theory, the technological environment is perceived, interpreted and evaluated by human actors in organizations. Managers' perceptions become their reality, which makes environment conditions important to the extent that they are perceived by managers and always results in distinct managerial actions (Weick, 1979; Daft and Macintosh, 1981; Hall, 1991). For example, Burns and Stalker (1994) argue that the basic information-gathering activities required for successful innovation differ in emphasis according to the level of perceived environment uncertainty. In fact, the impact of rapid technological change coupled with radical market changes has become more evident in customer-focused performance improvement process than ever since it has been

widely recognized that successful firms have to reflect both market change and technology change at the same time. As suggested by the resource-based view, various factors external and internal to a firm can neutralize or dissipate a resource's comparative advantage (Reed and Defilippi, 1990; Barney, 1991; Peteraf, 1993). For example, a firm may fail to modify its resources in response to a change in the technological environment. As a result, a capability or resource that was once an asset can become a liability if it is no longer appropriate for a given product or service. Similarly, Leonard-Barton (1992) content that core capability in new product development can become core rigidities in the face of changing technological environments. However, although the significant roles of organizational learning, core competences and strategic flexibility in customer-focused performance are escalating, less empirical studies can be found, up to now, to examine the influence environment turbulence on their interactive relationship.

Past research suggests that there are various types of environment turbulence, e.g. technological turbulence, market/consumer turbulence, competitive turbulence, resource turbulence (Duncan, 1972; Clark 1985; Jauch and Kraft 1986, Milliken 1987). In this book, following Boyd *et al*. (1993), we believe at least two measures of environment turbulence should be utilized and studied, i.e., technological turbulence and market turbulence (Houston 1986; Milliken, 1987, and Kohli and Jaworski 1990). The former refers to an individual's perception that he or she is unable to accurately predict or completely understand some aspect of the technological environment (Milliken, 1987). It is obvious that technology is creating new imperatives for the conduct and restructuring of superior customer-perceived value delivery processes because new knowledge is applied at a faster rate, greater numbers of new products are being introduced over time, more real-time customer information can be collected, analyzed and applied, the time between innovations is decreasing, and technology fusion is occurring across and within industries. The latter represents changes in the composition of customers and their preferences and competition intensity, which corresponds to elements of the environment turbulence construct (Kohli and Jaworski, 1990). For example, as Houston (1986) and Kohli and Jaworski (1990) observe, in the absence of competition, an organization performs well, even if it has no strong core competences because customer are 'stuck' with the organization's products and services. By contrast, under conditions of high competition, customers have many alternative options to satisfy their needs and wants. To put it more concretely, similar to what has been examined in some studies of the moderating effects of environment turbulence on market orientation-performance relationship (Kohli and Jaworski, 1990), organizations that operate in more

turbulent markets are likely to have to modify their strategies, products and services continually according to different level of environmental turbulence in order to satisfactorily cater to customers' changing preferences and competitors' attacks. Therefore, we can believe that both technological turbulence and market turbulence moderate the relationships between strategic flexibility and customer-focused performance, which results in the following propositions:

> Proposition 11: Environmental turbulence moderates the relationship between strategic flexibility and customer-focused performance.
>
> Proposition 12: Environmental turbulence moderates the relationship between core competences and customer-focused performance.

Brief discussion

As shown in Figure 4.1, although many studies have been conducted on the relationship between core competences and the competitive advantages of firms, most of them are conceptual discussions, and rather few studies have tried to decompose the effects of core competences and differentiate the various sources of superior performance empirically in terms of a resource-based view, which implies that the relationship between competences and performance has not been empirically studied extensively enough. In fact, only a few, if any, empirical studies can be found to examine the constituents of core competences and their relationships with firm performance, not to mention studies focusing on effects of core competences on customer-focused performance or studies exploring the role of turbulent environments in determining performance of a firm. Besides, little is known about the empirical relationships among the key constituents of core competences, specific dimensions of organizational learning orientation and strategic flexibility even though more and more conceptual studies have concluded that organizational learning and strategic flexibility are become increasingly important to competence building and leveraging process and superior firm performance in today's turbulent environment. In addition, the relationships among strategic resources such as core competences, organizational learning and strategic flexibility, environmental turbulence and firm performance remains an unresolved conundrum and little research has been done empirically to see how environment turbulence moderates the influence of key resource-based determinants on customer-focused performance of a firm.

In this book as shown in Figure 4.1, we intend to bridge such gaps by identifying the key resource-based determinants of customer-focused

performance in turbulent environments. On the one hand, unlike most of previous studies that are conducted at overall level or functional area level and those focusing on very narrow measurement of core competence which is very difficult to be generalized, for example, applicable to only single specific industry or just emphasizing the number of patents of a firm, we explores innovatively the constituents of core competences based on the comprehensive literature review work and in-depth senior manager interviews, and decomposes core competences of a firm into three important elements to avoid the so called 'pitfall' of being vague, tautological, endless recursive and non-operational criticized by some studies (e.g. Mosakowski and McKelvey, 1997; Priem and Butler, 2001a, b; Williamson, 1999), i.e. marketing competences, technological competences and integrative competences. Each of them reflects the different strategic aspects of a firm, plays different roles in business competition and is of strategic significance to the sustainability of competitive advantages and ultimately influencing organizational rents and superior firm performance by way of determining superior customer-focused performance. In other words, by exploring the constituents of core competences of a firm, it enables us to decompose the effects of core competences on customer-focused performance. Furthermore, the effects of different constituents of core competences on customer-focused performance are examined empirically, which helps to overcome the limitations of resource-based view of the firm since it is often criticized for lack of empirical grounding (Williamson, 1999; Priem and Butler, 2001a, b) and provides firms more practical suggestions about how to improve their customer-focused performance by focusing on some aspects of core competences.

On the other hand, in our conceptual framework, more attention is paid to the role of turbulent environments. One typical example is that we take the dynamic concept of strategic flexibility into consideration besides core competences and regard it as a specific capability of a firm that play a significant role in determining customer-focused performance. Furthermore, the impacts of each specific constituent of core competences on strategic flexibility are discussed conceptually and examined empirically. The other typical example is that we believe that the level of turbulent environments has significant impacts on customer-focused performance and consider environmental turbulence as moderating variable that influences the effects of the key resource-based determinants on customer-focused performance. In addition, we identify two major kinds of environmental turbulence, decompose the moderating effects of environmental turbulence and begin to examine the different moderating effects of technological turbulence and market

turbulence empirically by using PLS method, which has obvious advantages over those used in most of previous studies such as variance analysis or hierarchical regression analysis in testing moderating effects.

Even in the service management field where customers' role are always recognized and emphasized, less effort has been paid to devote to the examination of connotation of superior customer-focused performance and its key determinants. Up to now, a few studies, if any, have tried to uncover the secret of achieving superior customer-focused performance by deployment or reconfiguration of firm-specific and firm-addressable resources. Furthermore, it is of both theoretical and practical significance to recognize the specific dimensions of customer-focused performance and their interactions to avoid emphasizing one dimension while ignoring others. Recently, more researchers have shifted their focus from customer-perceived service quality to customer-perceived value and many studies have been conducted. However, there is still a far way to go to achieve coherence, which has been discussed above in section two. In this book, we try to integrate related studies and propose a more coherent framework to show the relationships among different dimensions of customer-focused performance. Furthermore, such impacts of customer-perceived service quality on each dimension of customer-perceived value are decomposed along the key service-related factors such as 'Tangible', 'Reliability', 'Responsiveness', 'Assurance' and 'empathy'. At the same time, the effects of customer-perceived value on customer satisfaction are also decomposed to provide more practical suggestions for firms along each dimension of customer-perceived value.

Finally, but maybe the most important, although more and more researchers and managers have come to realize the significant role of customers in business success, less efforts have been given to identify the key resource-based determinants of customer-focused performance, which is urgently needed to understand even better how such factors as core competences, organizational learning, strategic flexibility determine customer-focused performance to adapt quickly and effectively to the increasingly changing nature of both internal and external business environments. In this book, as shown in Figure 4.1, we not only try to bridge the current gap between strategic management and service management fields and explore the influences of key resource-based factors on customer focused performance but also decompose such effects by examining their impacts on different dimensions of customer-focused performance.

It should be noted that although some terms in our conceptual framework have been mentioned by other related studies, they are endowed with specific definitions in this book based on our comprehensive literature review work and results of in-depth senior managers' interviews

to increase their face validity and make the operationalization of these constructs possible, easy, clear and reasonable, which leads to reliable and valid measurements. Such definitions have been provided briefly in Chapter 1 and discussed in this chapter and the operationalization of each construct will be discussed in detail in Chapter 4.

Summary

In this chapter, we have developed a conceptual model and identified several key resource-based determinants and the key dimensions of customer-focused performance. Then several propositions are given on the interrelationships among the constructs concerned in this book. A list of the key propositions in this book is shown in Table 4.1. Furthermore, in order to reflect the turbulent nature of today's environment,

Table 4.1 List of key propositions

Proposition 1	Service-related factors such as 'Tangible', 'Reliability', 'Responsiveness', 'Assurance' and 'Empathy' have positive impacts on customer-perceived service quality
Proposition 2	'Functional value', 'Social value', 'Emotional value' and 'customer sacrifices' are the key dimensions of customer-perceived value
Proposition 3	Service-related factors such as 'Tangible', 'Reliability', 'Responsiveness', 'Assurance' and 'Empathy' have different influences on each dimensions of customer-perceived value.
Proposition 4	Each dimension of customer-perceived value has a significant impact on customer satisfaction
Proposition 5	Each dimension of customer vale has a significant impact on behavioural intentions of customers.
Proposition 6	Customer satisfaction has a positive impact on behavioral intentions of customers.
Proposition 7	Each constituent of core competences has a different impact on customer-focused performance.
Proposition 8	Each constituent of core competences has a positive impact on strategic flexibility.
Proposition 9	Strategic flexibility has a positive impact on customer-focused performance.
Proposition 10	Each dimension of organizational learning has a positive impact on core competences.
Proposition 11	Environmental turbulence moderates the relationship between strategic flexibility and customer-focused performance.
Proposition 12	Environmental turbulence moderates the relationship between core competences and customer-focused performance.

one specific proposition is given to deal with the moderating effects of different kinds of environmental turbulence on the relationship between each constituent of core competences and customer-focused performance, besides emphasizing the role of a particular capability of a firm, strategic flexibility.

Before reporting on the tests of these research propositions, the sample, data collection procedure, operationalization of the variables and data analysis methods will be discussed in Chapter 5.

5
A Structured Survey in Beijing, Tianjin and Shenzhen

Introduction

This chapter aims at describing the structured survey in three cities of China to collect and analyze empirical data from collaborative firms and their customers for testing the proposed research framework and relevant propositions of this book and presenting the basic results for survey responses. This chapter is organized around eight major topics as follows. The first section presents briefly the research design. The second section gives a detailed description of sample design and data collection in Tianjing, Beijing and Shenzhen. It is in this part that the rationale for such a selection is discussed. The third section reports the questionnaire design and revision based on the pilot study. Then in the fourth section, a comprehensive analysis of the operationalization of these constructs involved in the conceptual framework is conducted. The fifth section presents the basic results of our surveys such as the response rates and samples' profiles of the two specific surveys in this book. Then the methods of data analysis in this book are described in the sixth section. And the potential problems in this book are identified, checked and discussed in the seventh section. Finally, a chapter summary is presented in section eight.

Research design

Research design is the blueprint of collecting and analyzing data necessary to help identify and react to a problem or opportunity so that the cost between obtaining data and the expected value of the information derived is optimized by using economic procedures. Researchers have to consider at least four aspects in research design as follows: (a) decide the basic types of the research design (for example, exploratory, descriptive, causal research or their combinations); (b) choose the approach to collecting the data; (c) design the research instrument; and

(d) determine the appropriate sample size and the data analysis method (Churchill, 1995).

To explore the linkages between customer-focused performance and its resource-based determinants, a two-stage research design was selected in this book to combine quantitative and qualitative techniques and to capitalize on the strengths of each approach while countering their respective weaknesses (Todd, 1979). First, to clarify the key ideas, provide insights and identify the key resource-based determinants, an exploratory stage of qualitative field research was conducted in the form of field research interviewing to supply sufficient understanding and develop a set of propositions that are grounded in both existing theory and case study findings. This exploratory stage is important to uncover the major issues for the subsequent study, and reflect the absence of prior research concerning customer-focused performance and its key resource-based determinants. Secondly, a descriptive phase of research was undertaken in the form of two surveys to capture the complexity of such largely intangible subjects as core competences, strategic flexibility, organizational learning and customer-focused performance, evaluate relevant propositions and describe associations systematically.

Exploratory phase of field research

The field research method has been used in a number of related studies to collect data because it may enhance the external validity, the applicability, and the acceptability of the results from empirical studies (Cook and Campbell, 1979), especially at the early stage of theory development. Furthermore, it is also appropriate for the development of concepts, frameworks and theories (Bonoma, 1985; Hirschman, 1986; Eisenhardt, 1989). Depending on the various purposes of studies, interpretive and positivistic approaches are available in field research. For interpretive studies, they seek to investigate narrow topics in greater depth, relying primarily on field data for the development of concepts. In comparison, field research interviewing in positivistic studies can reflect a dialectic interaction between field observations and existing theory to 'reconstruct' theory (Burawoy, 1991), which is usually considered as the first stage leading to a quantitative phase (e.g. Kohli and Jaworski, 1990, followed by Jaworski and Kohli, 1993) or a catalyst for the development or refinement of a positivistic model or framework (e.g. Burgelman, 1983; Miles and Snow, 1978). Given the objectives of this book, the positivistic approach to field research was adopted rather than the interpretive approach and field research interviewing was conducted to uncover insights that might not emerge from literature.

A total of 19 senior managers in 11 firms in Shenzhen and Tianjin of China were interviewed successfully, in which 5 are state-owned firms, 2 are joint ventures and 4 are private firms. Most interviews were conducted in Chinese and lasted from one to two hours. A few interviews lasted for about 30 minutes only. Questions in these early interviews focus on the major issues concerning organizational learning, core competences, strategic flexibility, customer-focused performance and other possible resource-based determinants and the potential measurement items of these constructs, some of which could be derived from the process of literature review. Notes were taking during the interviews and additional questions were also prepared to elicit examples, illustrations and other insights so that we could probe deeper for greater understanding. Moreover, in order to ensure high quality interviews, attention was given to three aspects as follows: (a) seek the most suitable respondents who are very familiar with strategic and marketing affairs and information in organizations; (b) find the respondents from a diverse set of organizations, departments and positions in order to obtain broader ideas and insights (Zikmund, 1997); and (c) identify potential measurement items.

Therefore, by utilizing structured field research interviewing that is believed to be excellent device for generating questionnaire items for the subsequent survey (Babbie, 2001) preceded by a systematic review of the literature, the exploratory phase of reseach provides better understanding of the relevant theory development before rigorous research is undertaken. This step also enables us to explore the particular applications of western theory in Chinese organizations and to verify the measures from the west in a Chinese setting.

Descriptive phase of research

Research methodology literature indicates that in order to examine the issues involved in this book, a descriptive quantitative research design is necessary. So a descriptive phase of research was undertaken in the form of mail survey based on cross-sectional data in this book even though it could be argued that the cross-sectional approach cannot be used effectively as a basis for conclusions regarding causality. However, the advantages of this approach are obvious. First, extensive data could be collected from a large and diverse sample at a relatively low cost. For example, it allows the inclusion of a large number of firms including those that are succeeding and those that are failing; Secondly, the careful study of cross-sectional relationships before attempting to validate findings via more costly time-lagged or longitudinal studies is commonly accepted for establishing causal relationships (Kenny, 1979); Thirdly,

similar approach has been followed in a number of studies dealing with similar topics.

Furthermore, two mail surveys were conducted in this book. One survey is designed for the senior managers of each participative firm in China to measure their perceptions of overall customer-focused performance and its key resource-based determinants in turbulent environments by taking the key informant approach, which is needed to test the interactive relationships among different key resource-based determinants and their impacts on customer-focused performance. And the other is designed for customers of these participative firms to measure their attitudes and perceptions of customer-focused performance, which is necessary to test the interactive relationships among different dimensions of customer-focused performance and complement information about customer-focused performance collected from the senior manager survey.

Such a kind of mail survey approach to descriptive research allows the testing of theoretical relationships in this book. By answering a list of scale-typed questions, the managerial attitudes towards customer-focused performance and its key resource-based determinants and customers' perceptions of customer-focused performance could be translated into different scores for statistical testing. Furthermore, a mail survey approach has a wider coverage, generate effectively large amounts of data that could be subjected to statistical analysis (Snow and Thomas, 1994) and avoid the over-reliance on selected respondents as in an in-depth interview. Hence, it also reduces the selective bias and allows the generalization of the research findings. Furthermore, a mail survey approach is also less time-consuming than a qualitative research in data collection (Creswell, 1994). In addition, it is necessary to allow respondents maximum discretion on when to answer the questionnaire since discussing customer-focused performance is considered sensitive by most firms. It is therefore common for past research of similar nature to use a mail survey to collect the management opinions or customer perceptions.

Thus two separate questionnaires were developed and pretested, and mail surveys were conducted in this book after a pilot study in a manner that closely followed the administration and design recommendations of Churchill (1995) and Dillman (1978) to improve the content validity, response reliability, and response rates. These recommendations encompass such issues as questionnaire design, questionnaire revision based on the pilot study, and pre-notification and post-survey follow-up reminders, etc. Details of instrument development, questionnaire design and revisition, operationalization of constructs, sampling frame, sample

selection process, retrospective reporting and key informant approach, data collection procedures, methods of data analysis and potential problems in this book will be reported respectively in the following sections. Furthermore, in order to ensure these are clear, focused and unambiguous, the questionnaires were subjected to a regime of internal evaluation and external piloting before they were finalized and mailed to the potential respondents. In addition, it should noted that during the survey process, great efforts have been made to make sure the investigated customers match the chosen firms so as to link and test the relationships among different determinants and dimensions of customer-focused performance. However, in order to increase the response rate, the completed questionnaires by participative senior managers were collected in person by the researcher or two surveyors.

Sampling and data collection

In this book, in order to examine the relationships among each dimension of customer-focused performance and explore its key resource-based determinants in turbulent environments, the unit of analysis is designed at the firm level rather than project level or product level. Hence the firm and its customers are the unit of analysis in this book. In other words, two different surveys have been conducted in this book as mentioned before. One is the survey of the senior managers in chosen firms and the other is the survey of the customers of these participative firms.

The selection of the three cities

In this book, only firms located in Shenzhen, Tianjin and Beijing of China were investigated due to the consideration of costs, time and their representativeness. The sample for the customer survey in this book is the active customers of these investigated firms in China based on a random sampling technique. For the senior manager survey, firms in these three major cities in China were researched. There are several important reasons for such a selection.

First, they are major cities, in which high technology industries are heavily concentrated. Statistical evidence shows that high technology industries in China are mostly located in the coastland of eastern China. As shown in Table 5.1, the gross industrial output value at 1990 constant prices of high technology industries in eastern China accounts for 84.09 per cent of China in 2002, while the mid-region and western region only takes up 8.54 per cent and 7.38 per cent. Furthermore, three high technology industry compact districts (the Pearl River delta, Yangtse River delta and the Pohai Circle area) have come into being as the 'troika'

Table 5.1 The high technology industry development in the eastern, middle and western China, 2003

	Gross industrial output value, 1990 Constant prices (bn RMB)		*Export (bn RMB)*	
	Absolute Value	*Proportion (%)*	*Absolute value*	*Proportion (%)*
Eastern region	2430.73	86.4	884.23	97.2
Mid-region	204.93	7.3	10.61	1.2
Western region	177.19	6.3	14.98	1.6
Total	2812.85	100	909.83	100

Source: China High Technology Industry Statistical Yearbook, 2003, China Statistics Press.

of China's high technology industry development. The gross output value of high technology industries in the three areas accounts for 78.68 per cent of China and the high technology products export takes up 92.66 per cent of China.

Of the three regions, Guangdong Province, Beijing and Shanghai are the most fast developing areas of high-technology industries in China. The average growth rate of high technology industries in the three areas are 29.11 per cent, 28.37 per cent and 26.43 per cent respectively in the past seven years. The rapid development of the high technology industry in Guangdong province is mainly due to the 'bring in strategy' and is driven by taking up aggressively many transference of high-technology products manufacturing from the developed countries while Beijing and Shanghai mainly rely on their superior talent-intensive and technology-intensive resources to push the industrialization of their high technology and develop the high-technology industries by bringing in advanced technology from abroad with their zone advantage. Therefore, we chose companies in Beijing to be subjects of our investigation. However, because Guandong province is very large, we finally selected companies in one of the typical cities of Guandong province, Shenzhen, since Shenzhen one of four earliest cities since the reform of China in 1978. In addition, we selected another large city, Tianjin, rather than Shanghai, because we hoped to make some comparisons and improve the representativeness. Tianjin was also selected because it is one of the most important industrial bases in China, especially in North of China. Table 5.2 shows some statistical evidence of the main economic indicators of high technology companies in these three cities.

Secondly, the economic growth of these cities is very high and they contribute a significant proportion of the national wealth. Furthermore, two of them (Tianjin and Beijing) are municipalities directly under the control of the Central Government. In addition, Beijing is the capital;

Table 5.2 Main economic indicators of high-technology companies in development areas, 2004

Development area	*No. of companies (unit)*	*No. of employees (person)*	*Gross output value (RMB 10,000)*	*Total income (RMB 10,000)*	*Exports (US$ 10000)*
National total	38,565	4,484,387	226,389,345	27,466,3091	8,238,168
Beijing	13,890	557,213	18,738,118	36,867,835	535,898
Tianjin	2,705	161,101	5,986,766	6,332,746	176,697
Shenzhen	276	93,390	10,883,847	10,799,637	716,468

Source: China Statistical Year Book 2005, compiled by National Bureau of Statistics Of China.

Shenzhen is one of the typical cities that has kept developing at a greater rate than other cities in coastal areas of China, and Tianjin is one of the traditional commercial bases in China. Hence, these cities provide, to a large degree, the necessary economic momentum for the whole country. As shown in Figure 5.1, the locations of Beijing and Tianjin are circled

Figure 5.1 Map of China and the location of the three cities

in red line while Guangdong Province is also encircled since Shezhen belongs to the Guangdong province of China.

Thirdly, given the time scale and limited financial resources, it would have been impossible to conduct a large-scale survey involving all firms in China. By collecting data from firms located in these three typical cities in China, it is expected the representativeness to be improved compared focusing on a single city only.

The sample selection process

Overall, sampling techniques include probability and non-probability sampling (Babbie, 2001). In probability sampling, each element of the population has a known probability of being selected. Among them, random sampling is the best-known probability sampling (Sekaran, 1992; Zikmund, 1997). On the other hand, in non-probability sampling, the probability of any element being chosen is unknown and there are no appropriate statistical techniques for measuring a random sampling error from a non-probability sampling. Therefore, in order to reach valid conclusions about populations from samples, random sampling is the best way to reduce bias and gain generalizability (Sekaran, 1992). However, the random sampling process is cumbersome and expensive.

Due to limitations of time and money, the availability sampling method was adopted in this book, which is an alternative to random sampling (Kepple *et al*., 1992). Using this method, data are collected from firms who are willing to participate in the research. Therefore, the firm had the right to decide whether to participate in the research. However, in order to improve the representativeness, the stratified sampling technique was used to determine which firms should be contacted. First, we decided to classify our sample frame into three groups according to the physical location of firms. Thus we have three groups, i.e. Tianjin, Beijing and Shenzhen. Then a random sampling process was used to choose 200 firms from each group and information as firm name, corporate representative, size, detailed location, postal address, main business and telephone and fax number of each chosen firm was recorded. So, in total, there are 600 firms located in these three cities of China with 200 firms in each city. Next, a call was made to introduce the nature of this book, explain the possible benefits a firm may get from the current research (we promised to give a consulting report to participating firms at the end of this book and provide training service for managers, if necessary) and, most importantly, we asked the senior manager of each chosen firm whether he/she was willing to participate in the research. In order to overcome the generally low response rate in the survey of China's firms and gain access to firms, the business

schools of several universities in Tianjin, Beijing and Shenzhen of China were invited to help contact the chosen firms since many managers, even senior managers, of these firms are graduates of such business schools. In addition, a famous consulting company in Tianjin with good working relationships with many firms in China helped gain access to the selected firms. Finally, about 196 firms from a total of 600 firms chosen based on the *Business Directory of China* showed their willingness to participate in this book. The detailed data collection procedures and the representativeness of the sample would be discussed later. Furthermore, based on the above description, it is clear that the cross-sectional data in our sample are collected from firms in different industries . The reason in chosing across-sectional approach is that we can collect extensive data from a large and diverse sample at a relatively low cost. Although the effectiveness of the conclusions regarding causality of this approach may be challenged, it has been adopted due to the exploratory nature of this book.

As mentioned above, for the customer survey, the sample frame consists of all active customers of these participative firms that agreed to participate. We asked each of the 196 participative firms to choose randomly five customers from its database of active customers.[1] As a result, our sample size of customer survey is a total of 980 customers.

Retrospective reporting and key informant approach

Before we proceed to discuss the data collection of this book, it is necessary to justify the use of retrospective reporting and the key informant approach in this book.

Retrospective reporting

In the process of data collection in the senior manager survey/firm survey in this book, the retrospective report method was adopted because it has been commonly used in studies in the field of strategic management, organizational research, and marketing (e.g. Huber and Power, 1985; Bourgeois and Eisenhart, 1988; Sinkula *et al.*, 1997; Li and Calantone, 1998). However, some researchers argue that there are potential problems associated with the use of retrospective data in spite of its popularity (Huber and Power, 1985; Golden, 1992). Recently, however, the study of Miller *et al.* (1997) shows that retrospective reporting is a viable research methodology as long as the measures used to generate the reports are adequately reliable and valid.

Therefore, in this book, as most of similar studies, the retrospective report method was adopted while several measures suggested by Huber and Power (1985) and Miller *et al.* (1997) have been taken into account

as well to improve the reliability and validity of the retrospective report. First, free reporting rather than forced reporting was preferred in order to raise the accuracy of responses. In other words, the respondents were encouraged to ignore questions that they were not familiar with rather than answer all of questions. Secondly the questionnaire was designed to ask about the simple facts rather than past opinions or beliefs. Furthermore, before the final large-scale survey, measures had been taken to improve the wording of questions during the process of questionnaire development and pilot study in order to reduce any ambiguity. Thirdly, to motivate the respondents to provide accurate information and minimize social desirability, a detailed explanation of the nature and significance of the project was presented. At the same time, confidentiality was also promised and guaranteed. Respondents were repeatedly reminded that there were no right or wrong answers to the questions. Fourthly, to improve the reliability and validity of the data from participative firms by using a structured questionnaire, the covering letter with provided respondents will the instruction information and asked them to answer each question in terms of the actual situation rather the ideal level in terms of competition or the past performance of their own firms, which has been used extensively in similar studies. This control is necessary since researchers have noted that respondents in China are used to answering questions in terms of the ideal level rather than the actual situations (Adler *et al.*, 1989; Rosenzweig, 1994), and some studies have found that executives are more likely to report their intended strategy rather than the actual strategy when they are directly asked about their business unit (e.g. Hambrick, 1980).

The key informant approach and perceptual measures

In order to collect enough data to develop and test our models, the key informant approach was adopted in this book (Phillips, 1981; John and Reve, 1982; Ritter and Gemunden, 2003). This approach seeks to obtain organizational information through key persons within a firm who are knowledgeable about the issues being researched (Seidler, 1974; Van Bruggen *et al.*, 2002). The exclusive reliance of this book on the key informant approach and self-report subjective measure is dictated by both practical and theoretical considerations.

From a practical point of view, the choice of perceptual data with respect to organizational learning, core competences, strategic flexibility, environmental turbulence and customer-focused performance is necessitated primarily due to the non-availability of appropriate balance sheet data to capture these complex phenomena. The inadequacy of balance sheet data is even more obvious in the case of measures for

such key resource-based determinants as competences, strategic flexibility and organizational learning, since it appears impossible to capture the essence of these valuable and it is difficult to imitate idiosyncratic qualities from crude financial measures. Furthermore, on the one hand, objective customer-focused performance is unavailable but on the other hand, such performance-related measures are always considered as confidential by firms and they are reluctant to divulge any related confidential information about their customers. As a result, information provided by a firm directly such as financial figures is often biased and subject to managerial manipulations for a variety of reasons (Dess and Robinson, 1984; Powell and Dent-Micallef, 1997). For example, as some studies have shown, the diversity of the owners' compensation policies may make financial data difficult to interpret (Deane *et al.*, 1991). However, as suggested by McDougall *et al.* (1994), more complete performance information can be obtained using subjective measures. In addition, as with most related studies, the perceptual measures of the environment turbulence are preferred in this book, which are most relevant for studies that focus on a firm's choice of business/market strategies or strategic issues (Boyd *et al.*, 1993) since there are no industry-wide statistics that could serve this purpose (Duncan, 1972; Bourgeois, 1980). In China, this is particularly true considering the country's incomplete statistics systems and low reliability of aggregated statistical data (Boisot and Child, 1988). In fact, even if data on the industry were readily available, companies still differ in their interpretation of the data. These differences may result from asymmetry of access to environmental data, idiosyncratic organizational qualities, different market position and variations in the cognitive abilities and styles of senior managers (Zahra, 1993). Furthermore, the turbulent environments also make the boundary of industries vague, which inevitably makes it much more difficult to obtain data on the industry and reduces the accuracy of such data.

In addition to these practical considerations, there also exists a strong theoretical rationale supporting the choice of subjective data. As the study of Lefebvre *et al.* (1997) shows, CEOs' diverging views of the environment may override factual characteristics of the environment and it is the managers' perceptions that shape behaviors of a firm and constitute much more critical factors to strategy planning and firm performance than some mentally distant objective indicators (Snow, 1976; Hambrick and Snow, 1977; Chattopadhyay *et al.*, 1999). In other words, perceived measures are relevant to the formulation of strategy (Downey and Slocum, 1975) and are expected to have the strongest association with strategic variables because managers' views of their

firm's major industry and environment shape their strategic choices (Bourgeois, 1980; Keats and Hitt, 1988). Furthermore, this argument is also supported by the perspective of the social constructionist, who believe that reality as such is socially constructed and hence there is no such thing as an objective environment (Weick, 1979), but rather it is those parts of the information flow that a firm enacts through attentions and beliefs.

In addition, if comparing this approach with the alternative of collecting objective data (to the extent that they are available) and treating them as belonging to a single coherent population, it is almost impossible to compare two firms operating in two distinct industries on the same variable. This would certainly necessitate some kind of normalization of variables in question, in order to take into account, for example, the respective industry reference point or the industry average for this comparison to be meaningful. But, as many argue, industry itself is a rather vague concept, the boundaries of which are usually ill-defined, especially in today's turbulent environments where the convergence of industries is not uncommon. Hence, the validity of such a comparison may also be problematic. Even in the study of a single industry, what one firm considers as its immediate domain of interactions with its competitors does not necessarily coincide with that of the other. The relativistic comparability of our perceptual measures, therefore, may not be inferior to using objective data and absolute comparisons. So the subjective measures are more suitable given the cross-sectional nature of our sample. Besides, it has been indicated that managerial self-reporting has a strong correlation with internally objective performance measures (Dess and Robinson, 1984; Pearce *et al*., 1987) and externally secondary published performance data (Venkatraman and Ramanujam, 1986). At the same time, the latter study shows that data from key informants exhibits less method variance than archival data. Finally, many previous studies in strategic management and marketing fields have provided substantial evidence supporting the reliability and validity of self-reported measures by key informants of firms (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1986, 1987; Miller, 1988; Robinson and Pearce, 1988; Brush and VanderWerf, 1992; Chandler, and Hanks, 1993; Zahra, 1996; Spanos and Lioukas, 2001).

In sum, although other scholars, admittedly, object to this line of reasoning (e.g. Aldrich, 1979, Dess and Beard, 1984; Keats and Hitt, 1988; Lawless and Finch, 1989), we could argue that managerial perceptions shape to a very important extent the strategic behaviors and competences of a firm, which goes along with Chattopadhyay *et al*. (1999). In this sense, the use of self-reported measures might be justified, albeit not without potential problems.

Multiple informants versus single informant

Informant bias and random error may taint informant reports, so it is advocated that multiple informants rather than single informant should be used so that researchers can cross-check the information provided by these informants (Phillips, 1981; Golden, 1992).

In this book, however, we have decided to use a single informant approach given the time and financial constraints, and the methodological soundness of the single informant approach demonstrated in the literature although the ideal may be the use of multiple informants. Beside the fact that most of related studies take the single informant approach (e.g. Dess and Robinson, 1984; Robinson and Pearce, 1988; Brush and VanderWerf, 1992; Chandler, and Hanks, 1993), the rest major reasons are as follows. First, since most firms investigated in this book are not as large as transnational firms, it is reasonable to use a single informant as the source of needed information, which has been suggested by previous studies (e.g. Hambrick, 1981; Anderson and Narus, 1984). The logic is very simple since a single senior manager is typically considered the most knowledgeable person regarding a firm's strategic behaviors. Furthermore, as shown in the study of Phillips (1981), the underlying assumption for the key informant approach is that by virtue of his/her position in a firm's hierarchy, he/she is able to give opinions and perceptions that are valid reflections of the perceptions and opinions of the other key decision-makers in the firm. Therefore, it is methodologically sound to use the single key informant approach when most of the informants are senior managers, especially CEOs, Presidents or General Managers of the firms. Our experiences in the pilot study and in-depth interviews suggest that the multiple informants approach is much more time-consuming and costly in China and the single informant approach is much more efficient in the current study. Therefore, given the limited time and financial support, the adoption of the single informant approach would allow us to investigate a larger number of firms and obtain more reasonable results.

Data collection procedures

As emphasized, in this book, we have to collect data from two specific sources, i.e. the participative firms located in the three big cities of China and their customers.

Data collection from participative firms

International researchers have noted the low response rate and high costs of data collection in China (e.g. Calantone *et al.*, 1996). Besides the special cultural factors in China, this low response rate may also be

attributed to the poor research design of data collection and perhaps lack of support from related social institutions, which may make it difficult to conduct the fieldwork, and the data, in most cases, are less reliable and poor in quality. Therefore, many researchers opt to outsource data collection to marketing research firms in China. This is why the data collection in China has been generally described to be costly and with poor response (Calantone *et al.*, 1996)

In this book, several measures have been taken to improve the response rate and data accuracy (Dillman, 1978; Churchill, 1995). For example, such measures as the promise of delivering executive summary for managers, providing consulting and training services for managers, if necessary, telling respondents that there is no right and wrong answer, and looking for support and help from several business schools and one consulting company that have been mentioned above, were adopted.

Furthermore, the combination of mail survey technique and the 'administrative-on-site' method has been used to benefit from the advantages of both techniques and to avoid any disadvantages from only using one method. This combination has been employed in the data collection process to increase response rate and data accuracy. On the one hand, a mail survey is more appropriate in terms of the length of the questionnaire and sensitive nature of the information required. It is difficult to make appointments with top management, such as general managers, of all participative firms to have an in-depth interview; and they may also be reluctant to disclose business-sensitive information (Churchill, 1995). Hence, the questionnaire was mailed to the General Manager, President or CEO of each of the selected firms in the three cities in China in this book. This makes it possible for the respondents to fill in the questionnaire in their own time. However, personal interview with questionnaire rather than a mail survey was strongly recommended by executives in the field interview, by a marketing professor and two strategy researchers, in order to obtain more comprehensive, accurate and reliable data as well as a higher response rate. Moreover, previous research has also indicated that administering surveys on site can improve the response rate (Pearce, 1983; Snow and Thomas, 1994). Therefore, in order to achieve these advantages of an 'administrative-on-site' method, we decided to collect questionnaires in person. Therefore, two people trained in administering surveyor were recruited to collect the completed questionnaire from the senior managers, instead of enclosing a stamped-addressed envelope for returning the completed questionnaire (Dillman, 1978).

Given the time and financial constraints, two PhD. students from a reputable university in China were employed to help the researcher

during the data collection process. They have been actively involved in research projects for their business school and accumulated extensive experience in personal interviewing and questionnaire surveys. Before the start of the formal survey of participative firms, the two students were trained in all aspects of the questionnaire and data-collection procedures. Appointments with the respondents were usually made five days before the first visit and 20 days later after the questionnaires were mailed. On the appointed day, the researcher or one of the two-trained surveyors visited the prospective respondent. This was to remind the respondent to complete the questionnaire if they have not already done so on the first visit. Otherwise, further contact would be made by phone to make new appointments if the prospective respondents failed to complete the questionnaires on the first visit. In such cases, emphasis would be given to ensure that the potential respondents were knowledgeable enough to be qualified and that the informants were committed to the cooperation in the research. Then our surveyors would visit them again after 10 days after making an appointment.

Such a procedure reduces the number of non-returns, which is a serious shortfall in a mail survey. In addition, data is made available on time. Based on our experiences in this book, more than 80 per cent of the respondents had a strong tendency to look through the questionnaires and think about the questions after receiving them by mail. However, among them, approximately half would choose to answer the questionnaires in front of our surveyors, on average, during the first visit or the second visit while only about 40 per cent of respondents chose to complete our questionnaires after the first visit and before the second visit. Since they have looked through the questionnaires and thought about related questions in advance they were generally able to complete the questionnaires with skill and ease within about 20 minutes in front of our surveyors. For quality-control purposes, the surveyors were asked to request a business card or telephone number of each respondent. Then 30 per cent of respondents were selected for the verification purpose by using a random-sampling technique and each was contacted to confirm that the interview had taken place and that they had completed the questionnaires.

Furthermore, in order to increase the response rate, obtain accurate information and minimize social desirability, we enclosed a covering letter with each questionnaire to explain the purpose of the study. Detailed explanations of the significance and the nature of this book were presented at the beginning. A statement was also made and emphasized in writing that confidentiality of all information would be absolutely guaranteed and it was promised that a copy of the findings and the executive summary would be sent to each respondent who

completed and returned the questionnaire as a sign of appreciation. The respondents were encouraged to ignore questions that he/she could not answer and to fill out the questionnaire based on simple facts rather on past opinions or beliefs. This, as mentioned above, was to improve the accuracy of responses, and reduce the complexity, and any ambiguity. Furthermore, it was emphasized again in the covering letter that it was very significant for our research to make sure that the informant was the person most acknowledgeable about customer-focused performance and its key resource-based determinants of a firm.

In addition, though the President, General Manager, or CEO is generally viewed as the most qualified informant who can provide valid responses to questions pertaining to organization-level constructs, this book chose any member of the top-management team. The top management team is defined as those who have actively participated in the firm's strategic decision-making (Amason, 1996). The pilot study and in-depth manager interviews in this book suggest that other members in the top management team such as the Strategic Development Managers, Marketing Managers, or Advanced Technology and Manufacturing Manager also play an active and important role in strategy-related issues of a firm. It is, therefore, believed that members from a firm's top management team are knowledgeable about the firm's resources and competences of strategic significance and customer-focused performance, which has been supported by many previous studies. Therefore, in the covering letter, it was noted that if a General Manager/CEO/President was too busy to fill out the questionnaire, he/she could pass the questionnaire to other members of the top management team in the firm and invite them to participate in the research.

It should be noted that a major weakness of such a questionnaire survey is non-response bias, which may lead to a poor sample and then affect both the reliability of the research and the types of data analysis (Davis and Cosenza, 1993; Neuman, 1994). In this book, resources limitations preclude follow-up actions to non-respondents. However, in order to reduce non-response bias, the proper design of data collection procedures suggested by previous studies (e.g. Armstrong and Overton, 1977; Churchill, 1995), such as avoiding ambiguous questions, providing training to surveyors, and using preliminary notification and follow-up, were adopted. Furthermore, some alternative method to test the non-response bias was conducted in this book too, which will be discussed in the next section.

Data collection from the customers

It is widely believed that using multiple informants and aggregating their responses into a single composite score helps minimize systematic

error and measurement error. Increasing the number of informants is able to reduce random error through the averaging process and thus larger samples will increase reliability. The optimum number of informants depends on the cost of obtaining additional independent judgments and that of error in the final group judgment (Ferrell, 1985). In a forecasting application, Ashton and Ashton (1985) find that combing between two and five forecasts is effective, whereas Libby and Blashfield (1978) report that most of the gain from aggregating multiple judges can be obtained with three judges (Van Bruggen *et al*. 2002). Therefore, we expected to receive at least three questionnaires from customers of each prospective firm.

We asked each of the 196 respondent firms that agreed to participate in this book to choose randomly five customers from the database of its active customers. Along with the questionnaire of firm survey mailed to General Manager, President, or CEO of each participative firm, five copies of the questionnaires for the purpose of customer survey were mailed to each firm as well and each firm was asked to pass them to five different customers chosen randomly. For the five copies of questionnaires, each was sealed separately and a stamped-addressed envelope, for returning the completed questionnaire, was enclosed. The chosen customers were required to mail back the completed questionnaires to our surveyors directly within one month to avoid any bias and improve the accuracy of the data collected. A total of 980 questionnaires were mailed. Furthermore, each firm was required to make a follow-up call to these chosen customers to remind them to deliver the completed questionnaires to researchers on time.

Questionnaire design and revision

Given the nature of this book as an exploratory research, a large part of measurement instrument has to be developed from scratch based on extensive literature review, senior manager interview, focus group and pilot study, rather than be borrowed directly from the past literature, especially for the constituents of core competences and strategic flexibility.

Instrument development

In this book, the basic steps employed in developing the measurement instrument were closely paralleled procedures recommended in Churchill's paradigm as mentioned above.[2] As suggested by Churchill (1979), the domain of constructs should be first specified. We consulted a thorough review of the literature to conceptualize constructs and

specify domains for the current study. The definition of customer-focused performance and its key determinants were clearly specified and defined as in Chapter 4.

Multi-item approach

Multi-item measures are strongly recommended by Churchill (1979) and it is claimed that the use of multi-item measures is one of the three necessary conditions[3] for a well-developed survey instrument. Generally, the use of multi-item approach could diminish the deficiencies found in single-item measures in the following ways: (a) single-item measures usually have considerable uniqueness or specificity, which may result in lower correlation with the attribute being measured and higher correlation with the other attributes. Combining the items can average out the specificity of items; (b) single-item tends to classify people into a relatively small number of groups. When combining the items, a finer distinction among people can be made; and (c) individual items have considerable measurement error. As the number of items in a combination increases, reliability tends to increase and measurement error decreases. As a result, a multi-item approach was adopted in this book, and each of the constructs involved was measured by multiple items to capture the domain of the constructs adequately and accurately (Nunnally, 1978; Churchill, 1979), reduce measurement error and increase the reliability and validity of the measures.

However, the basic principle for the scale development is to keep the measure short and precise, which is an effective means of reducing non-response biases (Schmitt and Stults, 1985), but measures with too few items may lack reliability and validity (Churchill, 1979; Peter, 1979, 1981). Previous studies have indicated that a scale of three items is sufficiently reliable (Cook *et al.*, 1981; Carmines and Zeller, 1979). Therefore, in this book, the number of measures for each construct is equal to or above 3.

Generation of sample of items

Churchill (1979) suggests a series of techniques in generating measuring items, including literature searches, experience surveys, critical incident, focus groups and in-depth interviews. The use of these methods can generate measuring items with a relatively high degree of content validity (Moore and Benbasat, 1991). In this book, items were generated using the following three methods: (a) literature searches: most validated measuring items were borrowed and obtained through a thorough review of past literatures; (b) focus group: the items were generated

and developed based on extant conceptual studies through the discussion of the research topics with eight academic staff in City University of Hong Kong and Nankai University, China; and (c) in-depth interview: the items were developed and obtained from personal interviews with 19 senior managers of participative firms, complemented by interviews of six research students in on MBA program in Nankai University, China. In fact, on the basis of constitutive definitions of the constructs and relevant literature, some measures, which previous research did not provide, were created and adapted to the Chinese context from field research interviewing. At the same time, in order to enhance the content validity of each scale, one senior researcher, one marketing professor and one strategy professor were asked to evaluate the instrument for problems with the content and wording of each individual item prior to the administration. If one judge objected to an item, the item was either reworded or deleted if it was not of vital importance. Overall, over 60 per cent are the newly developed measurement items for the senior manager survey through the last two methods, which, of course, are based on extant relevant studies while the rest are borrowed from existing literature. And about 10 per cent are the newly created measuring items for the customer survey while the rest are borrowed from existing literature with small modifications to the wording to suit the Chinese context.

Questionnaire design

The selected sample items generated as mentioned above were then used to develop two separate, structured-undisguised questionnaires (one for the senior manager survey and the other for the customer survey) in which questions and responses we standardized. All questions were presented exactly with the same wording and the same order to all respondents. Alternatives to questions are fixed, mainly in a Likert format on a seven-point semantic differential scale (the seven-point semantic differential is used for most of the items, except those questions about the profiles of respondents or noted otherwise). It ensures that respondents are replying to the same questions and that the results are comparable. And it also assists the respondents in answering questions by providing them with fixed choices.

Since the subjects are native Chinese, the questionnaire is written in Chinese. The draft in English was first presented to faculties and colleagues for validation and comments. Evaluation was centred on item clarity, presenting sequence, and scale appropriateness. Then one professor in marketing with substantial research experiences on the subject in China, was requested to review and translate the original

English questionnaires into Chinese. Next, the Chinese versions of questionnaires were reviewed and revised by one senior researcher, who was competent in both languages and business experiences in China. Finally, the new Chinese versions of questionnaires were back translated into English, which allows the validity of the cross-cultural setting to be enhanced. In additions, the translations were also compared to detect any misunderstandings created as a result of translation.

In order to improve the clarity and relevance of the two separate questionnaires, they were distributed for pre-testing to 15 senior managers of 5 firms in Tianjin, China and 25 key customers of the chosen firms (5 customers for each firm) respectively, before the formal pilot study. Several questions about instructional clarity, item clarity, relevance and the time needed to complete the questionnaire were dealt with in an attempt to establish the reliability of the measures effectively in pre-testing. Furthermore, it is believed that people are more willing to respond to a survey if the result serves their self-interest (Dillman, 1978). So the questionnaires we phrased with an introductory message explaining that results of this book will provide effective measures of a firm's customer-focused performance and its resource-based determinants such as organizational learning, constituents of core competences, strategic flexibility, which in turn benefits the respondents' firms.

Questionnaire revision based on the pilot study

In this book, as recommended in Churchill's (1979) paradigm, a two-step data collection procedure was employed. Before the full-scale survey intended for the final statistical analysis, a pilot study was first conducted with senior managers of participative firms or their customers as respondents respectively, which allows the researcher to field-test the questionnaire, fine tune the measuring instrument, make necessary modifications and refine the questionnaires before a full-scale study was undertaken.

In the pilot study, the self-administrated questionnaires were distributed to 80 firms in Shenzhen, China and 100 customers of these participative firms respectively. Then item-to-total score correlation and the effects of deleting items on Cronbach's alpha were used together to determine candidate items for further studies. As suggested by Nunnally (1978) and Li and Calantone (1998), items with lower correlations that did not represent an additional domain of interest were deleted, details of which will be reported in the next section. In addition, Nunnally (1978) argued that Cronbach's alpha could provide a good estimate of reliability in most situations and a modest level of reliability is acceptable in the early stage of research. Hair *et al*. (1998) further suggested

that Cronbach's alpha greater than 0.70 demonstrated a high degree of construct reliability. As listed in Table 5.3, almost all these constructs are reliable with Cronbach's alpha larger than 0.70 except 'market turbulence' (0.6678) and 'open-mindedness' (0.6851). However, relevant studies have shown that these two scales are reliable and valid. At the same time, in early stages of basic research, it has been suggested that reliabilities of 0.50 and 0.6 suffice (Churchill, 1979; Nunnally, 1978).

The final questionnaire, after revision as a result of the senior manager survey, consists of 6 sections. The first section seeks information on

Table 5.3 Constructs and Cronbach's alpha based on the pilot study

Manager survey					
Constructs	*No. of items*	*Cronbach's alpha*	*Constructs*	*No. of items*	*Cronbach's alpha*
Organizational learning	12		Technological turbulence	3	0.7482
Commitment to learning	4	0.7283			
Shared vision	4	0.7566	Marketing turbulence	3	0.6678
Open-mindedness	4	0.6851			
Core competences	27		Customer-perceived value	4	0.7874
Marketing competences	8	0.8527			
Technological competences	8	0.8840	Customer satisfaction	3	0.7743
Integrative competences	9	0.8843	Customer-perceived service quality	3	0.8034
Strategic flexibility	9	0.8882	Behavior intentions	3	0.8633
Customer survey					
Customer-perceived service quality	22		Customer-perceived value	18	
Tangibles	4	0.8058	Functional value	4	0.9400
Reliability	5	0.9158	Social value	3	0.9609
Responsiveness	4	0.9412	Emotional value	5	0.9642
Assurance	4	0.8866	Perceived sacrifices	6	0.9201
Empathy	5	0.9009			
Customer satisfaction	3	0.9279	Behavior intentions	3	0.8356

organizational learning and 12 items are retained. The second one seeks responses to 27 questions on core competences. The third section addresses strategic flexibility with 9 questions. The fourth considers environmental turbulence and 6 items are retained. The fifth aims at collecting information on perceived performance with 10 questions. In the last section, the respondents are asked to provide the profile of their own and their firms. For the customer survey, the final questionnaire after revision can divided into five major sections. The first section is to solicit the respondents' perceived service quality with 22 questions. The second section is to collect respondents' perceptions of customer-perceived value and 18 items are retained. The third and the fourth section collect information on customer satisfaction and behavioral intentions. In the fifth section, data about the profile of respondents are collected.

Operationalization of the constructs

This section presents the measures of latent variables in the conceptual model shown in Figure 4.1. Consistent with Venkatraman (1989), in this book, operationalization and measurement of the variables were achieved in the following two ways: (a) for those variables that have been previously employed in research settings, the measures were adopted as long as they satisfied acceptable measurement quality with some small modifications to the wording to make them more applicable to the Chinese context, if necessary; and (b) for those variables that are unique to the conceptual framework developed in this book, operational measures were created and assessed for content validity through interviews and discussions with the senior managers in Chinese firms (for the manager survey) and other specialized experts, as mentioned above.

Measurements in the senior manager survey

As mentioned above, overall, over 60 per cent of the measurement items were newly developed for the senior manager survey, and most of these newly developed items were borrowed from related conceptual studies and supported by our in-depth senior manager interviews.

Measurement of organizational learning

Measuring organizational learning is really a big challenge for both researchers and managers and no well-accepted scale has so far been identified among the limited empirical studies although its significance has been widely recognized (Huber, 1991; Nevis *et al.*, 1995; Boydell and Leary, 1996; Chaston *et al.*, 1999; Goh and Richards, 1997; Hult

and Ferrell, 1997; Sinkula *et al.*, 1997; Baker and Sinkula, 1999). As mentioned in Chapter 4, the scales suggested by Huber (1991) and Nevis *et al.* (1995), based on knowledge management perspective, are too broad and make it even much more difficult to distinguish between the two different but related concepts, i.e. organizational learning and knowledge management. Furthermore, there is much overlap between the dimensions of organizational learning identified by the two authors and the constituents of core competences defined in this book in some sense. For example, capabilities of acquisition of information/knowledge of customers and major competitors are the indicators of marketing competences in our study. Furthermore, information distribution and knowledge sharing also constitute a major part of integration competences to some degree. Similarly, the measurement used by Boydell and Leary (1996) and Chaston *et al.* (1999), which includes three dimensions such as implementing, improving and integrating, is not applicable either. Comparatively speaking, the measurements suggested by Sinkula *et al.* (1997), Baker and Sinkula (1999) are much more suitable for this book, which has been confirmed by the in-depth senior manager interviews and the pilot study that have been conducted. Originally, 16 measurement items were adapted from their measurements of previous studies based on our senior manager interviews and focus group discussions; and some modifications have been made in wordings before the pilot study. Then based on the pilot study data, item-to-total score correlation and the effects of deleting items on Cronbach's alpha were examined. Finally, 12 items were retained and the Cronbach's alpha of each dimension of organizational learning (commitment to learning, shared vision and open-mindedness) are 0.7282, 0.7566 and 0.6851 respectively. Detailed measurement items retained are reported in Table 5.4.

Measurement of core competences

Although core competences have become the focus of most successful firms, related empirical studies are rather limited and most of them have focused on the case-based and conceptual work. The lack of an accepted way of operationalizing this construct has hampered the studies of core competences. On the one hand, it is very difficult to generalize the existing measurements of core competences in extant literature since some of them just try to measure core competences applicable to a specific industry or even single firm. On the other hand, the measurement of other related studies seems either too simple to measure such a complex concept or focus on such aspects as the sustainability, specialization, sophistication, or imitability of core competences.

Table 5.4 Measures for organizational learning

Construct	*Dimensions*	*Items*
Organizational learning	Commitment to learning	• We, managers, basically agree that our organization's ability to learn is the key to our competitive advantage • The basic values of our firm include learning as the key to improvement • The sense around here is that employee learning is an investment, not an expense • Learning in our firm is seen as a key commodity necessary to guarantee organizational survival • There is commonality of purpose in our firm
	Shared vision	• There is total agreement on our firm's vision across all levels, functions and divisions • All employees are committed to the goals of our firm • Employees view themselves as partners in charting the direction of our firm
	Open-mindedness	• We are not afraid to reflect critically on the shared assumptions we have made about our customers • We realize that the usual way we perceive the market-space must be continually questioned. • We often collectively question the way we interpret customer information • We are encouraged to create innovative ideas and learn new knowledge

For example, on the one side, in the famous study of Henderson and Cockburn (1994), the data set chosen is based on the R&D inputs and outputs only and variables such as the stock of patents obtained and publications in the open scientific literature are used to measure competences of a firm. In the study of De Carolis (2003), total advertising expenditures divided by total sales for a given year are used to measure marketing competence based on the fact that others (e.g. Bettis, 1981; Chatterjee & Wernerfelt, 1991) have utilized levels of spending intensity as proxies of marketing skills. On the other side, Duysters and Hagedoorn (2000) tried to operationalize core competences in terms of specialization and sophistication. Therefore, the existing literature on core competences has not reached maturity as concluded by Miller and Shamsie (1996) and does not provide much help in developing measures for technological competences, marketing competences and integrative

competences defined in this book. As a result, original scales have to be engineered based on theoretical contributions from the resource-based scholars and extensive discussions with academics and senior managers during the in-depth interviews and pre-testing phase of the questionnaire development. In order to develop a new reliable and valid scale of core competences, the series of techniques in generating measuring items suggested by Churchill (1979) have been adopted as mention above.

Based on the intensive literature review (Barney, 1986, 1991; Prahalad and Hamel, 1990; Grant, 1991; Leonard-Barton, 1992; Bogner and Thomas, 1994; Hamel and Heene, 1994; Lei *et al.*, 1996, etc.) and in-depth manager interviews, totally 25 items were identified and retained after the pilot study to measure core competences. Among them, 8 items are for technological competences (Dosi, 1984, 1988; Buzzell and Gale, 1987; Miyazaki, 1994; Lapierre, 2000; Tyler, 2001; Danneels, 2002; etc.), 9 items for integrative competences (Gupta *et al.*, 1986; Souder, 1988; Moenaert and Scouder, 1990; Iansiti and Clark, 1994; Griffin and Hauser 1996; Han *et al.*, 1998, etc.) and 8 items for marketing competences (Narver and Slater 1990; Sanchez and Elola, 1991; Day, 1994; Griffin and Hauser, 1996; Li and Calantone, 1998; Douglas, 2000; Li and Cavusgil, 2000, etc.), which are presented in Table 5.5. For example, as suggested by Danneels (2002), we have developed specific items to reflect the level of the know-how or expertise of a firm in measuring technological competences. At the same time, as Henderson and Cockburn (1994) have emphasized, one item has been created to measure the R&D capability of a firm. Besides, coinciding with Spanos and Lioukas (2001), we have also developed items to reflect the technical experiences of a firm. Similarly, we have developed specific items to reflect the capability of a firm in managing knowledge of customer needs and processes, distributions and communication channels (Markides and Williamson, 1994; Spanos and Lioukas, 2001; Danneels, 2002). Moreover, following the work of Li and Calantone (1998) and Li and Cavusgil (2000), some items have been developed to reflect the competitor knowledge process when we try to operationalize marketing competences. Besides, as suggested by Day (1994) and Spanos and Lioukas (2001), we have also developed and retained one item to measure the capability of a firm in managing customer relationship. In a similar way, we have developed items for the measurement of integrative competences in terms of cross-functional communication and information sharing, combination of marketing competences and technological competences, coordination and alignment in strategy, and the possible results of integrative competences in markets.

Table 5.5 Measures for core competences

Construct	*Dimensions*	*Items*
Core competences	Technological competences	• We always make relatively heavy investment in R&D activities • We have accumulated stronger and various technological skills • On-job training is provided frequently in our firm to improve the technical skills of employees • We are qualified to attract and motivate talented experts • We have the ability to accurately predict future technological trends • We are skillful in apply new technology to problem-solving • We are one of the leaders in our primary industry to establish and upgrade technology standards • We always lead technology innovation of the principal industry in which we operate
	Integrative competences	• Our capability in communication among functions in the process of product and service design is very strong • We have strong capability to share and leverage marketing and technology knowledge among functions/business units • We have strong capability to integrate external resources with the in-house resources of our firm • We have strong capability to share and leverage information about competing strategies of major competitors • We have strong capability to coordinate and integrate activities of functions/business units in our corporate strategy • We are good at embedding of the newly achieved technological findings in new products and services • We have strong skills in integrating customers' innovative ideas into final products and services • We have strong capability to deliver superior value to customers by integrating different processes • We have strong capability to coordinate effectively in the implementation process of corporate strategy

Table 5.5 (Continued)

Construct	*Dimensions*	*Items*
	Marketing competences	• Our capability in obtaining real time information about changes of customer needs is very strong • Our capability in communicating with customers about their potential and current demands is very strong • We have strong capability of involving customers in the process of product testing and assessment • Our capability enables us to respond quickly to customers' requirements and deliver offerings in time • We have strong capability to acquire real time information of competitors' evolution of strength and weakness • Our capability in benchmarking the product and service practices of major competitors is very strong • We have strong capability of building and enhancing large-scale marketing channels • We have strong capability of managing close customer relationship effectively in the long-run

Measurement of strategic flexibility

As discussed in Chapter 4, there is no well-accepted scale of strategic flexibility up to now and most related studies are still in the conceptual development stage. Therefore, in this book, a new scale of strategic flexibility has been developed and tested. Following the series of techniques in developing a new scale suggested by Churchill (1979), as shown in Table 5.6, a total of 9 items were identified and retained after the pilot study to measure strategic flexibility, which are derived from intensive literature review (Das, 1995; Sanchez, 1995; Ybarra and Wiersema, 1999; Grewal & Tansuhaj, 2001) and in-depth interviews of senior managers. For example, the suggestions of Das (1995) and Sanchez (1995) have been adopted and specific items have been developed to reflect the range of alternative uses (degree of change), the cost and difficulty of switching from one use of a resource to an alternative use (cost of change), and the time required in switching to an alternative resource use (speed of change). Furthermore, two items have been adapted from the work of Grewal and Tansuhaj (2001) to reflect the ability of a firm to build excess resources by hedging and sharing investments across business activities and a firm's emphasis on

Table 5.6 Measures for strategic flexibility

Construct	*Items*
Strategic flexibility	• Compared with our major competitor, our strategy is very flexible • The capability to redirect the strategic positioning quickly and effectively is very strong • The capability to respond quick to the actions of our competitors is very strong • The capability to respond quick to rapid changing customer needs is very strong • The capability to derive benefits from diversity in the environment is very strong • The practices in build excess resources by hedging and sharing investments across business activities is pretty good • The capability to redeploy strategic resources quickly according to environmental changes is very strong • The capability to redeploy strategic resources in cost-efficient way according to environmental changes is very strong • Strategic resources in our firm can be applied for alternative uses

deriving benefits from diversity in the environment. At the same time, some items have been developed based on the divergent definitions of strategic flexibility discussed in Chapter 4 and our in-depth manager interviews to measure the capabilities of a firm to redirect its strategic positioning and respond to environmental changes.

Measurement of environmental turbulence

As discussed in Chapter 4, past research suggests that there are various types of environment turbulence (Ducan, 1972; Clark, 1985; Jauch and Kraft, 1986; Milliken, 1987). Following highly related research (e.g. Houston, 1986; Miller, 1987; Boyd *et al.*, 1993; Jaworski and Kohli, 1993; Han *et al.*, 1998), we have adapted Miller (1987)'s environmental dynamism scale to assess environmental turbulences (both technological turbulence and market turbulence). Originally 8 items have been used. However, our pilot study results showed that only 6 items should be retained since the item-to-total correlations of the other 2 items were too low (below 0.30). Then we seeked the opinions of marketing professors and 15 senior managers in the pre-testing stage and most of them believed that the deletion of the two items would not influence the face validity of this scale and the retained six items could measure

Table 5.7 Measures for environmental turbulence

Construct	*Dimensions*	*Items*
Environmental turbulence	Market turbulence	• Demand and consumer tastes are almost unpredictable. • Our firm must change our marketing practices frequently to keep up with the market and competitors • Actions of competitors are unpredictable and competition is very intense • Speed and pace of the change of technologies in our principal industry is very fast.
	Technological turbulence	• The rapid emerging of new technology always has fundamental impact on business activities • The technological changes in the principal industry in which we operate are unpredictable

environmental turbulence pretty well. As a result, as shown in Table 5.7, three items have been used to measure technological turbulence and market turbulence respectively in this book.

Measurement of customer-focused performance

Based on the discussions in Chapter 4, customer-focused performance has been measured in three key dimensions, i.e. customer-perceived service quality, customer-perceived value and customer satisfaction. Since researchers have argued that firm performance is better to be measured by multiple indicators (Prescott, 1986; McDougall *et al.*, 1994), multiple indicators have been used to measure customer-focused performance in this book although what we focus is not the overall performance of a firm. In fact, extant literature also suggests that the approach of multiple items should be more favorable for the measurement of customer-perceived service quality, customer-perceived value and customer satisfaction. Taking customer-perceived service quality as an example, Parasuraman *et al.* (1988) wrote that overall measure of quality can be obtained in the form of an average score of the five related dimensions (i.e. tangible, reliability, responsiveness, assurance, empathy). On the other hand, some have advocated measuring overall customer-perceived service quality directly. However, among them, only a few have used multi-item measures (Taylor and Baker, 1994; Spreng and Mackoy, 1996; Dabholkar *et al.*, 1996; Dabholkar *et al.*, 2000), while most (Bolton and Drew, 1991b; Babakus and Boller, 1992; Boulding *et al*,

1993) have used a single-item measure, which makes it impossible to ascertain the reliability of the construct. So does research concerning customer-perceived value and customer satisfaction. In addition, based on the discussions in Chapter 4, we try to distinguish the three different but highly related constructs in this book when effort was given to make them operationalized.

Following Beard and Dess (1981), the respondents were asked to assess their own customer-focused performance relative to their established goals, those of its major rivals within their industries or customers' desires in terms of these indicators. As shown in Table 5.8, most of items used for the measurement of customer-focused performance in this book for the senior manager survey were adapted from extant literatures with some, if any, small modifications in wording. Among them, three

Table 5.8 Measures of customer-focused performance

Constructs	*Dimensions*	*Items*
Customer-focused performance	Customer-perceived service quality	• Our customers always get offerings of high quality from us • Our customers believe that the quality of our offerings is pretty good • Our customers are confident in the quality of our offerings
	Customer-perceived value	• Overall, our offerings are value for money • Considering expenses and offerings they get, our customers believe it is a right decision to transact with us • We always try to reduce the time and effort customers have to spend in the processes of obtaining and consuming our offerings • Taking the major competitors' offerings into consideration, our customers believe that our offerings are value for money
	Customer satisfaction	• We can provide offerings that meet customer's expectation • Comparing with the desirable level, our offerings always make customers satisfactory • Taking the major competitors' offerings into consideration, customers are very pleased with ours

items are for customer-perceived service quality, four items for customer-perceived value and three items for customer satisfaction.

Measurements in the customer survey

Data from the customer survey are intended to explore the relationships among different dimensions of customer-focused performance by taking a disaggregated approach, for which different items from the manager survey have been used in the customer survey in order to examine, for example, the decomposed effects of customer-perceived service quality on customer-perceived value and those of customer-perceived value on customer satisfaction and behavioral intentions of customers. This implies that more detailed information about different aspects of customer-perceived service quality and customer value perceived by customers is required. In comparison, the measurement of customer-focused performance in the senior manager survey have focused on the overall level since it is impossible or inaccurate for managers to know exactly the detailed aspects of customer's perceptions of service quality and customer value. Furthermore, such data from the customer survey can also be used for a complementary purpose, which enables the comparison with data from the senior manager survey, which will be discussed later.

Measurement of customer-perceived service quality

As discussed in Chapter 4, many studies have challenged the traditional measurement of customer-perceived service quality as disconfirmation (Cronin and Taylor, 1992; Spreng and Olshavsky, 1992; Brown *et al.*, 1993; Oliver, 1993; Teas, 1993) and argued for the superiority of SERVPERF to the SERVQUAL scale in terms of both reliability and validity (Cronin and Taylor, 1994; Dabholkar, Shepherd, and Thorpe, 2000). Therefore, in this book, the SERVPERF scale has been used with some small modifications based on focus group discussions and the pilot study. The measures of customer-perceived service quality are shown in Table 5.9.

Measures of customer-perceived value

As reviewed in Chapter 4, no well-accepted scales exist for customer-perceived value. In this book, we try to measure customer-perceived value based on previous studies (e.g. Zeithaml, 1988; Day, 1990; Narver and Slater, 1990; Slater and Narver, 1992; Mazumdar, 1993; Hass, 1995; Berry and Yadav, 1996; Ravald and Gronroos, 1996; Slater, 1997; Woodruff, 1997) complemented by focus group discussions. Most of the items have been adapted from existing studies such as Sheth *et al.* (1991) and Sweeney and Soutar (2001) to measure different dimensions of

Table 5.9 Measures of customer-perceived service quality

Constructs	*Dimensions*	*Items*
Customer-perceived service quality	Tangibles	• The physical facilities are visually appealing • The service environment (such as encounters, lights, waiting areas, etc.) is favorable • The employees are well dressed and neat in appearance • The promotional materials (such as booklet, poster, etc.) are visually appealing
	Reliability	• When the service provider promises to do something by a certain time, it does so • When I have a problem, the service provider shows a sincere interest in solving it • The employees are always ready for providing reliable offerings • The service provider delivers its services at the times it promises to do so • The service provider always performs the service right the first time
	Responsiveness	• The employees tell me exactly when services will be performed • The employees give me a prompt service • The employees are always willing to help me • The employees are never too busy to respond to my requests
	Assurance	• The employees instill confidence in me • I feel safe in transactions with the service provider • The employees are consistently courteous with me • The employees have knowledge to answer my questions
	Empathy	• The service provider gives me individual attention • The service provider has my best interest at heart • The employees understand my specific needs • The service provider has operating hours and location convenient to all its customers • The employees give me their personal attention

customer-perceived value such as emotional value, social value, functional value and customer-perceived sacrifices, which are discussed in Chapter 4. Therefore, not only factors of visible benefits have been included but also invisible benefits and sacrifices such as efforts, time and cost have been taken into consideration in this book to operationalize the construct of customer-perceived value, which are usually ignored in most of the previous studies. Based on the exploratory factor

Table 5.10 Measures of customer-perceived value

Constructs	*Dimensions*	*Items*
Customer-perceived value	Functional value	• The firm always delivers superior service • The offerings of this firm are of high quality • Consistent quality is well made by this firm • The offerings of this firm make me feel confident
	Emotional value	• The brand/offering of this firm is the one that I would enjoy • The brand/offering of this firm makes me want to purchase and use it • The brand/offering of this firm is the one that I would feel relaxed about using it • The brand/offering of this firm would make me feel good • The brand/offering of this firm would give me pleasure
	Sacrifices	• The brand/offering of this firm is reasonably priced • The brand/offering of this firm offers value for money based on previous experiences • The brand/offering of this firm would be economical • The brand/offering of this firm is a good product for the price deducted by discounts • The brand/offering of this firm is value for money compared with that of major competitors • The choice of transacting with the firm is a right decision when price and other expenses are considered
	Social value	• The brand/offering of this firm would improve the way I am perceived • The brand/offering of this firm would help me make a good impression on other people • The brand/offering of this firm would give its owners the social approval

analysis result of the pilot study, totally four dimensions are confirmed and 18 items have been retained, which are shown in Table 5.10.

Customer satisfaction and behavior intentions

As discussed in Chapter 4, customer satisfaction, in this book, has been defined as an overall evaluation based on the total purchase and consumption experiences with a product or service over time (Johnson and Fornell, 1991; Fornell, 1992). Adapted from extant studies (Gotlieb *et al.*, 1994; Taylor and Baker, 1994; Dabholkar *et al.*, 1996; Patterson and Spreng, 1997; Dabholkar *et al.*, 2000; McDougall, and Levesque, 2000; Bansal and Taylor, 2002), three items have been used to measure customer satisfaction in this book, as shown in Table 5.11.

In addition, in order to reflect the influence of customer-focused performance on the future behaviors of customers that are the true objectives for any firm to improve their customer-focused performance, three items have been used to measure the behavioral intentions of customers. All of them were adapted from related studies (Anderson *et al.*, 1994; Chang and Wildt, 1994, Gale, 1994; Cronin *et al.*, 1997; Andreassen, 2000; Swanson and Kelley 2001), which are shown in table 5.9.

Survey responses

Following the well-planned procedures mentioned above, both of our surveys were conducted successfully with reasonable response rate and representative sample profiles.

Table 5.11 Measures of customer satisfaction and behavioral intentions

Constructs	*Items*
Customer satisfaction	• The offerings always meet customers' expectation • Taking the experience of the customers with other companies, the customer is satisfied with our offerings and us. • The offerings always meet the desirable level
Behavioural intentions	• The customers would like to repurchase the offerings from the firm • The customer would like to recommend the offerings to others • The customer would like to keep close relationship with the firm

Response rates

In the firm survey, totally 196 questionnaires were mailed to firms that agreed to participate and it was expected that each firm could complete the questionnaire within 15 to 30 days. Two weeks after the questionnaires were distributed, the researcher and the two surveyors made an appointment with each firm as a reminder that the completed questionnaire would be collected in person within the next five days. A total of 79 completed questionnaires were collected successfully 20 days after the questionnaires were mailed; these we called early respondents here. Then a follow-up call was made to each of those firms that failed to complete the questionnaire before or during the first visit to find out any difficulties and remind them they would be visited again in 10 days time. Then new appointments were made 3 days before the due date and our surveyors went to collect the completed questionnaires in person before the deadline of one month. A total of 108 questionnaires were collected this time; these were called late respondents here. As a result, in total, 187 questionnaires were successfully collected, which implies that 9 firms failed to complete the questionnaires although they agreed to participate in this book at the very beginning. Five days later, three more firms mailed their questionnaires to our surveyors, but these were not used in this book for further analysis to avoid any bias. Therefore, 187 questionnaires were received, considered valid and used for model-building and propositions testing in Chapter 5. This results in a valid response rate of 31.2% (187/600), which seems very reasonable and coincides with most of the related studies.

In the customer survey, as mentioned above, a total of 980 questionnaires were delivered to customers of the 196 participative firms. After one month since the questionnaires were delivered, 276 questionnaires were returned directly to our surveyors, which were defined as early respondents. Then a call was made to those firms whose completed customer questionnaires were less than three to remind them to make a follow-up contact with their chosen customers. After 15 days, 93 more questionnaires were received, which were defined as late respondents. Thus we collected a total of 369 questionnaires from customers. In the next few days, although several more questionnaires were received, they were not considered valid to avoid any bias. However, it was found that there were five questionnaires from customers with too much missing information (three were from early respondents and two were from late respondents) and could not be used. Therefore, only 364 questionnaires were considered valid and to be used for further empirical analysis,

which results in a valid response rate of 37.1 per cent. This is also reasonable since the sampling method we took was random and the mail survey technique was adopted.

Among the 187 firms who were considered valid respondents, there were only 7 firms with 5 customer respondents, 15 firms with 4 customer respondents, and 64 firms with 3 customer respondents, which resulted in a total of 86 firms with not less than three customer respondents. As for the rest of firm respondents, there were 24 firms with 2 customer respondents and 29 firms with only 1 customer respondent while 48 firms with no customer respondents at all. Such a distribution is shown in Figure 5.2.

Sample profiles

After discussing the respondent rates of two specific surveys, we will now summarize statistics concerning the sample profiles of the two surveys.

Sample profile of firm surveyed

First of all, we'll discuss the sample profile of firms surveyed. The number of firms investigated successfully in the three large cities in China is very similar. Of the total of 187 questionnaires that were considered valid and would be used for model building, 65 questionnaires were from firms in Shenzhen, making up about 34.8 per cent of the total firms investigated successfully; 63 questionnaires were from firms in Tianjin, accounting for about 33.7 per cent of the total valid respondents; and the remaining 59 questionnaires, i.e. 31.5 per cent, were from firms in Beijing. Besides the location of each firm, other variables such as firm size, funding sources, number of employees and industry were also selected and used because they could provide a more detailed description of the sample. Among them, information

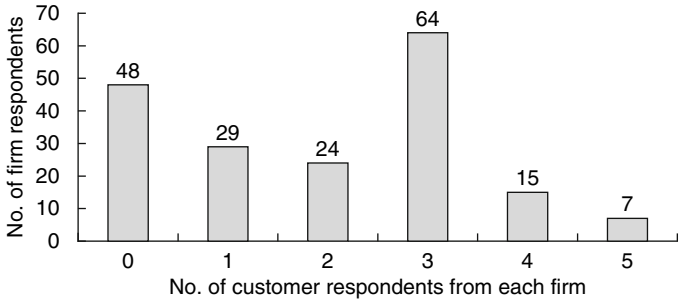


Figure 5.2 Distribution of customer respondents in investigated firms

about firm size and funding sources was obtained from the *Business Directory in China* compiled by the Enterprise Information Centrality China, which is a social institution affiliated to the China Federation of Industrial Economics (CFIE), data about the number of employees and the main industry in which a firm operates were collected in the process of questionnaire survey. Table 5.12 presents the frequency statistics for all such variables of firm characteristics in this book except information of the industry in which a firm operates since the firms investigated successfully in this book are from a wide range of industries, such as information technology, integrated optical-mechanical, electronic and telecommunication equipment, machinery manufacturing, pharmaceuticals/bioengineering, food and drink, textile and garments, construction and real estate, trade, consulting, transportation, hotel, banking and securities, insurance, retailing, and so on. Furthermore, as shown in Table 5.12, our sample consists mainly of small and medium-sized firms. On the one side, based on the common standard used by National Bureau of Statistics of China (the classification standard is on the basis of design capacity or fixed assets of a firm), there are 85 per cent of small firms, 9.6 per cent of medium-sized firms and 5.3 per cent of large firms among the valid respondent firms. On the other side, according to the data the concerning the number of employees of each respondent firms collected by way of survey in our study, 13.4 per cent have less than 50 employees, 33.7 per cent have about 51–100 employees, 41.7 per cent have about 101–300 employees, and 8.0 per cent have about 301–500 employees. The rest of the firms

Table 5.12 Frequency statistics for key characteristics of investigated firms

*Grouped by size**	*Frequency*	%	*Cumulative (%)*	*Funding sources*	*Frequency*	%	*Cumulative (%)*
Large	10	5.3	5.3	Domestic	151	80.8	80.3
Medium	18	9.6	14.9	Hong Kong, Macao and Taiwan funded	21	11.2	92.0
Small	159	85.1	100.0	Foreign-funded	15	8.0	100.0
No. of employees	*Frequency*	%	*Cumulative %*				
Below 50	25	13.4	13.4				
51–100	63	33.7	47.1				
101–300	78	41.7	88.8				
301–500	15	8.0	96.8				
Above 501	6	3.2	100.0				

Note:* The standard for classification of the size of firms follows the standard used by National Bureau of Statistics of China.

are relatively larger with more than 501 employees. Wadditia, 80.8 per cent of firms are funded domestically in our sample, and 11.2 per cent are funded by entrepreneurs of Hong Kong, Macao, and Taiwan while the rest 8.0 per cent are funded by foreign investors.

Also, in our survey, special variables were designed and information about the characteristics of the respondents was collected as well, which are shown in Table 5.13. It can be seen that the majority of the respondents are not old, and 88.8 per cent of them are below 45 years old. However, most of them have accumulated a lot of experience in the current industry in which his/her firm is operating, and 90.4 per cent have been working in the current industry more than five years. In addition, about 65.8 per cent of the total respondents are male. With respect to the positions, 65.2 per cent of them are General Manager, President or CEO of their firms, 21.4 per cent are senior managers of marketing, and 8.6 per cent are senior managers responsible for corporate strategy while the rest 4.8 per cent are senior managers of technology and manufacturing. Since all these key informants are all at senior levels of management, they are deemed to be able to provide an accurate report on their firms.

Before we begin to discuss the sample profiles of customer survey, it is necessary to give further explanation of the representativeness of our sample, the non-response bias and validate our retrospective reporting of key informants by alternative methods.

As discussed above, because of the time and financial constraints, availability sampling method was adopted in this book to identify firms that were willing to participate in this book after the stratified sampling technique was used. The problem with this method is that it is difficult to know how representative the sample population is since participation is through a self-selection process. However, as shown by the characteristics of investigated firms, the different business sectors of the responding firms represent a wide range of industries in China, which may improve the generalizability of this book and imply a good representativeness of our sample. Furthermore, of the responding firms, 5.3 per cent are large firms, 9.6 per cent are medium-sized firms and 85.1 per cent are small firms. These percentages are generally consistent with those shown in the *China Statistical Yearbook 2001* published by China Statistics Press. According to this yearbook, there are about 4.9 per cent large firms, 8.5 per cent medium-sized firms and 86.5 per cent small firms in China in 2000. Similarly, it can be seen in Table 4.10 that of the investigated firms, 80.8 per cent are funded domestically, 11.2 per cent are funded by entrepreneurs of Hong Kong, Macao and Taiwan, and 8.0 per cent are funded by foreigners. These percentages coincide generally

Table 5.13 Characteristics of the respondents in firm survey

Age of respondents	*Frequency*	%	*Cumulative %*	*Years in the industry*	*Frequency*	%	*Cumulative %*
Below 30	12	6.4	6.4	Below 5 years	18	9.6	9.6
31–40	61	32.6	39.0	5–10	72	38.5	48.1
41–45	93	49.7	88.8	11–15	75	40.1	88.2
46–55	20	10.7	99.5	16–20	14	7.5	95.7
Above 56	1	0.5	100	Above 20	8	4.3	100.0
Positions of respondents	*Frequency*	%	*Cumulative %*	*Sex of respondents*	*Frequency*	%	*Cumulative %*
Senior manager of technology & manufacturing	9	4.8	4.8	Male	123	65.8	65.8
Senior manager of marketing	40	21.4	26.2	Female	64	34.2	100.0
Senior manager of corporate strategy	16	8.6	34.8				
General Manager/ President/CEO	122	65.2	100.0				

with those in the *China Statistical Yearbook 2001* and *China Statistical Yearbook 2000* as well. According to the two yearbooks, 82.5 per cent and 83.4 per cent of firms were funded domestically in China in 1999 and 2000 respectively, 10.1 per cent and 9.7 per cent were funded by investors of Hong Kong, Macao and Taiwan, and 7.3 per cent and 6.8 per cent were funded by foreign investors in 1999 and 2000 respectively. This shows a steady growth of the number of firms funded by foreign investors and by investors of Hong Kong, Macao and Taiwan from 1999 to 2000. Such consistency can be viewed as evidence that the sample of this book is representative of the firms in China in general. However, this does not mean that these firms necessarily represent all the firms in each city of China exactly since there are so many big cities in China where the situations may be very different from each other.

Furthermore, although the profile of the responding firms shows a reasonable spread based on location, industry, size and ownership, there is still another factor that is of crucial importance to the adequacy of the data obtained and should be checked to ensure the representativeness. This factor is the degree to which respondents match non-respondents in terms of variables involved in the book. This sample bias can be assessed using time-trend extrapolation test (Armstrong and Overton, 1977). The assumption underlying this test is that non-respondents are more like late respondents than early respondents, especially in mail survey (Yau, 1995). Therefore, as suggested, non-response bias was examined by comparing early respondents with late respondents in this book. Early respondents, as defined in the previous section, were the 79 firms whose questionnaires were received during the first visit of the researcher and our two surveyors 20 days later after questionnaires were sent out. Late respondents, as defined in the previous section, were the 108 firms whose questionnaires were received during the second visit. A t-test was conducted and results showed that these two groups of firms had no significant differences with all of the key variables involved in this book. That is to say, the adequacy of the data obtained is confirmed.

In addition, as Table 5.11 shows, all these key informants are at the senior levels of management, and they are deemed to be able to provide accurate report on their firm's customer-focused performance and related key resource-based determinants, which has been mentioned above and can be considered as further evidence of the validation of the retrospective reporting (Hambrick, 1981; Anderson and Narus, 1984; Day and Nedungadi, 1994). At the same time, as key informants, the level of their experiences is also critical in determining the accuracy of information that they provide (Phillips and Bagozzi, 1986). In this

book, the informants were asked to indicate the number of years they had been working in the current industry. Table 5.11 shows that more than 90.4 per cent had been working in the current industry for more than 5 years, implying that the selected informants are all experienced and acknowledgeable about their firms' relationship with the environments and questions concerning customer-focused performance, environment and the key resource-based determinants. Thus, they are able to provide more accurate information. Besides, more than 95 per cent of responding firms in this book were willing to obtain a copy of the executive summary of the research results when they were asked during the process of their submission of the completed questionnaires to the researcher or the two surveyors. This implies again that since most of the respondents are very interested in results, they are more likely to provide reliable information pertaining to their firms. In the next chapter, the results of the validity and reliability of the constructs involved in our conceptual framework will be discussed.

Sample profiles of customer survey

As mentioned above, totally we obtained 364 valid respondents from customer survey. As shown in Table 5.14, besides the questions that were used to measure related constructs, other variables such as age, education level, occupation and the time period of keeping such business relationships with the specified firms were designed to describe the characteristics of respondents. Of all the responding customers, 32.4 per cent of customers are 21–35 years old, 32.7 per cent are 36–45 years old, 23.9 per cent are 46–60 years old, 10.4 per cent are above 60 years old, and 0.5 per cent are less than 20 years old. As for the education level, 6.9 per cent of respondents have master or doctor degrees, 28.3 per cent have bachelor degrees and 51.6 per cent have the diploma of junior college, 11.0 per cent have finished their high school education and only 2.2 per cent have no high school education at all. With respect to their occupations, most of them are technicians (33.2 per cent) and merchants or self-employed individuals (28.0 per cent). 12.6 per cent of customers are out of employment, 9.1 per cent are workers, 8.5 per cent are civil servant, 7.4 per cent are housewives, and 1.1 per cent of the respondents are farmers. In addition, 37.4 per cent of customers have kept such business relationships with a specified firm for 1–2 years, 29.9 per cent for 3–4 years, 15.7 per cent for 5 to 9 years, 11.8 per cent for less than 1 year and about 5.2 per cent of customers have kept such business relationships for more than 10 years.

Similarly, the sample bias was checked using the same method as that in firm survey mentioned above to ensure the representativeness. As

Table 5.14 Characteristics of the respondents (total respondents: 364)

Age of respondents	*Frequency*	%	*Cumulative %*	*Education of respondents*	*Frequency*	%	*Cumulative %*
Below 20	2	0.5	0.5	Primary school and below	8	2.2	2.2
21–35	118	32.4	33.0	High school	40	11.0	13.2
36–45	119	32.7	65.7	Junior college	188	51.6	64.8
46–60	87	23.9	89.6	Bachelor	103	28.3	93.1
Above 60	38	10.4	100.0	Master and above	25	6.9	100.0
Occupation of respondents	*Frequency*	%	*Cumulative %*	*Time period for the business relationship*	*Frequency*	%	*Cumulative %*
Civil servant	31	8.5	8.5	Below 1 year	43	11.8	11.8
Technician	121	33.2	41.8	1–2	136	37.4	49.2
Worker	33	9.1	50.8	3–4	109	29.9	79.1
Merchant/self-employed individuals	102	28.0	78.8	5–9	57	15.7	94.8
Housewife	27	7.4	86.3	Above 10	19	5.2	100.0
Unemployment	46	12.6	98.9				
Farmer	4	1.1	100.0				

suggested, non-response bias was examined by comparing early respondents with late respondents in customer survey as well in this book. Early respondents, which have been defined above as those customers whose completed questionnaires arrived one month later since questionnaires were sent out, total 276. Late respondents, defined as those customers whose completed questionnaires were received during 31 to 45 days later after the questionnaires were distributed, total 93 customers. However, as mentioned above, three of the early respondents and two of the late respondents were considered not valid, so the number of early respondents and late respondents that were used to check the non-response bias is 273 and 91 respectively. A t-test was conducted and results showed that these two groups of respondents had no significant differences with all of the key variables concerned. That is to say, the adequacy of the data obtained is confirmed in customer survey as well.

Data analysis methods

The data from completed questionnaires were entered into computer statistical software by two university students independently. Then these two data sets were matched to identify any entry mistakes. Furthermore, the author checked 50 of them based on a random sampling process and no mismatch is found.

A brief introduction

Data were analyzed using SPSS 11.0 and PLS-Graph, exploratory factor analysis and confirmatory factor analysis (EFA and CFA) were conducted, and structural equation models were developed. First, exploratory factor analysis was conducted to examine the factor structure of each dimension of customer-focused performance, constituents of core competences, strategic flexibility, organizational learning and environment turbulence. According to Hair *et al.* (1998), this technique is useful in analyzing the interrelationship between a large number of variables and in explaining these variables in terms of their common underlying dimensions or factors. Based on such factor analysis results, the reliability and validity of these constructs could be checked. To establish further the theoretical validity of multiple conceptualizations of the constructs concerned, confirmatory factor analysis using PLS-Graph was performed based on the result of exploratory factor analysis in the previous step, and the reliability and validity of the constructs were examined. In contrast to an exploratory factor analysis, researchers usually employ a confirmatory factor analysis to test a priori models that specify anticipated relationships between observed indicator and

hypothesized latent variables or factors (Bollen, 1989). Furthermore, the structural equation modeling (SEM) technique was adopted to achieve the research objectives as described in Chapter 1. The SEM technique integrates conventional statistical methods, linear regression and factor analysis into a general modeling framework. This allows for an understanding not only of the relative importance of the various constructs' influences on customer-focused performance but also the possible sources of superior customer-focused performance, and more importantly, the simultaneous interrelationships between the latent variables concerned can be estimated effectively and our hypotheses derived from the propositions can be tested.

SEM and its superiority

SEM has been widely used in social and behavioral research such as education, information systems, management, marketing, sociology and psychology for researchers to develop or test theories using survey data, and has been attracting widespread attention from researchers from the field of information system and strategic management recently. There is a substantial increase in the number of submissions and publications in business management using SEM in the past few years (Chin, 1998).

In general, the SEM-based method has been viewed as a second-generation analytical technique that combines an econometric perspective focusing on prediction and a psychometric perspective modeling latent variables inferred from observed variables. Such a method results in greater flexibility in modeling theory with data compared to first-generation techniques such as principle component analysis, factor analysis, discriminant analysis or multiple regression. Therefore, it has been regarded as an important technique for instrument validation, model building and testing (Fornell, 1987). According to Chin (1998), if SEM is accurately applied, it can surpass the first-generation techniques mentioned above. For example, the conventional regression model always under-estimates the relationship between the true variables due to the existence of measurement error. In contrast, SEM is characterized by its ability to estimate multiple and interrelated dependence relationships, and measure unobservable concepts in these relationships uncontaminated by measurement error (Hair *et al.*, 1998). Unlike most econometric methods, structural equation modeling, as a well-known component of the methodological arsenal of the social sciences (Bollen and Lennox, 1991), allows measurement error in the exogenous and endogenous variables. And as with factor analysis developed in psychometrics and related procedures in sociometrics, structural equation modeling permits multiple indicators of latent

constructs and estimation of reliability and validity too. Furthermore, structural equation modeling also allows more general measurement models than traditional factor-analytic structures, and it enables the researchers to specify structural relationships between latent variables (Bollen and Lennox, 1991). In fact, the measurement error problem becomes even more important and much clearer in studies in the fields of education, information systems, management, marketing, sociology and psychology where concepts are usually highly abstract and relatively subjective in nature and there are no widely accepted instruments/scales to measure these highly complex concepts. As a result, researchers always use a number of variables to measure them empirically, and measurement errors are obvious and must be considered. In fact, the current study in process is one of such typical examples – that is why the structural equation modeling technique was adopted. In addition, SEM provides a greater flexibility as follows: (a) estimation of simultaneous relationships among multiple predictor and criterion variables; (b) model with unobservable latent variables; (c) model uncontaminated by measurement error; and (d) statistical test with a prior substantive/theoretical and measurement assumptions against empirical data (i.e. confirmatory analysis), etc.

Approaches to SEM

Among structural equation modeling (SEM) techniques, by far the most well-known are covariance-based methods exemplified by such software as LISREL, EQS, COSAN, AMOS and SEPATH, RAMONA. Yet, an alternative and relatively less widespread component-based approach known as partial least square (PLS) is also available for researchers to do SEM-based analysis. The latter (PLS) can be a powerful method of analysis because of the minimal demands on measurement scales (Ratio or interval scales are not required), sample size and residual distributions (normality is not required) (Fornell and Cha, 1994; Chin *et al.*, 2003).

The widespread popularity of the covariance-based approach for SEM modeling is due in large part to the availability of the LISREL III program develop by Joreskog and Sorbom in the mid-1970s and subsequent update (Joreskog and Sorbom, 1989). Recent alternative programs have further increased accessibility of this approach. By using a maximum likelihood (ML) function, covariance-based SEM attempts to minimize the difference between the sample covariances and those predicted by the theoretical model. However, it makes the underlying assumptions that the observed variables follow a specific multivariate distribution (normality in the case of the ML function) and that the observations are independent of one another. In comparison, PLS approach has its origin

back in 1966 when Wold (1966) presented two iterative procedures using least square (LS) estimation for single- and multi-component models and for canonical correlation. The basic PLS design was completed in 1977 (Wold, 1982) and has subsequently be extended in various ways.

General comparison of the covariance-based approach and component-based approach

As two different approaches to structural equation modeling, there are many differences between covariance-based SEM and component-based SEM in such aspects as criterion, objective, assumptions, approach, parameter estimations, latent variable scores, model complexity and sample size. Table 5.15 shows the comparison of these two approaches.

The basic distinction between covariance-based SEM and component-based SEM rests in their objectives. As suggested by Joreskog and Wold (1982), covariance-based SEM approach is best used for theory testing and development, while component-based SEM approach is oriented more towards predictive applications. Moreover, covariance-based SEM approach attempts to minimize the difference between the sample covariances and those predicted by the theoretical model, while component-based SEM approach attempts to maximize variance explained for dependent variables and estimates parameters by minimizing each residual variance separately to better predict the corresponding dependent variables. Furthermore, the use of covariance-based SEM approach requires the observations to be normally distributed, independents of one another, and sample size is critical for accurate estimation of parameters. In addition, complex model remains a problematic issue in terms of fit indices and computation in covariance-based SEM (Chin, 1998). Compared with the most widely known covariance fitting approach, the component-based SEM approach is more close to the data, more explorative, and more data-analytic. It does not depend on having multivariate normally distributed data and it can be used with non-interval-scaled data, and importantly, with small samples. In addition, the component-based PLS avoids serious problems of improper solutions and factor indeterminacy as well as the violations of distributional assumptions (Fornell and Bookstein, 1982). Since the approach estimates the latent variables as linear combinations of the observed measures using weight relations, it, therefore, avoids the indeterminacy problem and provides an exact definition of component scores. Using an iterative estimation technique (Wold, 1982), the PLS approach provides a general model which encompasses, among other techniques, canonical correlation, redundancy analysis, multiple regression, multivariate analysis of variance, and principle components (Chin, *et al.*, 2003). As

Table 5.15 Comparisons of component-based SEM and covariance-based SEM

Criterion	*Component-based SEM*	*Covariance-based SEM*
Objective	Prediction oriented/accurate prediction	Parameter oriented/ accurate parameter
Assumptions	Predictor specification/no specific requirements	Typically multivariate normal distribution and independent observations
Approach	Variance-based	Covariance-based
Parameter estimates	Consistent as indicators and sample size increases	Consistent
Latent variable scores	Explicitly estimated/latent variable's case values estimated	Indeterminate
Epistemic relationship between a latent variable and its measures	Can be modeled in either formative or reflective mode	Typically only with reflective indicators
Implications	Optimal for prediction accuracy	Optimal for parameter complexity
Model complexity	Large complexity	Small to moderate complexity (e.g., less than 100 indicators)
Sample size	Power analysis based on the portion of the model with the largest number of predictors. Minimal recommendations range from 30 to 100 cases.	Ideally based on power analysis of specific model. Minimal recommendations range from 200 to 800.

Source: Chin, and Newsted, 1999, 'Structural equation modeling analysis with small samples using partial least squares', in *Statistical Strategies for Small Sample Research*, Hoyle, R.H. (eds), Sage Publications, 307–41.

a consequence of using an iterative algorithm that consists of a series of ordinary least squares analyses, identification is not a problem for recursive (i.e. one way path) models, nor does it presume any distributional form for measured variables. Finally, the PLS approach is considered better suited for explaining complex relationships (Fornell *et al.*, 1990; Chin, *et al.*, 2003). As a result, since 1982, the PLS approach has been applied to several business studies (Fornell and Bookstein, 1982; Bagozzi *et al.*, 1991; Barclay, 1991; Fornell, 1992; Birkinshaw *et al.*, 1995; Chin *et al.*, 1996, 2003 Hulland, 1999; Sarkar *et al.*, 2001).

The adoption of PLS-based SEM approach

Given the advantages of component-based approach (PLS) mentioned above and nature and objectives of this book, this approach (PLS) is a more appropriate technique for current data analysis. This book is one of the first studies to identify the key resource-based determinants of customer-focused performance in the specific context of a developing country – China – and so emphasizes its exploratory natures. Moreover, one of our major concerns is the predictive power of the research model. The proposed conceptual framework for the current research exhibits high complexity with more than 20 latent variables, 100 observed variables, and 200 variables if the product indicators of the interaction terms created for the testing of moderating effects are included. As discussed, a component-based approach can handle the complex model better and it does not require rigorous restrictions on data distribution and large sample size. Furthermore, one of our research objectives is to test the moderating effects of latent variables, i.e. market turbulence and technological turbulence, which makes it much more suitable to choose component-based approach, PLS-Graph, given the relative superiority of the PLS product-indicator approach compared with other techniques such as variance analysis (e.g. MANOVA) or regressions, which will be discussed in detailed later in this chapter. Therefore, the SEM approach with PLS was adopted as a basic statistical analytical tool for data analysis.

Specification of our research models in the PLS approach

After the estimation procedure of the PLS approach has been covered, it is useful to give the formal model specification to guides the process. All path models with latent variables in PLS modeling consist of three parts. The first part is inner relations (inner model, structural model, inner structural model, core model, epistemological model, substantive part), which depicts the relationships among the latent variables as posited by substantive theory. The second part is outer relations, which specifies the relationships between the latent variables and their associated indicators. Generally, two kinds of measurement models can be specified. One is reflective and the other is formative. The former (reflective) assumes that the observed phenomena are a reflection of an underlying construct. In comparison, the latter (formative) assumes that the indicators form a latent variable as a composite (Fornell and Cha, 1994). The third part of PLS-based structural equation modeling is weight relations. In addition to the two relations described above, one more relation is required to complete the PLS model: weight relations. In PLS, each case value of the latent variables is estimated by the weight relations.

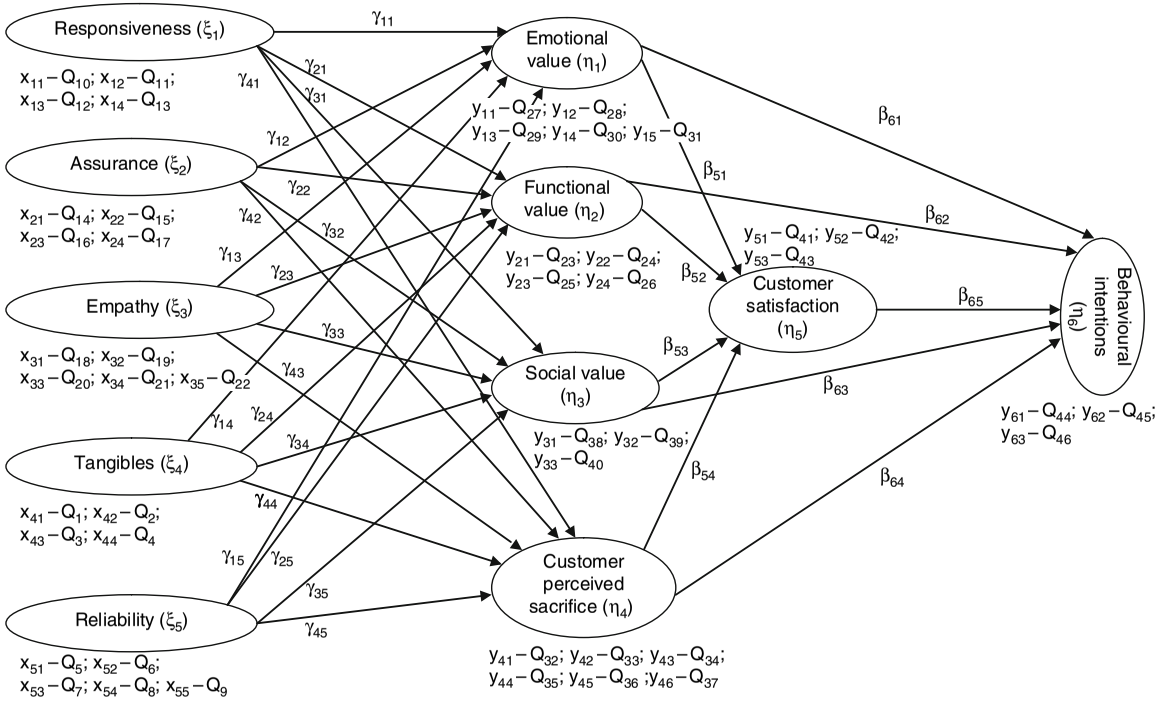
In the following, we will present in detail these components of the models we attempt to develop for propositions testing. Without loss of

generality, all variables are standardized to zero means and unit variances, and constant terms (location parameters in PLS) are ignored in the following equations. As mentioned before, two different surveys were conducted in our research, one is the senior manager survey and the other is the customer survey. Accordingly, we attempt to develop two different structural equation models based on data from the two surveys respectively to test our propositions developed in Chapter 4. Figure 5.3 shows the structural equation model that is intended to build based on data from the customer survey and presents the proposed relationships between the 11 latent variables, which in total includes 46 observed variables. As a detailed model specification, Table 5.16 reports all the equations included in this model in the three parts as described above. The first part is the inner relations, which includes 6 equations. The second part is outer relations and all the measurement models are reflective. Total 46 equations are developed in this part. The third part is the weight relation that includes 11 equations. Similarly, the structural equation model to be developed based on data from the senior manager survey is shown in Figure 5.4 and the proposed relationships among 11 latent variables are presented. As a detailed model specification, Table 5.17 reports all the equations involved in this model in three parts too. The first part is the inner relationship, which includes 8 equations. The second part is outer relations and all the measurement models are reflective by nature. In Total 59 observed equations are included in this part. The third part is the weight relation that includes 8 equations.

Nevertheless, it should be noted that being a limited information method, PLS parameter estimates are less than optimal regarding bias and consistency although it has many advantages over the well-known covariance-based structural equation modeling technique. For example, the estimates will be asymptotically correct under the joint conditions of consistency (large sample size) and consistency at large (the number of indicators per latent variable becomes large). Otherwise, estimates on paths from construct to loadings tend to be overestimated and structural paths among constructs underestimated. Furthermore, standard errors need to be estimated via resampling procedures such as jackknifing or bootstrapping (Efron and Gong, 1983). The significance of paths can also be determined by using jackknife statistics resulting from a blindfolding resampling procedure or using a bootstrapping technique. In this book, significance levels of all structural paths were estimated by the bootstrapping method (Efron and Tibshirani, 1993).

The PLS product-indicator approach to moderator analysis

In this book, in order to test the moderating effects of environmental turbulence on the relationships between core competences, strategic



Note: Q# represents the item no. in the questionnaire of the customer survey, which is used to show the meaning of each indicator x or y.

Figure 5.3 Model specification based on the customer survey

Table 5.16 PLS equations – structural equation model based on the customer survey

Inner relations	$\eta_1 =$	$+\gamma_{11}\xi_1+\gamma_{12}\xi_{2+}+\gamma_{13}\xi_3+\gamma_{14}\xi_4+\gamma_{15}\xi_5+\zeta_1$
Latent structural equations	$\eta_2 =$	$+\gamma_{21}\xi_1+\gamma_{22}\xi_{2+}+\gamma_{23}\xi_3+\gamma_{24}\xi_4+\gamma_{25}\xi_5+\zeta_2$
$(\eta=\eta B+\xi\Gamma+\zeta)$	$\eta_3 =$	$+\gamma_{31}\xi_1+\gamma_{32}\xi_{2+}+\gamma_{33}\xi_3+\gamma_{34}\xi_4+\gamma_{35}\xi_5+\zeta_3$
	$\eta_4 =$	$+\gamma_{41}\xi_1+\gamma_{42}\xi_{2+}+\gamma_{43}\xi_3+\gamma_{44}\xi_4+\gamma_{45}\xi_5+\zeta_4$
	$\eta_5=\beta_{51}\eta_1+\beta_{52}\eta_2+\beta_{53}\eta_3+\beta_{54}\eta_4$	$+\zeta_5$
	$\eta_6=\beta_{61}\eta_1+\beta_{62}\eta_2+\beta_{63}\eta_3+\beta_{64}\eta_4+\beta_{65}\eta_5$	$+\zeta_6$

Outer relations

Reflective measurement equations

$(\mathbf{x}=\Lambda_x\xi+\varepsilon_x,\ \mathbf{y}=\Lambda_y\eta+\varepsilon_y)$

$x_{11}=\lambda_{x11}\xi_1+\varepsilon_{x11},\ x_{21}=\lambda_{x21}\xi_2+\varepsilon_{x21},\ x_{31}=\lambda_{x31}\xi_3+\varepsilon_{x31},\ x_{41}=\lambda_{x41}\xi_4+\varepsilon_{x41}, x_{51}=\lambda_{x51}\xi_5+\varepsilon_{x51},$

$x_{12}=\lambda_{x12}\xi_1+\varepsilon_{x12},\ x_{22}=\lambda_{x22}\xi_2+\varepsilon_{x22},\ x_{32}=\lambda_{x32}\xi_3+\varepsilon_{x32},\ x_{42}=\lambda_{x42}\xi_4+\varepsilon_{x42},\ x_{52}=\lambda_{x52}\xi_5+\varepsilon_{x52},$

$x_{13}=\lambda_{x13}\xi_1+\varepsilon_{x13}, x_{23}=\lambda_{x23}\xi_2+\varepsilon_{x23},\ x_{33}=\lambda_{x33}\xi_3+\varepsilon_{x33},\ x_{43}=\lambda_{x43}\xi_4+\varepsilon_{x43},\ x_{53}=\lambda_{x53}\xi_5+\varepsilon_{x53},$

$x_{14}=\lambda_{x14}\xi_1+\varepsilon_{x14},\ x_{24}=\lambda_{x24}\xi_2+\varepsilon_{x24},\ x_{34}=\lambda_{x34}\xi_3+\varepsilon_{x34}, x_{44}=\lambda_{x44}\xi_4+\varepsilon_{x44},\ x_{54}=\lambda_{x51}\xi_5+\varepsilon_{x54},$

$x_{35}=\lambda_{x35}\xi_3+\varepsilon_{x35},\qquad x_{55}=\lambda_{x55}\xi_5+\varepsilon_{x55},$

$y_{11}=\lambda_{y11}\eta_1+\varepsilon_{y11},\ y_{21}=\lambda_{y21}\eta_2+\varepsilon_{y21},\ y_{31}=\lambda_{y31}\eta_3+\varepsilon_{y31},\ y_{41}=\lambda_{y41}\eta_4+\varepsilon_{y41},\ y_{51}=\lambda_{y51}\eta_5+\varepsilon_{y51},\ y_{61}=\lambda_{y61}\eta_6+\varepsilon_{y61},$

$y_{12}=\lambda_{y12}\eta_1+\varepsilon_{y12},\ y_{22}=\lambda_{y22}\eta_2+\varepsilon_{y22}, y_{32}=\lambda_{y32}\eta_3+\varepsilon_{y32},\ y_{42}=\lambda_{y42}\eta_4+\varepsilon_{y42},\ y_{52}=\lambda_{y52}\eta_5+\varepsilon_{y52},\ y_{62}=\lambda_{y62}\eta_6+\varepsilon_{y62},$

$y_{13}=\lambda_{y13}\eta_1+\varepsilon_{y13},\ y_{23}=\lambda_{y23}\eta_2+\varepsilon_{y23},\ y_{33}=\lambda_{y33}\eta_3+\varepsilon_{y33},\ y_{43}=\lambda_{y43}\eta_4+\varepsilon_{y43},\ y_{53}=\lambda_{y53}\eta_5+\varepsilon_{y53},\ y_{63}=\lambda_{y63}\eta_6+\varepsilon_{y63},$

$y_{14}=\lambda_{y14}\eta_1+\varepsilon_{y14},\ y_{24}=\lambda_{y24}\eta_2+\varepsilon_{y24},\qquad y_{44}=\lambda_{y44}\eta_4+\varepsilon_{y44},$

$y_{15}=\lambda_{y15}\eta_1+\varepsilon_{y15},\qquad y_{45}=\lambda_{y45}\eta_4+\varepsilon_{y45},$

$y_{46}=\lambda_{y46}\eta_4+\varepsilon_{y46}$

Weight relations
($\hat{\xi} = \Omega_\xi \mathbf{x}, \quad \hat{\eta} = \Omega_\eta \mathrm{y}$)

$$\xi_1 = \omega_{\xi 11}\mathrm{x}_{11} + \omega_{\xi 12}\mathrm{x}_{12} + \omega_{\xi 13}\mathrm{x}_{13} + \omega_{\xi 14}\mathrm{x}_{14}$$
$$\hat{\xi}_2 = \omega_{\xi 21}\mathrm{x}_{21} + \omega_{\xi 22}\mathrm{x}_{22} + \omega_{\xi 23}\mathrm{x}_{23} + \omega_{\xi 24}\mathrm{x}_{24}$$
$$\hat{\xi}_3 = \omega_{\xi 31}\mathrm{x}_{31} + \omega_{\xi 32}\mathrm{x}_{32} + \omega_{\xi 33}\mathrm{x}_{33} + \omega_{\xi 34}\mathrm{x}_{34+}\omega_{\xi 35}\mathrm{x}_{35}$$
$$\hat{\xi}_4 = \omega_{\xi 41}\mathrm{x}_{41} + \omega_{\xi 42}\mathrm{x}_{42} + \omega_{\xi 43}\mathrm{x}_{43} + \omega_{\xi 44}\mathrm{x}_{44}$$
$$\hat{\xi}_5 = \omega_{\xi 51}\mathrm{x}_{51} + \omega_{\xi 52}\mathrm{x}_{52} + \omega_{\xi 53}\mathrm{x}_{53} + \omega_{\xi 54}\mathrm{x}_{54} + \omega_{\xi 55}\mathrm{x}_{55}$$

$$\hat{\eta}_1 = \omega_{\eta 11}\mathrm{y}_{11} + \omega_{\eta 12}\mathrm{y}_{12} + \omega_{\eta 13}\mathrm{y}_{13} + \omega_{\eta 14}\mathrm{y}_{14} + \omega_{\eta 15}\mathrm{y}_{15}$$
$$\hat{\eta}_2 = \omega_{\eta 21}\mathrm{y}_{21} + \omega_{\eta 22}\mathrm{y}_{22} + \omega_{\eta 23}\mathrm{y}_{23} + \omega_{\eta 24}\mathrm{y}_{24}$$
$$\hat{\eta}_3 = \omega_{\eta 31}\mathrm{y}_{31} + \omega_{\eta 32}\mathrm{y}_{32} + \omega_{\eta 33}\mathrm{y}_{33}$$
$$\hat{\eta}_4 = \omega_{\eta 41}\mathrm{y}_{41} + \omega_{\eta 42}\mathrm{y}_{42} + \omega_{\eta 43}\mathrm{y}_{43} + \omega_{\eta 44}\mathrm{y}_{44} + \omega_{\eta 45}\mathrm{y}_{45}$$
$$\hat{\eta}_5 = \omega_{\eta 51}\mathrm{y}_{51} + \omega_{\eta 52}\mathrm{y}_{52} + \omega_{\eta 53}\mathrm{y}_{53}$$
$$\hat{\eta}_6 = \omega_{\eta 61}\mathrm{y}_{61} + \omega_{\eta 62}\mathrm{y}_{62} + \omega_{\eta 63}\mathrm{y}_{63}$$

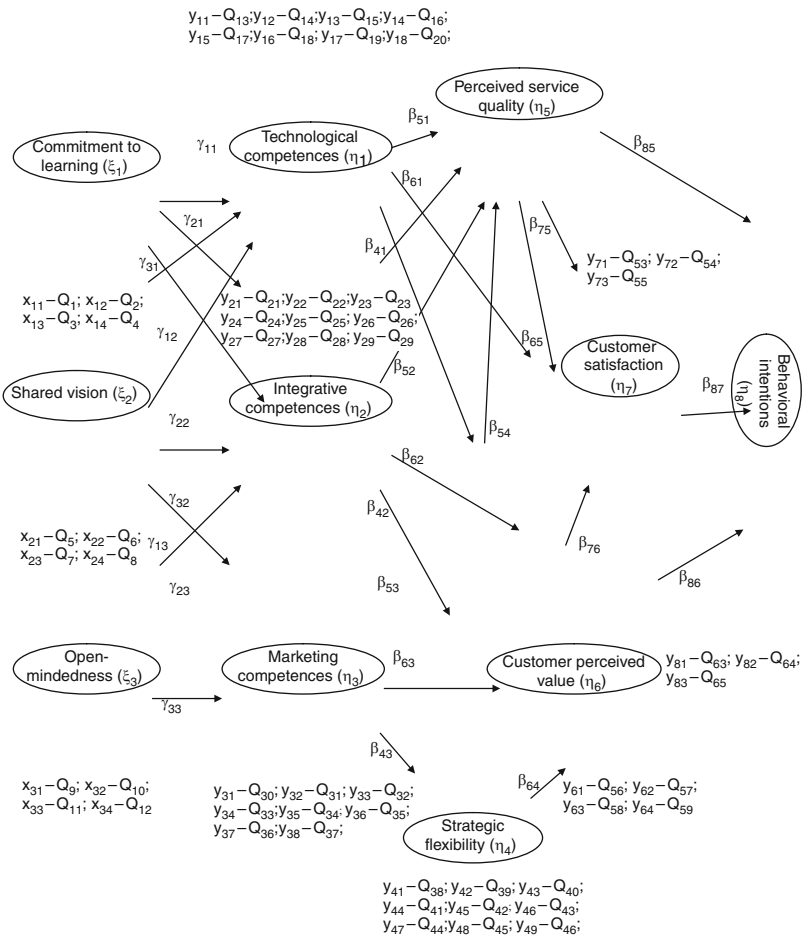
Table 5.17 PLS equations – structural equation model based on the senior manager survey

Inner relations	$\eta_1 = +\gamma_{11}\xi_1 + \gamma_{12}\xi_{2+} + \gamma_{13}\xi_3 + \zeta_1$
Latent structural equations	$\eta_2 = +\gamma_{21}\xi_1 + \gamma_{22}\xi_{2+} + \gamma_{23}\xi_3 + \zeta_2$
$(\eta = \eta B + \xi\Gamma + \zeta)$	$\eta_3 = +\gamma_{31}\xi_1 + \gamma_{32}\xi_{2+} + \gamma_{33}\xi_3 + \zeta_3$
	$\eta_4 = \beta_{41}\eta_1 + \beta_{42}\eta_2 + \beta_{43}\eta_3 + \zeta_4$
	$\eta_5 = \beta_{51}\eta_1 + \beta_{52}\eta_2 + \beta_{53}\eta_3 + \beta_{54}\eta_4 + \zeta_5$
	$\eta_6 = \beta_{61}\eta_1 + \beta_{62}\eta_2 + \beta_{63}\eta_3 + \beta_{64}\eta_4 + \beta_{65}\eta_5 + \zeta_6$
	$\eta_7 = +\beta_{75}\eta_5 + \beta_{76}\eta_6 + \zeta_7$
	$\eta_8 = +\beta_{85}\eta_5 + \beta_{86}\eta_6 + \beta_{87}\eta_7 + \zeta_8$
Outer relations	$x_{11} = \lambda_{x11}\xi_1 + \varepsilon_{x11},\ x_{21} = \lambda_{x21}\xi_2 + \varepsilon_{x21}, x_{31} = \lambda_{x31}\xi_3 + \varepsilon_{x31},\ y_{11} = \lambda_{y11}\eta_1 + \varepsilon_{y11},\ y_{21} = \lambda_{y21}\eta_2 + \varepsilon_{y21},\ y_{31} = \lambda_{y31}\eta_3 + \varepsilon_{y31},$
Reflective measurement equations	$x_{12} = \lambda_{x12}\xi_1 + \varepsilon_{x12},\ x_{22} = \lambda_{x22}\xi_2 + \varepsilon_{x22},\ x_{32} = \lambda_{x32}\xi_3 + \varepsilon_{x32},\ y_{12} = \lambda_{y12}\eta_1 + \varepsilon_{y12},\ y_{22} = \lambda_{y22}\eta_2 + \varepsilon_{y22},\ y_{32} = \lambda_{y32}\eta_3 + \varepsilon_{y32},$
$(\mathbf{x} = \Lambda_x\xi + \varepsilon\mathbf{x},$	$x_{13} = \lambda_{x13}\xi_1 + \varepsilon_{x13},\ x_{23} = \lambda_{x23}\xi_2 + \varepsilon_{x23},\ x_{33} = \lambda_{x33}\xi_3 + \varepsilon_{x33},\ y_{13} = \lambda_{y13}\eta_1 + \varepsilon_{y13},\ y_{23} = \lambda_{y23}\eta_2 + \varepsilon_{y23},\ y_{33} = \lambda_{y33}\eta_3 + \varepsilon_{y33},$
$\mathbf{y} = \Lambda_y\eta + \varepsilon_y)$	$x_{14} = \lambda_{x14}\xi_1 + \varepsilon_{x14},\ x_{24} = \lambda_{x24}\xi_2 + \varepsilon_{x24},\ x_{34} = \lambda_{x34}\xi_3 + \varepsilon_{x34},\ y_{14} = \lambda_{y14}\eta_1 + \varepsilon_{y14},\ y_{24} = \lambda_{y24}\eta_2 + \varepsilon_{y24},\ y_{34} = \lambda_{y34}\eta_3 + \varepsilon_{y34},$
	$y_{41} = \lambda_{y41}\eta_4 + \varepsilon_{y41},\ y_{51} = \lambda_{y51}\eta_5 + \varepsilon_{y51},\ y_{61} = \lambda_{y61}\eta_6 + \varepsilon_{y61},\ y_{15} = \lambda_{y15}\eta_1 + \varepsilon_{y15},\ y_{25} = \lambda_{y25}\eta_2 + \varepsilon_{y25},\ y_{35} = \lambda_{y35}\eta_3 + \varepsilon_{y35},$

$$y_{42} = \lambda_{y42}\eta_4 + \varepsilon_{y42},\ y_{52} = \lambda_{y52}\eta_5 + \varepsilon_{y52},\ y_{62} = \lambda_{y62}\eta_6 + \varepsilon_{y62},\ y_{16} = \lambda_{y16}\eta_1 + \varepsilon_{y16},\ y_{26} = \lambda_{y26}\eta_2 + \varepsilon_{y26},\ y_{36} = \lambda_{y36}\eta_3 + \varepsilon_{y36},$$
$$y_{43} = \lambda_{y43}\eta_4 + \varepsilon_{y43},\ y_{53} = \lambda_{y53}\eta_5 + \varepsilon_{y53},\ y_{63} = \lambda_{y63}\eta_6 + \varepsilon_{y63},\ y_{17} = \lambda_{y17}\eta_1 + \varepsilon_{y17},\ y_{27} = \lambda_{y27}\eta_2 + \varepsilon_{y27},\ y_{37} = \lambda_{y37}\eta_3 + \varepsilon_{y37},$$
$$y_{44} = \lambda_{y44}\eta_4 + \varepsilon_{y44},\quad y_{64} = \lambda_{y64}\eta_6 + \varepsilon_{y64},\ y_{18} = \lambda_{y18}\eta_1 + \varepsilon_{y18},\ y_{28} = \lambda_{y28}\eta_2 + \varepsilon_{y28},\ y_{38} = \lambda_{y38}\eta_3 + \varepsilon_{y38},$$
$$y_{45} = \lambda_{y45}\eta_4 + \varepsilon_{y45},\quad y_{29} = \lambda_{y29}\eta_2 + \varepsilon_{y29},$$
$$y_{46} = \lambda_{y46}\eta_4 + \varepsilon_{y46},\ y_{71} = \lambda_{y71}\eta_7 + \varepsilon_{y71},\ y_{81} = \lambda_{y81}\eta_8 + \varepsilon_{y81},$$
$$y_{47} = \lambda_{y47}\eta_4 + \varepsilon_{y47},\ y_{72} = \lambda_{y72}\eta_7 + \varepsilon_{y72},\ y_{82} = \lambda_{y82}\eta_8 + \varepsilon_{y82},$$
$$y_{48} = \lambda_{y48}\eta_4 + \varepsilon_{y48},\ y_{73} = \lambda_{y73}\eta_7 + \varepsilon_{y73},\ y_{83} = \lambda_{y83}\eta_8 + \varepsilon_{y83}$$
$$y_{49} = \lambda_{y49}\eta_4 + \varepsilon_{y49}$$

Weight relations ($\hat{\xi} = \Omega_\xi x, \hat{\eta} = \Omega_\eta y$)

$$\xi_1 = \omega_{\xi11}x_{11} + \omega_{\xi12}x_{12} + \omega_{\xi13}x_{13} + \omega_{\xi14}x_{14};\quad \xi_2 = \omega_{\xi21}x_{21} + \omega_{\xi22}x_{22} + \omega_{\xi23}x_{23} + \omega_{\xi24}x_{24;}$$
$$\hat{\xi}_3 = \omega_{\xi31}x_{31} + \omega_{\xi32}x_{32} + \omega_{\xi33}x_{33} + \omega_{\xi34}x_{34}$$
$$\hat{\eta}_1 = \omega_{\eta11}y_{11} + \omega_{\eta12}y_{12} + \omega_{\eta13}y_{13} + \omega_{\eta14}y_{14} + \omega_{\eta15}y_{15} + \omega_{\eta16}y_{16} + \omega_{\eta17}y_{17} + \omega_{\eta18}y_{18}$$
$$\hat{\eta}_2 = \omega_{\eta21}y_{21} + \omega_{\eta22}y_{22} + \omega_{\eta23}y_{23} + \omega_{\eta24}y_{24} + \omega_{\eta25}y_{25} + \omega_{\eta26}y_{26} + \omega_{\eta27}y_{27} + \omega_{\eta28}y_{28} + \omega_{\eta29}y_{29}$$
$$\hat{\eta}_3 = \omega_{\eta31}y_{31} + \omega_{\eta32}y_{32} + \omega_{\eta33}y_{33} + \omega_{\eta34}y_{34} + \omega_{\eta35}y_{35} + \omega_{\eta36}y_{36} + \omega_{\eta37}y_{37} + \omega_{\eta38}y_{38}$$
$$\hat{\eta}_4 = \omega_{\eta41}y_{41} + \omega_{\eta42}y_{42} + \omega_{\eta43}y_{43} + \omega_{\eta44}y_{44} + \omega_{\eta45}y_{45} + \omega_{\eta46}y_{46} + \omega_{\eta47}y_{47} + \omega_{\eta48}y_{48} + \omega_{\eta49}y_{49}$$
$$\hat{\eta}_5 = \omega_{\eta51}y_{51} + \omega_{\eta52}y_{52} + \omega_{\eta53}y_{53};\quad \hat{\eta}_6 = \omega_{\eta61}y_{61} + \omega_{\eta62}y_{62} + \omega_{\eta63}y_{63} + \omega_{\eta64}y_{64}$$
$$\hat{\eta}_7 = \omega_{\eta71}y_{71} + \omega_{\eta72}y_{72} + \omega_{\eta73}y_{73};\quad \hat{\eta}_8 = \omega_{\eta81}y_{81} + \omega_{\eta82}y_{82} + \omega_{\eta83}y_{83}$$



Note: Q# represents the item no. in the questionnaire of the senior manager survey, which is used to show the meaning of each indicator x or y.

Figure 5.4 Model specification based on the senior manager survey

flexibility and customer-focused performance, the PLS product-indicator approach recommended by Chin *et al.* (1996, 2003) was adopted.

Current problems in moderator analysis and the superiority of PLS

Moderators are very important to theories in the business research field, which has been is evident in their long history in the literature and their increasing use in dominant theories. However, problems in measuring interaction effects are especially pronounced in field research and

observational studies and much of the difficulties can be attributed to measurement. This has been cited as the cause of both lowering the ability to detect as well as understating the true effects (Busemeyer and Jones, 1983; Chin *et al.*, 1996, 2003). As Cronbach (1987) has urged, invention of more sensitive research strategies of moderator analysis is much to be desired.

Current problems in moderator analysis

The most common techniques in the business field for moderator analysis are regression and analysis of variance (e.g. ANOVA). However, these techniques assume the single-item measures used are perfectly reliable (i.e. error free), which results in the inability to handle or present information about the impact of measurement error. As an improvement over single-item measures, additional item measures are often created, and combined into a summated or averaged scales, which are then used in subsequent moderated regression or ANOVA analysis. However, there are at least two assumptions in creating such summated or averaged scales, the validity of which can't be assessed. One is to treat all items as equal in their reliabilities, which implies that all items contribute equally to the estimation of interaction effects. The other is to assume the reliability of such summated scales will remain the same when applied later within a theoretical model, which may cause inaccuracies in the subsequent estimates of the theoretical relationships. It is clear that, as argued by Chin *et al.* (1996, 2003), moderator analysis should not only account for measurement error during the stage of initial scale construction, but also during the statistical analysis that estimates interaction effects. The product-indicator approach suggested by Kenny and Judd (1984) is a possible solution for accounting for measurement error.[4] However, growing evidence from the literature suggests the LISREL product-indicator approach can be problematic or even results in analytical errors. For example, the underlying assumption of uncorrelated error terms among indicators within the covariance-based modeling software such as LISREL can't hold true for any moderator analysis because they are created through multiplication, which implies that the error terms for the product indicators are partially correlated with the error terms for the indicators of the other exogenous constructs (Chin *et al.*, 1996, 2003) since PLS does not assume the independence of observations.

To account for the effects of measurement error, a product-indicator approach in conjunction with PLS is recommended by Chin *et al.* (1996, 2003), which has the advantage of overcoming problems with both traditional analytical techniques that can mask measurement error (e.g. aggregated or single indicator) and current problems associated with

LISREL-based approaches (Bollen and Paxton, 1998). As argued by Chin *et al*. (1996, 2003), this PLS-based approach can provide more accurate estimates of interaction effects by accounting for the measurement error with measures, which improves the validation of theories, ensuring that fruitful avenues are maintained and new ones are detected (Chin *et al*., 2003).

The superiority of the PLS product-indicator approach

As discussed above, being a components-based structural equation modeling technique, PLS is similar to regression, but simultaneously models the structural path and measurement paths. Rather than assuming equal weights for all indicators of a scale, the PLS algorithm allows each indicator to vary in how much it contributes to the composite score of the latent variable. In this sense, PLS is superior over techniques such as single-item regression that assumes error free measurement, summated regression that assumes equal-weighted measurement and factor-score-based regression that assumes constrained measurement error within the estimates of the theoretical variables (Chin *et al*., 2003). Furthermore, the PLS product-indicator approach requires no additional specification of parameter constraints or assumptions of multivariate normality, and it can be used to estimate large complex models with standard errors estimated via resampling procedures (e.g. bootstrapping technique). At the same time, sample size is not constrained by the product indicators as the case in LISREL estimations, which may require increasingly larger sample sizes as the number of indicators grows. In addition, as the model complexity increases with more than 40 or 50 indicators, the LISREL software may not even converge. By contrast, the PLS approach has been shown to yield computational results for models with 672 indicators, 21 latent variables and 200 cases in approximately 1.5 minutes on a 166-MHz Pentium computer (Chin and Newsted, 1999).

As concluded by Chin *et al*. (1996, 2003), the new PLS product-indicator approach seems to yield promising results for researchers interesting in assessing interaction effects and are attracting much more attention. Besides the research by Chin *et al*. (1996, 2003), some other studies have been conducted by using PLS approach to test the moderating effects (e.g. Kadipasaoglu *et al*., 1999; Ryan *et al*., 1999; Sosik and Godshalk, 2000; Guiot, 2001; Sarkar *et al*., 2001; Teo *et al*., 2003). Among them, the research of Sarkar *et al*. (2001) and the studies of Chin *et al*. (1996, 2003) are typical examples of the application of the PLS product-indicator approach to moderator analysis. In this book it was, therefore, decided to use the PLS product-indicator approach to test the moderating effects.

The procedure of the PLS product-indicator approach

Predictor, moderator and dependent variables under this PLS approach are viewed as latent variables or constructs and multiple indicators must be obtained for these latent variables. As in traditional multiple regression and the covariance-based solutions using software such as LISREL, product indicators reflecting the latent interaction variables are then created by multiplying the indicators from the predictor and the moderator variables, which is illustrated in Figure 5.5.

However, an important step in undertaking the PLS product-indicator approach is to determine whether indicators should be standardized or centered, which may help avoid computational errors by lowering the correlations between the product indicators and their individual components (Smith and Sasaki, 1979; Chin *et al.*, 1996, 2003). Generally speaking, standardization is preferable for reflective measures as long as they can be considered as approximately parallel indicators (equivalent in their measurement of the underlying construct). In other words, all indicators reflecting the predictor and moderator variables are standardized to a mean of zero and variance of one before the creation of product indicators. Alternatively, centering can be used to maintain the scale metric (or units of measurement), which may be required by theoretical interpretations. Once the standardized or centered indicators of the predictor variable X and the moderator variable Z are calculated, product indicators can be developed by creating all possible products from the two sets of indicators through an explicit multiplication, which are used to reflect the latent interaction variable. In the above example, there are 3 measures for the moderator variable and 4 measures for the

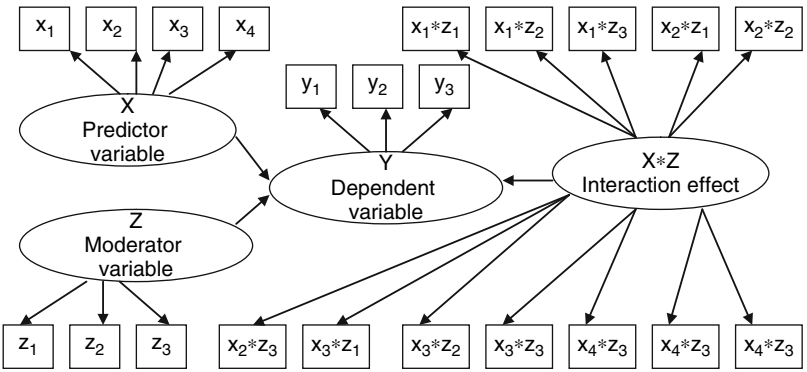


Figure 5.5 An example model with the predictor variable of 4 indicators, moderator variable of 3 indicators and 12 product indicators for the interaction construct

predictor variable, and consequently there would be 12 product indicators representing the interaction term, which has been depicted in Figure 5.5 graphically.

In the process of formulating and testing interaction effects using PLS, a hierarchical process needs to be followed similar to that used in multiple regression in which the results of two models developed in two stages are compared[5]. By using the default standardized output from PLS, the standardized beta estimate of the main construct X on dependent Y is interpreted as the amount of influence of X on Y when the moderator construct Z is fixed. Similarly, the beta estimate of the moderator variable Z to Y is interpreted as the amount of direct influence of Z on Y when X is fixed. The standardized path estimate of the interaction construct informs us how a change in the level of the moderator Z will change the influence of the predictor variable X on dependent variable Y. Thus if X has an estimated beta effect of B on Y, a beta M from the interaction construct can be interpreted as a beta effect change of X on Y from B to B + M when Z increases by one standard deviation from the baseline of zero. Moreover, we can also compare the squared multiple correlations (R^2) for the interaction model with that of the 'main effect' model that excludes the interaction construct to assess the overall effect size f^2 for the interaction. The overall effect size can be calculated using the equation as follows:

$$f^2 = \left[\frac{R^2\,(Interaction - model) - R^2\,(Main - effects - model)}{[1 - R^2\,(Interaction - model)]} \right]$$

Generally, values of f^2 as 0.02, 0.15 and 0.35 have been suggested as small, moderate and large effects respectively (Cohen, 1988). It should be noted, however, a small overall effect size f^2 does not necessarily imply an unimportant effect. Even a small interaction effect can be meaningful under extreme moderating conditions. For instance, it is important to take these conditions into consideration if the resulting effect changes are meaningful.

Potential problems

Before we further discuss our empirical results, it is necessary to point out the potential problems of our research. One is the so-called common method variance; the other is the multicollinearity problem.

Common method variance

It is imperative to address the issue of common method variance before proceeding with further data analysis since all the data, especially data from senior manager survey, are subjective and from a single source. The

use of self-report data is common to management research. However, under certain conditions, sell-report data can either inflate or suppress the magnitude of relationships being investigated, creating common method variance problems. A review of the research on common method variance and examination of the data indicates that these conditions are not present in this book.

Self-report data create the most variance problems for topics that evoke strong sentiments, such as stress and job satisfaction, etc. (Boyd and Fulk, 1996) or evoke socially desirable responses leading to a compressed response range (Podsakoff and Organ, 1986). Due to the unobtrusive nature of environmental turbulence, organizational learning, core competences, strategic flexibility and customer-focused performance, the likelihood of the distorted self-reports and socially desirable answers is reduced, limiting the possibility of common method variance problems. Furthermore, in our data collection, effective measures have been taken to avoid any possible distorted self-reports and socially desirable answers. For example, the informants are reminded that there are no wrong or right answers, and they are expected to provide their answers based on the simple facts rather than past opinions or beliefs, and so on, which contribute as well to the reduction of the possibility of common method variance problems. In addition, as emphasized before, prior research of similar nature also supports the use of self-report data for studies of this kind (e.g. Dess and Robinson, 1984; Strandholm *et al.*, 2003). Also, Harman's (1967) one factor test was used in this book. This test involves entering all the independent and dependent variables into a factor analysis. Common method variance is a substantial problem if a single factor emerges or if one general factor accounts for a disproportionately large variance. The result of this test shows that an 18-factor solution emerges and explains 76.1 per cent of the variance with no single factor explaining more than 10 per cent of the variance.

Multicollinearity problem

In this book, to test the moderating effects of environmental turbulence, the PLS-based structural equation modelling technique was adopted, which is obviously superior to other techniques such as ANOVA and hierarchical regression analysis, etc. And by using the PLS algorithm under a reflective mode for all constructs, any concerns of collinearity within blocks of variables used to represent underlying constructs can be eliminated. However, it is still imperative for us to pay more attention to the multicollinearity problem.

Multicollinearity represents a problem with the presence of significant correlations among independent variables in a regression model.

The existence of multicollinearity tends to inflate the variances of predicted values and parameter estimates because the regression coefficient of any independent variable depends on other independent variables in the model. Such problem is more likely to occur when moderating regression terms is employed because the multiplicative effect in creating cross-product terms may result in high levels of multicollinearity. However, Cronbach (1987) demonstrated that this is not a substantial problem, but can be a practical problem because high correlations between predictors can cause computational errors in standard computer programs, which has been addressed by Chin *et al.* (1996) as well when he tries to show that the PLS method is superior in detecting moderating effects.

According to Neter *et al.* (1990), a formal method for detecting the presence of multicollinearity widely used is by checking variance inflation factors (VIFs), which measure how much the variance of the estimated regression coefficients can be inflated as compared to when the independent variables are not linearly related. The largest VIF value among the independent variables is used as an indicator of the severity of multicollinearity. As a rule of thumb, a VIF value over 10 is often considered as an indication of multicollinearity, which may unduly influence the estimates (Neter *et al.*, 1990). Moreover, the mean of VIF values also provides information about the severity of the multicollinearity in terms of how far the estimated standardized regression coefficients are from the true values. Generally, mean VIF values larger than 1 are indicative of serious multicollearity problems. Therefore, in this book, before we begin further analysis, the VIF values for all independent variables and the mean VIF values were checked and found to be below the suggested threshold level of 10 and 1 respectively. Furthermore, in order to avoid such a problem, following the suggestion by Cronbach (1987) and Chin *et al.* (1996), the predictors were mean-centred prior to forming the multiplicative term in this book.

Summary

This chapter describes a structure survey of three major cities in China. It begins with a discussion of the research design. Next the sampling and Data collection for firm survey and customer survey respectively are described in detail. The sample frame, sample selection process, retrospective reporting and key informant approach are then presented. Finally, the questionnaire design and revision was explained. In Chapter 6, we will discuss the crucial elements and factors concerned in creating core competences and strategic flexibility in China based on the statistical analysis and the structural equation models building process.

6
Creation of Strategic Flexibility and Core Competence

Introduction

This chapter aims at validating the constructs involved and building structural equation models to test the theoretical framework and relevant propositions of this book based on data collected in China. This chapter is organized around four sections to offer some critical golden rules concerning how to create strategic flexibility and core competence for superior customer focused performance. The first section explores the reliability and validity of the constructs and their relevant measurement models. And the second section presents the results of structural equation model building and proposition testing using data from customer survey and from the senior manager survey. In addition, we also apply some basic statistical techniques to analyze the combined data based on the senior manager survey and the customer survey to complement the above-mentioned testing in the third section. Finally, we will discuss the implication of these strategic elements and offer golden rules to international business.

Construct validation and relevant measurement models

As many researchers believe, for theory development and testing, a necessary requirement is to validate the constructs, which pertains to the investigation of the degree of correspondence between constructs and their measures (Bagozzi *et al.*, 1979; Peter, 1981). Furthermore, following the two-step approach in the application process of structural equation models as recommended by Anderson and Gerbing (1988), it is also necessary to assess the adequacy of each multi-item scale in capturing its construct by checking internal consistency reliability, convergent validity and discriminant validity before testing the propositions via the causal models. Since the aspects of validity and reliability can provide

necessary information for inferring construct validation (Bagozzi, *et al.*, 1979; Churchill, 1979), this section presents the results for assessing the validity and reliability of the constructs involved in this book based on the data from both customer survey and manager survey.

Steps of validation

Validity is concerned with the presence or absence of systematic variation in a measure (Peter, 1981), which is synonymous with accuracy or correctness. Validation efforts on measurements in business research are typically based on guidelines provided by psychological measurement theory given that hypothetical constructs are usually unobservable[1] and measures have to be developed at least to partially represent the constructs. Accordingly, the ability to correctly identify significant relationships among latent variables depends on our ability to adequately measure those variables. Therefore, as suggested by Schwab (1980), construct validation is a necessary and major element in the process of business research.

There are three steps and several types of evidence for the construct validation. The first step is the identification of a group of measurement items that are thought to measure the construct, which is commonly refereed to as content validity in the literature (Nunnally, 1978; Carmines and Zeller, 1979; Pedhazur and Schmelkin, 1991). It is also called face validity that is some kind of non-empirical analysis and focuses on the adequacy with which the domain of the characteristics is captured by the measure (Churchill, 1995). In general, measures that have undergone extensive development and scrutiny are judged to be more valid than those that are proposed haphazardly (Peter and Churchill, 1986). The second step is construct validity, which has been defined as representing the correspondence between a construct and operational procedure to measure or manipulate that construct (Schwab, 1980). It is usually considered as a multifaceted process for assessing the adequacy of measures. Generally speaking, establishing construct validity involves the empirical assessment of the adequacy of a measure and requires that three essential components be established: unidimensionality, reliability and validity. The third step refers to nomological validity or substantive validity, i.e. the determination of the extent to which a construct relates to other constructs in a predictable manner, which is essentially hypothesis testing.

Content validity and its assessment

Content validity refers to the extent to which a measurement reflects a specific domain of content (Carmines and Zeller, 1979). In this book,

as discussed in Chapter 4, content validity was addressed by following the instrument development procedures suggested by Churchill (1979). To develop scales related to customer-focused performance and its key resource-based determinants, previous research was reviewed and instruments appropriate for this book were located. Thus the items generated from extensive and intensive literature review constituted an initial inventory of potential measures. Then through customer focus group discussions, in-depth manager interviews and expert consulting, the emerging lists of items were improved to obtain a set of items that appeared to be the most cogent indicators of the constructs concerned.

Furthermore, the content validity was further examined with the assistance of colleagues and doctoral students in City University of Hong Kong and Nankai University. A copy of the scales was sent to them and they were asked to identify and comment on inaccurate or ambiguous items, or items that did not appear to measure the construct of interest. They were also asked to make any other observations and suggestions they deemed appropriate. Using feedback from these scholars, some items were reworded, clarified, and the final version of the scales was developed. The scales were also pre-tested to make sure the content validity before the formal pilot study in order to identify the important issues and to improve them so that they could be more appropriate in Chinese contexts. Then as mentioned in Chapter 4, the two-step data collection procedure in Churchill's (1979) paradigm was employed, and a pilot study was first conducted to purify the measurement instrument followed by a full-scale survey to gather data for the final statistical analysis. All of such procedures imply that content validity is achieved.

Unidimensionality, reliability and validity and their assessments

Unidimensionality pertains to establishing that a set of empirical indicators relates to one and only one construct (O'Leary-Kelly *et al*., 1998), which can be assessed by both exploratory factor analysis and confirmatory factor analysis (Anderson and Gerbing, 1982; Pedhazur and Schmelkin, 1991).

Reliability pertains to the consistency or stability of a measure and is inversely related to the degree to which a measure is contaminated by random errors (Bollen, 1989). As Churchill (1979) points out, reliability refers to the 'extent that independent but comparable measures of the same trait or construct of a given object agree' and it can be assessed by the extent to which there is low measurement error on each scale. Therefore, reliability is commonly defined as the lack of random variation in a measure (Peter, 1979), or the degree to which the scale produces consistent and stable scores of subject on a series of repeated

tests (Cronbach, 1970). In other words, if multiple measurements are taken, the reliable measures will all be very consistent in their values. A widely held view is that reliability is a necessary, but not sufficient, condition for a measure to have validity (Peter, 1979).

There are several methods for assessing the reliability of a measure. The type of empirical test that should be used depends, in part, on the assumptions regarding the type of a measure. Among them, test-retest method involves taking a measurement at two different points in time using the same set of indicators and sample group. Although the simplicity of this method makes it appealing, it does suffer from potential problems such as the social-desirability bias (Nunnally, 1978). Furthermore, convincing senior managers to fill out the same questionnaire a second time presents an enormous challenge and also implies the substantial cost of conducting a second survey. Alternative forms method involves two different measures of the same variables at different times. It has also several theoretical and practical drawbacks, for example, the requirement of the construction of two different measures that are truly equal (Carmines and Zeller, 1979). By contrast, the Cronbach alpha coefficient is one of the most popular methods for assessing reliability. The alpha coefficient can range from 0 to 1 and represents the estimated systematic variance of a measure, which is based on the correlation among indicators that comprise a measure. However, there is no complete agreement on how large the alpha coefficient should be in order to be considered acceptable. For example, Nunnally (1978) has indicated that reliabilities below 0.70 are not acceptable, but argued that alpha values as low as 0.5 are acceptable for early stage of research (Nunnally, 1978). This method provides advantages over the previous two methods. For example, it is based on the much less restrictive assumption, requiring only a single sample that can essentially eliminate the chance of carryover effects (Bollen, 1989). There are, however, a couple of drawbacks associated with the Cronbach alpha method. For example, it is still problematic for studies involving congeneric measures and reliability estimates of single-item measures cannot be made using Cronbach's alpha method. In this book, reliability was operationalized as internal consistency and was calculated using Cronbach's coefficient alpha given the nature of multiple indicator measures and the relative advantages of this method over others. Besides, the Werts, Linn, and Joreskog (WJL) composite reliability method is increasingly used in studies of marketing and strategy (O'Leary-Kelly and Vokurka, 1998). This method utilizes confirmatory factor analysis (CFA) to derive a composite reliability index that is based on the proportion of variance attributable to only the latent

variable (i.e. excluding measurement error). Given the relative advantages, this method was also adopted in this book during the confirmatory factor analysis process.

Validity refers to the extent to which a measurement instrument accurately measures what it purports to measure. Establishing the validity component of a measure involves two elements. One is convergent validity and the other is discriminant validity (Campbell and Fiske, 1959). Convergent validity typically is defined at an operational level, and pertains to the correlation between two different measures purporting to measure the same construct (Peter and Churchill, 1986). In other words, if two different measures with high correlation measure the same construct, this provides evidence of their convergent validity. Discriminant validity provides the primary check in measurement theory in that it reflects the extent to which the measure is unique and not simply a reflection of other variables. This requires that a measure does not correlate too highly with measures from which it is supposed to differ (Campbell and Fiske, 1959). If the correlations are too high, this suggests that measures are not actually capturing a distinct or isolated trait (Churchill, 1995).

Generally speaking, such a validation process encompasses both classical (e.g. item-to-total score correlation, Cronbach's alpha, and exploratory factor analysis) and contemporary approaches (e.g. confirmatory factor analysis) (Bagozzi *et al.*, 1991). For example, as suggested by Subramanian and Nilakanta (1994), both exploratory and confirmatory factor analysis should be employed to ensure the development of a rigorous set of measurement instrument scales if items are not stemmed from strong theories. The logics here is that exploratory factor analysis (classical approach) can be used to provide a general picture of the dimensions of constructs and then a stronger confirmatory factor analysis (contemporary approach) can be employed to further validate the factor structure. Given that about 60 per cent of the measurement items in senior manager survey and about 10 per cent in customer survey are newly developed based on conceptual studies, focus group and senior manager interviews, it is imperative in this book to take both the classical and contemporary approaches to assess the validity and reliability of constructs and their relevant measurement models, the latter of which is even much more significant.

Classical approach

In this book, the scales can be divided into ten categories (see Table 6.1). The first is organizational learning, the second is core competences, the third is strategic flexibility and the fourth is environmental turbulence.

Table 6.1 Categories of scales

Scale categories	*Expected no. of factors*	*No. of items*
Organizational learning*	3	12
Core competences*	3	27
Strategic flexibility*	1	9
Environmental turbulence*	2	6
Customer-focused performance*	3	10
Behavioural intentions*	1	3
Customer-perceived service quality**	5	22
Customer-perceived value**	4	18
Customer satisfaction**	1	3
Behaviour intentions**	1	3

Note: * Scales in manager survey; ** scales in customer survey.

Then customer–focused performance comes next, and behavioural intention is the last scale in manager survey. And the seventh is customer-perceived service quality, the eighth is customer-perceived value, the ninth is customer satisfaction and the last is behavior intentions of customer, all of which are from customer survey.

Item-to total correlation and Cronbach's alpha

Similar to procedures of measure purification, item-to-total score correlation and Cronbach's alpha were employed to evaluate the reliability of the measurement instrument in this book.

On the one hand, the dominant estimator of reliability in business research has been and, despite calls for replacement (O'Leary-Kelly and Vokurka, 1998), continues to be coefficient alpha. Therefore, as mentioned in above reliability was operationalized as internal consistency, and was calculated using Cronbach's alpha in this book, a function of the mean inter-item correlation of the scale as well as the number of items in the scale. As suggested by Green, *et al.* (1988), the coefficient alpha should be used as a measure of the internal consistency because the alpha measures the degree of covariation that exists among the scales' items given that all constructs in the study have adopted multi-item scales. A low coefficient alpha indicates that the sample items perform poorly in capturing the construct while a large alpha indicates that a given item correlates well with the true scores. Thus, the alpha provides the lower limit of a scale's reliability and in most situations it also provides a conservative estimate of the measure's reliability (Carmines and Zeller, 1979). In this book, as shown in Table 6.2, almost all Cronbach's alpha coefficients of the constructs in our model

exceed the standard criterion of 0.70 (Peterson, 1994) and indicate excellent internal consistency with open-mindedness (0.6851) and market turbulence (0.6678) as the exceptions. However, in early stages of basic research, it has been suggested that reliabilities of 0.50 and 0.6 suffice (Nunnally, 1978; Churchill, 1979). It is clear that the Cronbach's alpha of the two exceptional constructs (0.6744 and 0.6830 respectively) in this book is much larger than the minimum acceptable level as suggested. Therefore, all the measurement instruments have shown higher reliabilities in the current study.

On the other hand, the homogeneity of the above 10 categories was evaluated on the basis of the item-to-total correlation between each item and the total score, with the item of interest eliminated from the calculation of the total score.[2] As shown in Table 6.2, item-to-total correlations range from 0.3351 to 0.9412, indicating good homogeneity and no need for the elimination of items any more since each of them is above the threshold level of 0.30 suggested by Nunnally (1978). Besides, further examination of these correlations shows that items in each measure do not differ considerately from other items of the same measure, which implies that our measurement instruments show excellent internal consistency.

Exploratory factor analysis

As indicated by Thompson and Daniel (1996), factor analysis and construct validity had long been associated with each other. Gorsuch (1983) also notes that a prime use of factor analysis has been in the development of both the operational constructs for an area and the operational representatives for the theoretical constructs. Hence, factor analysis is at the heart of the measurement of constructs (Nunnally, 1978). Therefore, besides the above-mentioned techniques, exploratory factor analysis was also conducted during the construct validation process in this book, which is a traditional approach and superior in discovering potential latent sources of variation and co-variation in observed measurements (Subramanian and Nilakanta, 1994). Unlike confirmatory factor analysis, exploratory factor analysis isolates factor structures without consideration of the theoretical expectations of the researchers, even when such expectations are available (Thompson and Daniel, 1996). Generally, scales with good measurement properties should exhibit higher factor loadings or 'converge' on their pertinent latent constructs so that convergent validity can be shown. Conversely, these same indicators should exhibit small loadings on factors that are measured by different sets of indicators so that discriminant validity can be found.

Table 6.2 Item-to-total correlation, Cronbach's alpha and factor loadings

Items and relevant constructs	*Item–total correlation*		*Factor loadings*
	Subscale	*Whole scale*	
Constructs in the senior manager survey *Organizational learning*			
Commitment to learning (alpha = 0.7283)			
1. We, managers, basically agree that our organization's ability to learn is the key to our competitive advantage	0.4965	0.4062	0.665
2. The basic values of our firm include learning as key to improvement	0.5698	0.4297	0.772
3. The sense around here is that employee learning is an investment, not an expense	0.5748	0.5013	0.764
4. Learning in our firm is seen as a key commodity necessary to guarantee organizational survival	0.4356	0.4559	0.734
Share vision (alpha = 0.7566)			
5. There is commonality of purpose in our firm	0.5573	0.6095	0.705
6. There is total agreement on our firm's vision across all levels, functions and divisions	0.5680	0.5316	0.734
7. All employees are committed to the goals of our firm	0.6500	0.5417	0.736
8. Employees view themselves as partners in charting the direction of our firm	0.4672	0.4131	0.610
Open-mindedness (alpha = 0.6851)			
9. We are not afraid to reflect critically on the shared assumptions we have made about our customers	0.4893	0.4313	0.721
10. Personnel in this firm realize that the usual way they perceive the market-space must be continually questioned.	0.4985	0.5939	0.748
11. We often collectively question the way we interpret customer information	0.5069	0.5522	0.872
12. We are encouraged to create innovative ideas and learn new knowledge	0.4309	0.5087	0.629
Constructs in the senior manager survey *Core competences*			
Technological competences (alpha = 0.8527)			
13. We always make relatively heavy investment in R&D activities	0.6256	0.5390	0.651
14. We have accumulated stronger and various technological skills	0.6261	0.5867	0.680

15.	On-job raining is provided frequently in our firm to improve the technical skills of employees	0.5528	0.6011	0.649
16.	We are qualified to attract and motivate talented experts	0.4316	0.4215	0.610
17.	We have the ability to accurately predict future technological trends	0.6272	0.5772	0.674
18.	We are skillful in apply new technology to problem-solving	0.7327	0.5942	0.863
19.	We are one of the leaders in our primary industry to establish and upgrade technology standards	0.5129	0.4896	0.689
20.	We always lead technology innovation of the principal industry in which we operate	0.6420	0.6283	0.860
Integrative competences (alpha = 0.8840)				
21.	Our capability in communication among functions in the process of product and service design is very strong	0.7122	0.6983	0.728
22.	We have strong capability to share and leverage marketing and technology knowledge among functions/business units	0.6568	0.6184	0.679
23.	We have strong capability to integrate external resources with the in-house resources of our firm	0.5738	0.5374	0.668
24.	We have strong capability to share and leverage information about competing strategies of major competitors	0.7296	0.7112	0.717
25.	We have strong capability to coordinate and integrate activities of functions/business units in our corporate strategy	0.5630	0.6518	0.678
26.	We are good at embedding of the newly achieved technological findings in new products and services	0.6161	0.6579	0.658
27.	We have strong skills in integrating customers' innovative ideas into final products and services	0.6416	0.5967	0.660
28.	We have strong capability to deliver superior value to customers by integrating different processes	0.4697	0.4591	0.617
29.	We have strong capability to coordinate effectively in the implementation process of corporate strategy	0.7433	0.7033	0.742

Table 6.2 (Continued)

Items and relevant constructs	*Item–total correlation*		*Factor loadings*
	Subscale	*Whole scale*	
Marketing competences (alpha = 0.8843)			
30. Our capability in obtaining real time information about changes of customer needs is very strong	0.7469	0.7378	0.790
31. Our capability in communicating with customers about their potential and current demands is very strong	0.7354	0.6621	0.748
32. We have strong capability of involving customers in the process of product testing and assessment	0.6947	0.6922	0.727
33. Our capability enables us to respond quickly to customers' requirements and deliver offerings in time	0.4936	0.4604	0.628
34. We have strong capability to acquire real time information of competitors' evolution of strength and weakness	0.6421	0.5373	0.651
35. Our capability in benchmarking the product and service practices of major competitors is very strong	0.6744	0.6344	0.677
36. We have strong capability of building and enhancing large-scale marketing channels	0.6546	0.5754	0.680
37. We have strong capability of managing close customer relationship effectively for long-term	0.6253	0.6830	0.692
Constructs in the senior manager survey *Strategic flexibility (alpha = 0.8882)*			
38. Compared with our major competitor, our strategy is very flexible.	0.6357	0.6357	0.656
39. Capability to redirect the strategic positioning quickly and effectively is strong	0.7316	0.7316	0.762
40. Capability to respond quick to the actions of our competitors is strong	0.7029	0.7029	0.781
41. Capability to respond quick to rapid changing customer needs is strong	0.6620	0.6620	0.694
42. Capability to derive benefits from diversity in the environment is strong	0.6879	0.6879	0.641
43. Practices in build excess resources by hedging and sharing investments across business activities is pretty good	0.5276	0.5276	0.704
44. Capability to redeploy strategic resources quickly according to environmental changes is strong	0.7397	0.7397	0.819

45.	Capability to redeploy strategic resources in cost-efficient way according to environmental changes is strong	0.7040	0.7040	0.789
46.	Strategic resources in our firm can be applied for alternative uses	0.4231	0.4231	0.765
Environmental turbulence				
Market turbulence (alpha = 0.6678)				
47.	Demand and consumer tastes are almost unpredictable.	0.4429	0.4312	0.770
48.	Our firm must change our marketing practices frequently to keep up with the market and competitors	0.6167	0.6413	0.781
49.	Actions of competitors are unpredictable and competition is very intense	0.4094	0.3351	0.727
Technological turbulence (alpha = 0.7482)				
50.	The changing speed/ pace of technologies in our principal industry is very fast.	0.5136	0.4952	0.696
51.	The rapid emerging of new technology always has fundamental impact on business activities	0.5743	0.5299	0.816
52.	The technological changes in the principal industry in which we operate are unpredictable	0.6421	0.5591	0.864
Customer-focused performance				
Customer satisfaction (alpha = 0.7874)				
53.	Our firm can provide offerings that meet customer's expectation	0.6215	0.5400	0.729
54.	Comparing with the desirable level, our offerings always make customers satisfactory	0.6325	0.6259	0.882
55.	Taking the major competitors' offerings into consideration, customers are very pleased with ours	0.6300	0.7207	0.745
Customer-perceived value (alpha = 0.7743)				
56.	Overall, our offerings are value for money	0.5291	0.6398	0.652
57.	Considering expenses and offerings they get, customers believe it is a right decision to transact with our firm	0.5902	0.6123	0.767
58.	Our firm always tries to reduce the time and effort customers have to spend in the processes of obtaining and consuming our offerings	0.6406	0.4806	0.816
59.	Taking the major competitors' offerings, customers believe that our offerings are value for money	0.5659	0.6473	0.683

Table 6.2 (Continued)

Items and relevant constructs	*Item–total correlation*		*Factor loadings*
	Subscale	*Whole scale*	
Customer-perceived service quality (alpha = 0.8034)			
60. Customers always get offerings of high quality from our firm	0.5735	0.6855	0.694
61. Customers believe that the quality of our offerings is pretty good	0.6352	0.6016	0.761
62. Customers are confident in the quality of our offerings	0.7874	0.7684	0.920
Behavioural intentions (alpha = 0.8633)			
63. Overall, customers tends to repurchase the offerings from our firm	0.7169	0.7169	0.828
64. Overall, customers tend to recommend the offerings of our firm to others	0.7877	0.7877	0.892
65. Overall, customers tend to keep close relationship with our firm	0.7176	0.7176	0.872
Constructs in the customer survey *Customer perceived service quality*			
Tangible (alpha = 0.8058)			
1. The physical facilities are visually appealing	0.6133	0.6254	0.743
2. The service environment (such as encounters, lights, waiting areas, etc.) is favourable	0.5061	0.3957	0.715
3. The employees are well dressed and neat in appearance	0.4798	0.5169	0.751
4. The promotional materials (such as booklet, poster, etc.) are visually appealing	0.4927	0.5921	0.694
Reliability (alpha = 0.9158)			
5. When the service provider promises to do something by a certain time, it does so	0.6602	0.5923	0.663
6. When I have a problem, the service provider shows a sincere interest in solving it	0.5136	0.6533	0.648
7. The employees are always ready for providing reliable offerings	0.7814	0.7399	0.677
8. The service provider delivers its services at the times it promises to do so	0.7965	0.6960	0.781
9. The service provider always performs the service right the first time	0.7615	0.7457	0.685
Responsiveness (alpha = 0.9412)			
10. The employees tell me exactly when services will be performed	0.8034	0.7921	0.752

11.	The employees give me a prompt service	0.8688	0.8032	0.713
12.	The employees are always willing to help me	0.8411	0.8064	0.782
13.	The employees are never too busy to respond to my requests	0.8378	0.8345	0.796
Assurance (alpha = 0.8866)				
14.	The employees instill confidence in customers	0.8012	0.8290	0.676
15.	Customers feel safe in transactions with the service provider	0.4422	0.6547	0.682
16.	The employees are consistently courteous with customers	0.7533	0.7852	0.616
17.	The employees have knowledge to answer customers' questions	0.8307	0.8022	0.767
Empathy (alpha = 0.9009)				
18.	The service provider gives customers individual attention	0.8303	0.7697	0.661
19.	The service provider has customers' best interest at heart	0.8306	0.7979	0.769
20.	The employees understand customers' specific needs	0.8847	0.7988	0.638
21.	The service provider has operating hours and location convenient to all its customers	0.7188	0.7143	0.673
22.	The employees give their personal attention	0.4394	0.5732	0.646
Customer-perceived value				
Functional value (alpha = 0.9400)				
23.	The firm always delivers superior service	0.8794	0.8606	0.735
24.	The offerings of this firm are of high quality	0.8831	0.8552	0.668
25.	Consistent quality is well made	0.9087	0.9154	0.652
26.	The offerings of this firm make me feel confident	0.9330	0.9244	0.746
Emotional value (alpha = 0.9609)				
27.	The brand/offering of this firm is the one that I would enjoy	0.8929	0.8992	0.636
28.	The brand/offering of this firm makes me want to purchase and use it	0.9040	0.8769	0.686
29.	The brand/offering of this firm is the one that I would feel relaxed about using it	0.9485	0.9381	0.773
30.	The brand/offering of this firm would make me feel good	0.9612	0.9341	0.659
31.	The brand/offering of this firm would give me pleasure	0.9538	0.9412	0.663

Table 6.2 (Continued)

Items and relevant constructs	*Item–total correlation*		*Factor loadings*
	Subscale	*Whole scale*	
Perceived sacrifice (alpha = 0.9642)			
32. The brand/offering of this firm is reasonably priced	0.7933	0.7862	0.658
33. The brand/offering of this firm offers value for money based on previous experiences	0.9331	0.9263	0.794
34. The brand/offering of this firm would be economical	0.9178	0.9417	0.709
35. The brand/offering of this firm is a good product for the price deducted by discounts	0.8988	0.8724	0.754
Constructs in the customer survey *Customer perceived value*			
Perceived sacrifice			
36. The brand/offering of this firm is value for money compared with that of major competitors	0.8660	0.8662	0.746
37. The choice of transacting with the firm is a right decision when price and other expenses are considered	0.8486	0.8637	0.721
Social value (alpha = 0.9201)			
38. The brand/offering of this firm would improve the way I am perceived	0.7838	0.7916	0.806
39. The brand/offering of this firm would help me make a good impression on other people	0.8063	0.7624	0.743
40. The brand/offering of this firm would give its owners the social approval	0.7088	0.7389	0.725
Customer satisfaction (alpha = 0.9279)			
41. The offerings always meet customers' expectation	0.9046	0.9046	0.916
42. Taking the experience of the customers with other companies, the customer is satisfied with our offerings and us.	0.8732	0.8732	0.911
43. The offerings always meet the desirable level	0.8693	0.8693	0.786
Behavioural intentions (alpha = 0.8356)			
44. The customer would like to repurchase the offerings from the firm	0.7493	0.7493	0.844
45. The customer would like to recommend the offerings to others	0.5283	0.5283	0.926
46. The customer would like to keep close relationship with the firm	0.5305	0.5305	0.768

However, it should be noted that although exploratory factor analysis of items is a useful scale development technique to reduce a large number of items to a more manageable set, it, as pointed out by Anderson and Gerbing (1988), does not provide an explicit test of unidimensionality because each factor is defined as a weighted sum of all the available items in that dimension. Only confirmatory factor analysis, in which each factor is related to only a subset of indicators, offers a rigorous evaluation of dimensionality and internal consistency. Therefore, the exploratory factor analysis in this book is just designed to explore the pattern of relationship among a number of variables, assess proposed dimensionality and plays a complementary role. In fact, a strong a priori basis for the hypothesized measurement model in this book warrants the rationality of more emphasis on the use of CFA compared with exploratory factor analysis (EFA) since these measures were specifically developed to reflect a priori constructs based on theory, previous research, and in-depth interviews (Hughes *et al.*, 1986; Allen and Eby, 2003).

The resulting scales in the exploratory factor analysis will then be evaluated and refined by a confirmatory factor analysis (CFA) before testing the full latent variable model (Anderson and Gerbing, 1988). In doing so, the desirable is, of course, either with a split sample in the original data or with a separate sample (Hair *et al.*, 1998). However, research like that done for this book may require substantial investments of time and money. In fact, as the literature makes clear (Anderson and Gerbing, 1988; Kelloway, 1995), using the same data for both analyses is frequently done in practice since it may streamline research activities (Huber and Power, 1985; Kaynak, 2003). The recent work of Kaynak (2003) is a good example of using the same data for both exploratory and confirmatory factor analysis. Alternatively, there are also studies in which exploratory factor analysis is conducted based on pilot data. For example, in the study of Nahm *et al.* (2003), the exploratory factor analysis is conducted based on pilot data of 40 responses from manufacturing executives/managers, which is followed by the confirmatory factor analysis. Therefore, in this stage of the study, two rounds of exploratory factor analysis were conducted. One was performed on the basis of pilot data and the other was based on data for the main study, which used an eigenvalue criterion of 1.00 and variable factor loading criterion of 0.45. In performing factor analysis, the resulting factors were rotated using the Varimax transformation if necessary, in an attempt to improve the interpretation and to obtain some theoretically meaningful factors. Though oblique transformations are sometimes thought to produce more theoretically meaningful constructs, orthogonal transformations such as Varimax are generally viewed as easier

to interpret and are appropriate rotation techniques when factors are going to be used in the subsequent statistical analyses (Hair *et al*., 1998). Furthermore, according to Aaker and Day (1980) and Hair *et al*. (1998), criteria such as factor interpretability (whether the variables match the intuitive conceptualizations of hypothesized concept) and the amount of variance explained by each factor, etc. were used throughout the study for factor solutions. Not surprisingly, the same factor structure is found for the two rounds of exploratory factor analysis. Only the results of EFA based on the pilot data are reported here since the results of confirmatory factor analysis based on data for the main study will be presented in the next section to verify that the dimensions as measured by the items selected in the exploratory factor analysis are truly unidimensional, convergent and discriminant.

Factor analysis of organizational learning variables Exploratory factor analysis (EFA) was performed in order to identify the factor structure of organizational learning. Totally three factors were initially identified. Each of these factors has an eigenvalue greater than 1.0, and together they explain 61.1 per cent of the total variance. Of these factors identified, the first factor is related to 'open-mindedness', which has an eigenvalue of 3.0, and accounts for 25.2% of the explained variance. The second factor is 'shared vision', which has an eigenvalue of 2.4, and accounts for 20.1 per cent of the explained variance. The third factor is related to 'commitment to learning' with an eigenvalue of 1.9. It is found that the factors that emerged are identical in number and similar in nature to those expected a priori. As shown in Table 6.2, for each factor, the measures used *a priori* all load heavily on the factor as expected, indicating high convergent validity. Furthermore, these variables do not load more highly on other factors than they do on the factor they intend to measure, indicating discriminant validity, which are not shown in Table 6.2 to aid the interpretability of the factors (Balkin and Gomez-Mejia, 1987) since they are below the level of 0.40.

Factor analysis of core competences variables Exploratory factor analysis (EFA) was conducted in order to identify the factor structure of core competences. As a result, totally three factors were initially identified. Each of these factors has an eigenvalue greater than 1.0, and about 56.3 per cent of the total variance is explained. Of these factors identified, the first factor is related to integrative competences, which has an eigenvalue of 5.2, and accounts for 20.6 per cent of the explained variance. The second factor is technological competences, which has an eigenvalue of 4.9 and accounts for 19.9 per cent of the explained variance. The third factor is related to marketing competences with an

eigenvalue of 3.9. Again, as shown in Table 6.2, it is found that all items load highest on the factor they are hypothesized to measure and do not load more highly on other factors than they do on the factor they intend to measure. In fact, all the loadings on other factors rather than the one they intend to measure are below the level of 0.40. Therefore, coinciding with previous research, we show only those loadings on their targeted constructs in Table 6.2 to aid the interpretability of the factors (Balkin and Gomez-Mejia, 1987).

Factor analysis of environmental turbulence variables Two factors were identified by performing factor analysis pertaining to environmental variables, an identical number as expected *a priori*. About 64.9 per cent of the total variance is explained. Of these factors identified, the first factor is related to market turbulence, which has an eigenvalue of 2.1 and accounted for 34.4 per cent of the variance. The second factor is identified as technological turbulence with an eignvalue of 1.8, explaining 30.5 per cent of the variance. Again, since all the loadings on other factors rather than the one they intend to measure are below the level of 0.40, only those loadings on their targeted constructs are shown in Table 6.2 (Balkin and Gomez-Mejia, 1987).

Factor analysis of customer-focused performance variables The exploratory factor analysis of customer-focused performance resulted in three factors, which are identical in number and similar in nature to those expected *a priori*. Overall about 69.9 per cent of total variance is explained. Among the identified factors, the first factor is related to customer perceived service quality, which has an eigenvalue of 2.4 and accounts for 24.3 per cent of the variance. The second factor is identified as customer satisfaction with an eignvalue of 2.3, explaining 23.2 per cent of the variance. The third factor is customer-perceived value with an eignvalue of 2.2. For each factor, the measures used a priori all load heavily on the factors they are hypothesized to measure, as shown in Table 6.2, indicating high convergent validity. Furthermore, these variables do not load more highly on other factors (below 0.40) than they do on the factor they intend to measure, indicating discriminant validity.

Factor analysis of other variables in manager survey After factor analysis of those constructs with multiple dimensions respectively, the rest variables that were intended to measure strategic flexibility and behavioural intentions were analyzed as a group. This resulted in two factors as expected. Together the two factors can explain 61.0 per cent of the total variance. The first factor is related to strategic flexibility, which has an eigenvalue of 4.6 and accounts for 38.3 per cent of the variance. The

second factor is identified as behavioural intentions with an eignvalue of 2.7, explaining 22.7 per cent of the variance. Similarly, for each factor, the measures used a priori all load heavily on the factors they are hypothesized to measure, as shown in Table 6.2, and do not load more highly on other factors (below 0.40) than they do on the factor they intend to measure.

Therefore, it is clear that our measures in manager survey have a good reliability and validity based on the above analysis. Now let us come to check the results of factor analysis of those measures in customer survey.

Factor analysis of customer-perceived service quality variables In order to identify the factor structure of customer-perceived service quality, exploratory factor analysis (EFA) was conducted and five factors emerged. Each of these factors has an eigenvalue greater than 1.0, and about 80.6 per cent of the total variance is explained. Of these factors identified, the first factor is related to 'responsiveness,' which has an eigenvalue of 5.8, and accounts for 26.4 per cent of the explained variance. The second factor is 'reliability,' which has an eigenvalue of 3.9 and accounts for 19.8 per cent of the explained variance. The third factor is identified as 'empathy' with an eigenvalue of 3.7 and accounts for 16.3 per cent of the explained variance. The fourth factor is 'tangibles,' which has an eigenvalue of 2.8 and accounts for 10.7 per cent of the explained variance. The last factor was 'assurance' with an eigenvalue of 1.56. Again, as shown in Table 5.2, it is found that all items load highest on the factor they are hypothesized to measure, and do not load more highly on other factors than they do on the factor they intend to measure. In fact, all the loadings on other factors rather than the one they intend to measure were below the level of 0.40.

Factor analysis of customer-perceived value variables The exploratory factor analysis of customer-perceived value resulted in four factors, which are identical in number and similar in nature to those expected a priori. Overall about 89.6 per cent of total variance is explained. Among the identified factors, the first factor is related to 'customer-perceived sacrifice,' which has an eigenvalue of 6.0 and accounts for 33.6 per cent of the variance. The second factor is 'emotional value,' which has an eigenvalue of 4.2 and accounts for 23.4 per cent of the variance. The third factor is identified as 'functional value' with an eignvalue of 3.9, explaining 21.5 per cent of the variance. The fourth factor is 'social value' with an eignvalue of 2.0. For each factor, the measures used *a priori* all load heavily on the factors they are hypothesized to measure, as shown in Table 6.2, indicating high convergent validity. On the other hand, these variables

do not load more highly on other factors (below 0.40) than they do on the factor they intend to measure, indicating discriminant validity.

Factor analysis of other variables in customer survey After factor analysis of those constructs with multiple dimensions in customer survey respectively, the rest variables that were intended to measure customer satisfaction and behavioral intentions were analyzed as a group. This resulted in two factors as expected. Together the two factors can explain 87.1 per cent of the total variance. The first factor is related to customer satisfaction, which has an eigenvalue of 3.2 and accounts for 54 per cent of the variance. The second factor is identified as behavioral intentions of customers with an eigenvalue of 2.0, explaining 33.1 per cent of the variance. Again, the measures used a priori all load heavily on the factors they are hypothesized to measure, as shown in Table 6.2, and do not load more highly on other factors (below 0.40) than they do on the factor they intend to measure.

Therefore, it is clear that our measures in customer survey have a satisfactory level of reliability and validity based on the analysis results of a classical approach and they can be used for further analysis. Next we will focus on the construct validation process by taking the contemporary approach.

Contemporary approach

Unlike the conventional techniques involving exploratory factor analysis, confirmatory factor analysis (CFA) contains inferential statistics that allow for hypothesis testing regarding the unidimensionality of a set of indicators, which leads to a stricter and more objective interpretation of unidimensionality than does EFA. Furthermore, CFA can address other problems associated with EFA. For example, in CFA, the significance of the factor loading can be tested using a statistical t-test.

Introduction

As previous studies have shown, CFA is very useful in validating the measurement instrument (Heeler *et al.*, 1977; Steenkamp and Trijp, 1991). Therefore, CFA was further used to assess the construct validity in this book. However, the latent variables and their associated empirical indicators have to be specified *a priori* based on theoretical justification in confirmatory factor analysis, which is different from EFA.

LISREL, AMOS, and PLS are the three commonly used second-generation multivariate techniques for instrument validation. Because of the ability to estimate latent model under conditions of non-normality and small sample size, PLS has been widely adopted recently (Compeau

and Higgins, 1995; Vandenbosch and Higgins, 1996; Chin, 1998). In this book, as discussed and concluded in Chapter 4, the measurement model of Statistical software PLS Version 3.0 was employed as a contemporary approach to validate the instruments. Among the components of a PLS model, the measurement model is the model relating observed variables to latent variables, while the structural model is the model expressing the relationships among latent variables. In fact, the characteristics of the measurement model are usually employed to demonstrate construct validity of the scales. During this stage of construct validation process, reliability of the scales was assessed using composite reliability and average variance extracted as recommended by previous studies. Composite reliability measures the internal consistency of a construct with the acceptance value at 0.70 or above (Hair *et al.* 1998). The computation of composite reliability is based on the following:

$$\text{Composite reliability } (\rho) = \frac{\left(\sum_{i=1}^{p} \lambda_i\right)^2}{\left(\sum_{i=1}^{p} \lambda_i\right)^2 + \left(\sum_{i=1}^{p} Var\,(\varepsilon_i)\right)}$$

Note: λ = factor loading; ε = measurement error

Average variance extracted (AVE) reflects the overall amount of variance in the items accounted for by the latent construct. Fornell and Larcker (1981) state that AVE is a more conservative measure than composite reliability and their suggested acceptance level is 0.50 or above for a construct. The AVE is computed as follows:

$$\text{AVE}(\delta) = \frac{\sum_{i=1}^{p} \lambda^2{}_i}{\sum_{i=1}^{p} \lambda_i{}^2 + \left(\sum_{i=1}^{p} Var\,(\varepsilon_i)\right)}$$

Note: λ = factor loading; ε = measurement error

Furthermore, Bollen (1989) has further stressed that factor loadings to latent variables can also be used to assess the validity of the scales. The higher the factor loadings to latent variables, the stronger the validity of the scales. In addition, Fornell and Larcker (1981) suggest that AVE could be adopted to evaluate discriminant validity.

Confirmatory factor analysis and the results

As mentioned above, confirmatory factor analysis was further performed to assess the construct validity in this book given the shortcomings of exploratory factor analysis and the superiority of confirmatory factor

analysis in affording a stricter interpretation of unidimensionality than traditional methods (Anderson and Gerbing, 1988). In fact, as argued and supported by many related studies, an EFA a CFA constitutes a more rigorous test of factor unidimensionality than coefficient alpha, EFA, and/or item-total correlations (Anderson and Gerbing, 1988; Calantone, *et al.*, 1996; Rentz *et al.*, 2002)

Since two surveys were conducted (one is senior manager survey, the other is customer survey), confirmatory factor analysis was employed separately. The results of two separate confirmatory factor analysis have been combined and shown in Table 6.3. And the descriptive statistics, correlation matrix and the square root of AVE (average variance extracted) of each construct based on data from manager survey and customer survey are shown in Tables 6.4 and Table 6.5 respectively.

First, the composite reliability for internal consistency is demonstrated, since the value of composite reliability for each construct is above the suggested threshold of 0.70. As shown in Table 6.3, among all the constructs in our models, the composite reliability of market turbulence is the minimum with a value of 0.83. Secondly, results in Table 6.3 indicate that the standardized factor loadings for all items are above the suggested cut-off of 0.60 (Hatcher, 1994), with the fourth item of open-mindedness as the minimum of 0.6312, and all are significant with strong evidence of convergent validity. In fact, most of these loadings are above 0.70 and significant at the 0.001 level. At the same time, the average variance extracted (AVE) of each construct in our models was calculated in this book and each is more than 0.50 with the minimum level of 0.59, which meets the criterion that a construct's AVE should be at least higher than 50 per cent to guarantee more valid variance explained than error in its measurement (Fornell and Larcker, 1981; Fornell and Cha, 1994). Thirdly, apart from the above-mentioned convergent validity, the constructs should also show higher discriminant validity.

In practice, there are several methods of checking discriminant validity. The comparison between the unconstrained model and the constrained model is typical when taking 'ML method' to develop structural equation models using LISREL or AMOS. However, in this book, the PLS method was adopted and a different but popular technique was used to check discriminant validity in structural equation models developed using PLS method. According to Fornell and Cha (1994) and Fornell and Larcker (1981), discriminant validity can be evidenced by the fact that the square root of AVE of each construct is generally higher than the correlations between it and any other construct in the models. The results in Table 6.4 have shown that the square

Table 6.3 Results of confirmatory factor analysis, AVE and composite reliability

Items and relevant constructs	*Factor loading*	*t-statistic*	*Composite reliability*
Constructs in the senior manager survey			
Organizational learning			
Commitment to learning (AVE = 0.65)			0.88
1. We, managers, basically agree that our organization's ability to learn is the key to our competitive advantage	0.6658	5.54	
2. The basic values of our firm include learning as key to improvement	0.8017	24.57	
3. The sense around here is that employee learning is an investment, not an expense	0.8024	19.51	
4. Learning in our firm is seen as a key commodity necessary to guarantee organizational survival	0.7223	7.76	
Share vision (AVE = 0.62)			
5. There is commonality of purpose in our firm	0.7545	23.23	
6. There is total agreement on our firm's vision across all levels, functions and divisions	0.8101	17.65	0.86
7. All employees are committed to the goals of our firm	0.8405	27.06	
8. Employees view themselves as partners in charting the direction of our firm	0.6879	12.36	
Open-mindedness (AVE = 0.61)			
9. We are not afraid to reflect critically on the shared assumptions we have made about our customers	0.7745	12.519	0.86
10. Personnel in this firm realize that the usual way they perceive the market-space must be continually questioned.	0.7578	20.12	
11. We often collectively question the way we interpret customer information	0.8998	8.03	
12. We are encouraged to create innovative ideas and learn new knowledge	0.6312	8.44	

Core competences				
Technological competences (AVE = 0.60)				
13.	We always make relatively heavy investment in R&D activities	0.7442	23.64	0.92
14.	We have accumulated stronger and various technological skills	0.7542	23.21	
15.	On-job raining is provided frequently in our firm to improve the technical skills of employees	0.6949	23.08	
16.	We are qualified to attract and motivate talented experts	0.6673	11.86	
17.	We have the ability to accurately predict future technological trends	0.7758	22.76	
18.	We are skillful in apply new technology to problem-solving	0.8425	7.46	
19.	We are one of the leaders in our primary industry to establish and upgrade technology standards	0.7750	19.07	
20.	We always lead technology innovation of the principal industry in which we operate	0.8417	10.55	
Integrative competences (AVE = 0.59)				
21.	Our capability in communication among functions in the process of product and service design is very strong	0.8015	29.46	0.93
22.	We have strong capability to share and leverage marketing and technology knowledge among functions/business units	0.7733	25.49	
23.	We have strong capability to integrate external resources with the in-house resources of our firm	0.7228	16.27	
24.	We have strong capability to share and leverage information about competing strategies of major competitors	0.7929	20.56	
25.	We have strong capability to coordinate and integrate activities of functions/business units in our corporate strategy	0.7147	10.40	
26.	We are good at embedding of the newly achieved technological findings in new products and services	0.7293	14.46	

Table 6.3 (Continued)

Items and relevant constructs	*Factor loading*	*t-statistic*	*Composite reliability*
27. We have strong skills in integrating customers' innovative ideas into final products and services	0.7467	13.92	
28. We have strong capability to deliver superior value to customers by integrating different processes	0.6524	9.73	
29. We have strong capability to coordinate effectively in the implementation process of corporate strategy	0.8145	29.41	
Constructs in the senior manager survey			
Core compentences			
Marketing competences (AVE = 0.62)			
30. Our capability in obtaining real time information about changes of customer needs is very strong	0.8173	32.95	0.93
31. Our capability in communicating with customers about their potential and current demands is very strong	0.8015	31.23	
32. We have strong capability of involving customers in the process of product testing and assessment	0.8109	29.94	
33. Our capability enables us to respond quickly to customers' requirements and deliver offerings in time	0.6484	15.64	
34. We have strong capability to acquire real time information of competitors' evolution of strength and weakness	0.7294	16.53	
35. Our capability in benchmarking the product and service practices of major competitors is very strong	0.7282	14.44	
36. We have strong capability of building and enhancing large-scale marketing channels	0.7538	17.99	
37. We have strong capability of managing close customer relationship effectively for long-term	0.7522	19.39	
Strategic flexibility (AVE = 0.64)			
38. Compared with our major competitor, our strategy is very flexible.	0.7469	23.21	
39. Capability to redirect the strategic positioning quickly and effectively is strong	0.7794	25.93	0.94

40.	Capability to respond quick to the actions of our competitors is strong	0.8030	31.07	
41.	Capability to respond quick to rapid changing customer needs is strong	0.7689	20.79	
42.	Capability to derive benefits from diversity in the environment is strong	0.7363	16.37	
43.	Practices in build excess resources by hedging and sharing investments across business activities is pretty good	0.7874	14.39	
44.	Capability to redeploy strategic resources quickly according to environmental changes is strong	0.8013	26.74	
45.	Capability to redeploy strategic resources in cost-efficient way according to environmental changes is strong	0.8088	24.29	
46.	Strategic resources in our firm can be applied for alternative uses	0.7967	8.10	
Environmental turbulence				
Market turbulence (AVE = 0.62)				
47.	Demand and consumer tastes are almost unpredictable.	0.7757	14.08	0.83
48.	Our firm must change our marketing practices frequently to keep up with the market and competitors	0.8633	52.41	
49.	Actions of competitors are unpredictable and competition is very intense	0.7133	11.70	
Technological turbulence (AVE = 0.65)				
50.	The changing speed/ pace of technologies in our principal industry is very fast.	0.7188	16.94	0.85
51.	The rapid emerging of new technology always has fundamental impact on business activities	0.8337	28.34	
52.	The technological changes in the principal industry in which we operate are unpredictable	0.8583	43.40	
Customer-focused performance				
Customer satisfaction (AVE = 0.74)				
53.	Our firm can provide offerings that meet customer's expectation	0.8566	20.35	0.90
54.	Comparing with the desirable level, our offerings always make customers satisfactory	0.8711	33.67	

Table 6.3 (Continued)

Items and relevant constructs	*Factor loading*	*t-statistic*	*Composite reliability*
55. Taking the major competitors' offerings into consideration, customers are very pleased with ours	0.8530	38.54	
Constructs in the senior manager survey			
Customer-focused performance			
Customer-perceived value (AVE = 0.64)			
56. Overall, our offerings are value for money	0.7595	23.09	0.88
57. Considering expenses and offerings they get, customers believe it is a right decision to transact with our firm	0.8139	34.67	
58. Our firm always tries to reduce the time and effort customers have to spend in the processes of obtaining and consuming our offerings	0.8813	10.09	
59. Taking the major competitors' offerings, customers believe that our offerings are value for money	0.7935	21.12	
Customer-perceived service quality (AVE = 0.73)			
60. Customers always get offerings of high quality from our firm	0.8166	25.67	0.89
61. Customers believe that the quality of our offerings is pretty good	0.8519	25.70	
62. Customers are confident in the quality of our offerings	0.8953	51.94	
Behavioural intentions (AVE = 0.80)			
63. Overall, customers tend to repurchase the offerings from our firm	0.8747	46.26	
64. Overall, customers tend to recommend the offerings of our firm to others	0.9245	63.19	0.92
65. Overall, customers tend to keep close relationship with our firm	0.8846	36.37	
Constructs in the customer survey			
Customer-perceived service quality			
Tangible (AVE = 0.71)			0.91
1. The physical facilities are visually appealing	0.8205	43.05	
2. The service environment (such as encounters, lights, waiting areas, etc.) is favourable	0.8299	26.97	
3. The employees are well dressed and neat in appearance	0.9268	25.54	

4. The promotional materials (such as booklet, poster, etc.) are visually appealing	0.8143	52.72	
Reliability (AVE = 0.75)			
5. When the service provider promises to do something by a certain time, it does so	0.8429	44.45	0.94
6. When I have a problem, the service provider shows a sincere interest in solving it	0.8182	30.69	
7. The employees are always ready for providing reliable offerings	0.8739	50.64	
8. The service provider delivers its services at the times it promises to do so	0.8992	63.12	
9. The service provider always performs the service right the first time	0.8813	66.05	
Responsiveness (AVE = 0.83)			0.95
10. The employees tell me exactly when services will be performed	0.9044	59.00	
11. The employees give me a prompt service	0.8813	35.79	
12. The employees are always willing to help me	0.9254	78.18	
13. The employees are never too busy to respond to my requests	0.9305	98.04	
Assurance (AVE = 0.75)			0.92
14. The employees instil confidence in customers	0.8886	54.09	
15. Customers feel safe in transactions with the service provider	0.8880	64.92	
16. The employees are consistently courteous with customers	0.7679	26.15	
17. The employees have knowledge to answer customers' questions	0.9103	73.06	
Empathy (AVE = 0.71)			
18. The service provider gives customers individual attention	0.8869	77.96	
19. The service provider has customers' best interest at heart	0.9131	82.67	
20. The employees understand customers' specific needs	0.8162	31.31	
21. The service provider has operating hours and location convenient to all its customers	0.8847	76.21	0.93
22. The employees give their personal attention	0.7049	17.69	

Table 6.3 (Continued)

Items and relevant constructs	*Factor loading*	*t-statistic*	*Composite reliability*
Constructs in the customer survey			
Customer perceived value			
Functional value (AVE = 0.85)			
23. The firm always delivers superior service	0.9306	102.26	0.96
24. The offerings of this firm are of high quality	0.9204	99.41	
25. Consistent quality is well made	0.8938	75.46	
26. The offerings of this firm make me feel confident	0.9346	121.35	
Emotional value (AVE = 0.86)			
27. The brand/offering of this firm is the one that I would enjoy	0.9101	48.94	0.97
28. The brand/offering of this firm makes me want to purchase and use it	0.9334	118.16	
29. The brand/offering of this firm is the one that I would feel relaxed about using it	0.9427	129.67	
30. The brand/offering of this firm would make me feel good	0.9141	72.28	
31. The brand/offering of this firm would give me pleasure	0.9314	113.61	
Perceived sacrifice (AVE = 0.84)			
32. The brand/offering of this firm is reasonably priced	0.9074	72.14	
33. The brand/offering of this firm offers value for money based on previous experiences	0.9210	77.31	0.97
34. The brand/offering of this firm would be economical	0.9199	92.46	
35. The brand/offering of this firm is a good product for the price deducted by discounts	0.9255	84.09	
36. The brand/offering of this firm is value for money compared with that of major competitors	0.9227	81.81	
37. The choice of transacting with the firm is a right decision when price and other expenses are considered	0.9130	103.67	
Social value (AVE = 0.86)			
38. The brand/offering of this firm would improve the way I am perceived	0.9389	116.85	0.94
39. The brand/offering of this firm would help me make a good impression on other people	0.9213	95.75	

40.	The brand / offering of this firm would give its owners the social approval	0.9168	70.49	
Customer satisfaction (AVE = 0.87)				
41.	The offerings always meet customers' expectation	0.9338	122.66	0.95
42.	Taking the experience of the customers with other companies, the customer is satisfied with our offerings and us.	0.9393	127.85	
43.	The offerings always meet the desirable level	0.9278	92.04	
Behavioral intentions (AVE = 0.75)				
44.	The customers would like to repurchase the offerings from the firm	0.8738	51.81	0.90
45.	The customer would like to recommend the offerings to others	0.8931	51.16	
46.	The customer would like to keep close relationship with the firm	0.8388	42.60	

root of AVE of any construct in manager survey is really higher than the correlations between it and all other construct in our models. In fact, the smallest square root of AVE is the one of integrative competences and the value is 0.77, while the biggest correlation coefficient between constructs in manager survey is that between strategic flexibility and customer-perceived value and the value is 0.69, which indicates strongly that all the constructs involved in manager survey are both conceptually and empirically distinct from each other. Similarly, for the constructs involved in customer survey, as shown in Table 6.5, the smallest square root of AVE is the one of 'tangibles' and the value is 0.84, while the biggest correlation coefficient between constructs in customer survey is that between customer satisfaction and behavioral intentions of customers and the value is 0.77, which implies strongly that all the constructs involved in customer survey are both conceptually and empirically distinct from each other too.

Therefore, as most of similar studies, we can conclude that a set of measurement instrument with a high degree of reliability and validity was developed in this book based on the results from both classical and contemporary approaches For instance, Cronbach's alphas, composite reliability coefficients, and average variance extracted of the scales are all greater than the acceptance levels. However, it should be noted that since less attempt at multiple methods of data collection has been made

Table 6.4 Descriptive statistics, correlation matrix and the square roots of AVE: the senior manager survey

	Mini	*Maxi*	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Commitment to learning	2.25	7.00	5.56	.95	0.81												
2. Shared vision	1.75	7.00	5.08	.99	0.40**	0.79											
3. Open-mindedness	1.75	7.00	5.15	.84	0.46**	0.64**	0.78										
4. Technological competences	1.63	6.88	4.83	.89	0.36**	0.42**	0.37**	0.78									
5. Integrative competences	1.56	6.78	4.95	.81	0.43**	0.58**	0.50**	0.67**	0.77								
6. Marketing competences	2.00	7.00	4.97	.86	0.33**	0.50**	0.50**	0.58**	0.67**	0.79							
7. Strategic flexibility	1.89	6.89	4.99	.80	0.35**	0.41**	0.41**	0.64**	0.71**	0.68**	0.80						
8. Market turbulence	1.67	6.33	4.10	1.00	−0.12	0.07	−0.01	0.16*	0.12	0.16*	0.08	0.79					
9. Technological Turbulence	1.33	6.33	3.83	1.03	−0.12	−0.14	−0.07	−0.19*	−0.19*	−0.14	−0.18*	0.38**	0.81				
10. Customer perceived service quality	2.00	6.33	4.75	.89	0.17*	0.41**	0.34**	0.56**	0.61**	0.54**	0.60**	0.14*	0.03	0.86			
11. Customer perceived value	2.50	6.75	5.12	.68	0.35**	0.44**	0.42**	0.60**	0.67**	0.62**	0.69**	0.10	−0.20*	0.72	0.80		
12. Customer satisfaction	2.00	6.67	4.90	.84	0.22**	0.29**	0.27**	0.47**	0.48**	0.47**	0.48**	0.20**	−0.03	0.68**	0.67**	0.86	
13. Behavioural intentions	1.67	7.00	5.06	.85	0.34**	0.50**	0.46**	0.48**	0.55**	0.49**	0.54**	0.08	−0.20*	0.61**	0.66**	0.54**	0.89

Note: The square roots of average variance extracted are in the diagonal whereas the Pearson correlation coefficients are below the diagonal; * correlation is significant at the 0.05 level (2-tailed); ** correlation is significant at the 0.01 level (2-tailed).

Table 6.5 Descriptive statistics, correlation matrix and the square roots of AVE: the customer survey

	Mini	*Maxi*	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1. Tangibles	2.50	7.00	5.42	.86	0.84										
2. Reliability	3.20	7.00	6.02	.90	0.66*	0.86									
3. Responsiveness	1.00	7.00	6.08	1.02	0.57*	0.66*	0.91								
4. Assurance	2.00	7.00	6.01	.95	0.40*	0.42*	0.37*	0.87							
5. Empathy	2.60	7.00	5.69	.99	0.34*	0.52*	0.43*	0.68*	0.85						
6. Functional Value	2.25	7.00	5.57	1.09	0.64*	0.66*	0.65*	0.74*	0.69*	0.92					
7. Emotional value	1.80	7.00	5.51	1.14	0.67*	0.68*	0.62*	0.69*	0.75*	0.68*	0.93				
8. Customer-perceived sacrifice	1.00	7.00	5.49	1.16	−0.65*	−0.65*	−0.63*	−0.72*	−0.72*	−0.43*	−0.68*	0.92			
9. Social value	1.00	7.00	5.55	1.14	0.62*	0.65*	0.58*	0.67*	0.70*	0.49*	0.59*	−0.44*	0.93		
10. Customer satisfaction	2.67	7.00	5.68	1.04	0.64*	0.71*	0.67*	0.74*	0.76*	0.75*	0.76*	−0.74*	0.76*	0.93	
11. Behavioural intentions of customers	2.67	7.00	5.67	1.04	0.67*	0.65*	0.58*	0.68*	0.73*	0.75*	0.76*	−0.76*	0.75*	0.77*	0.87

Note: The square roots of average variance extracted are in the diagonal whereas the Pearson correlation coefficients are below the diagonal; * Correlation is significant at the 0.01 level (2-tailed).

up to now, the testing for validity may still have problems (Heeler and Ray, 1972), which will be discussed in later in this chapter.[3]

In addition, what should also be noted is that the results of both exploratory and confirmatory factor analysis of variables on customer-perceived value have shown that the four dimensions of customer-perceived value are distinct constructs and meet psychometric criteria for reliability and validity, based on which one can conclude that measures have shown higher discriminant validity and that these four dimensions ('Functional value,' 'Social value,' 'Emotional value' and 'customer-perceived sacrifices') should indeed be treated as distinct dimensions. Therefore, proposition 2, stating that customer perceived value can be characterized along four dimensions, is supported.

Structural equation models building and propositions testing

After measurement models with acceptable fit were obtained, much attention was then paid to the structural equation modelling process, parameter estimation and propositions testing. Similar to the stage of construct validation based on confirmatory factor analysis, several SEM models were developed based on data from the customer survey and the senior manager survey respectively in order to test our propositions in Chapter 4. Furthermore, in order to complement such a testing process mentioned above, basic statistical analysis was conducted based on the combined data of the senior manager survey and the customer survey.

Given that the SEM approach with PLS was chosen, we could make efforts to test the overall models based on the path strengths and variance explained, i.e. the path coefficient with associated t-values and the R^2. Such an empirical assessment of the proposed structural equation model is a vital aspect of the theory development process. Overall, the magnitude of R^2 values for latent endogenous variables have shown that our models have strong predictive power. For example, in the models based on data from manager survey, the three key constituents of core competences explain 65.89 per cent of the variance in strategic flexibility, both strategic flexibility and core competences explain 44.872 per cent of the variance in customer-perceived service quality, 65.78 per cent of variance in customer-perceived value and 55.43 per cent of variance in customer satisfaction. Furthermore, customer-perceived service quality, customer-perceived value, and customer satisfaction together explain 48.67 per cent of the variance in the behavioural intentions of customers. Besides, in the model developed based on data from the customer survey, the five service quality-related factors explain 81.40 per cent of the variance in functional value, 71.65 per cent of the variance in emotional value, 58.16 per cent of the variance in social value,

72.06 per cent of the variance in customer-perceived sacrifice. In addition, the four dimensions of customer-perceived value explain 79.90 per cent of the variance in customer satisfaction and they explain 73.85 per cent of the variance in the behavioural intentions of customers together with customer satisfaction. Furthermore, since PLS does not make any distributional assumptions and can not estimate standard error as in the case of LISREL or AMOS that makes use of the maximum likelihood (ML) estimation technique. Therefore, a bootstrapping resampling method with replacement was used and standard errors for significance testing of path estimates were computed through this book based on 500 bootstrapping runs given that traditional parametric tests are inappropriate.

Structural equation models based on data from the customer survey

After the measurement models were regarded as acceptable, the path coefficients were assessed and used to test propositions. As shown in Figure 6.1, the structural equation model (SEM) was as built and path parameters were estimated based on data from the customer survey in order to test propositions from 1 to 6 except proposition 2 (proposition 2 has already be tested and supported by the results of both exploratory and confirmatory factor analysis).

As mentioned above, a bootstrapping resampling method with replacement was used in order for significance testing of path estimates and the results are reported in Table 6.6.

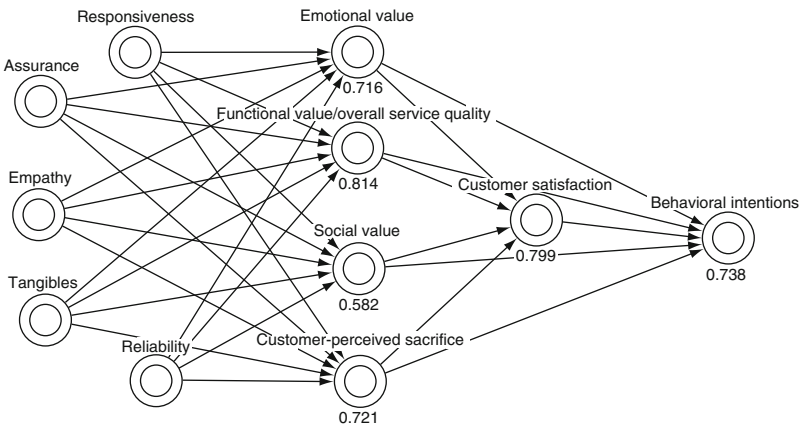


Figure 6.1 Structural equation model developed based on data from the customer survey

Table 6.6 Results of structural equation model building and propositions testing based on data from customer survey

Related propositions	*Construct relationships*			*Standardized path coefficient*	*t-values*	*Assessment*
P1/P3	Customer-perceived service quality (Functional value)	←	Tangible	0.114	3.43***	S
P1/P3	Customer-perceived service quality (Functional value)	←	Reliability	−0.032	0.67	No
P1/P3	Customer-perceived service quality (Functional value)	←	Responsiveness	0.158	2.33***	S
P1/P3	Customer-perceived service quality (Functional value)	←	Assurance	0.234	3.57***	S
P1/P3	Customer-perceived service quality (Functional value)	←	Empathy	0.773	19.10***	S
P3	Emotional value	←	Tangible	0.225	4.61***	S
P3	Emotional value	←	Reliability	0.107	1.66*	S
P3	Emotional value	←	Responsiveness	0.170	2.61***	S
P3	Emotional value	←	Assurance	0.169	2.06**	S
P3	Emotional value	←	Empathy	0.586	9.82***	S
P3	Social value	←	Tangible	0.205	3.86***	S
P3	Social value	←	Reliability	0.197	2.77***	S
P3	Social value	←	Responsiveness	0.194	2.55***	S
P3	Social value	←	Assurance	0.304	3.88***	S
P3	Social value	←	Empathy	0.333	4.90***	S

P3	Perceived sacrifice	←	Tangible	−0.190	4.02***	S
P3	Perceived sacrifice	←	Reliability	−0.017	0.26	No
P3	Perceived sacrifice	←	Responsiveness	−0.140	1.95*	S
P3	Perceived sacrifice	←	Assurance	−0.244	2.97***	S
P3	Perceived sacrifice	←	Empathy	−0.602	8.96***	S
P4	Customer satisfaction	←	Functional value	0.139	1.96**	S
P4	Customer satisfaction	←	Emotional value	0.129	1.65*	S
P4	Customer satisfaction	←	Social value	0.537	10.07***	S
P4	Customer satisfaction	←	Perceived sacrifice	−0.169	2.31**	S
P5	Behaviour intentions	←	Functional value	0.135	1.61	No
P5	Behaviour intentions	←	Emotional value	0.151	1.54	No
P5	Behaviour intentions	←	Social value	0.171	2.31**	S
P5	Behaviour intentions	←	Perceived sacrifice	−0.040	0.58	No
P6	Behaviour intentions	←	Customer satisfaction	0.433	5.93***	S

Notes: *** significant at $P < 0.01$ level; ** significant at $P < 0.025$ level; * significant at $P < 0.05$ level (one tailed).

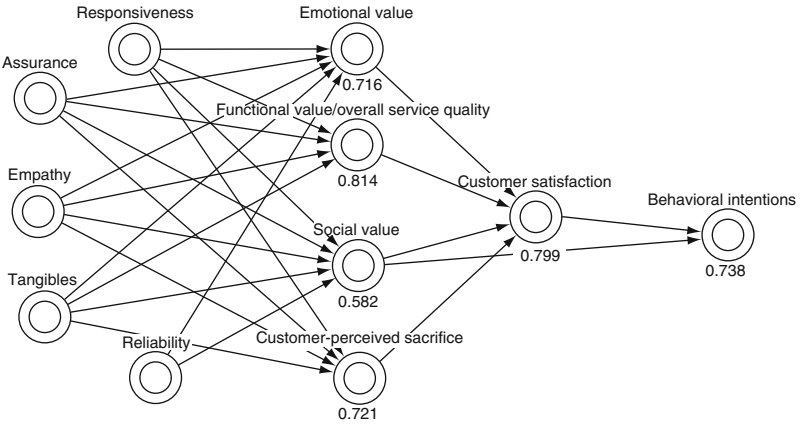


Figure 6.2 Structural equation model developed based on data from the customer survey excluding insignificant paths

The strength of these path coefficients provides us some insights into the relationships between the constructs of our model. As shown in Table 6.6, among the 29 structural paths, 17 of them are found statistically significant at $P < 0.01$ level, 7 of them are found statistically significant at $P < 0.025$ level or marginally significant at $P < 0.05$ level, and 5 of them are found to be not significant at all. To make it much easier to interpret and to be understood, Figure 6.2 reports the structural equation model with only these significant paths included.

The impacts on customer-perceived service quality

Based on the results indicated in Table 6.6, one can conclude that all of the service quality-related factors have a positive and significant impact on customer perceived service quality except 'reliability', which implies that proposition 1 is partially supported. The insignificant impact of 'reliability' may be due to the fact that the level of technological expertise is increasingly improved and most firms are able to create and deliver reliable offerings by applying relatively standard technologies with the rapid diffusion of technologies among firms, which makes reliability not the focus of consumers any more in most cases. Among these significant factors, the impact of 'empathy' is the largest ($\beta = 0.773, t = 19.10$), 'assurance' comes the second ($\beta = 0.234, t = 3.5688.8$), then 'responsiveness' comes the third ($\beta = 0.158, t = 2.33$) and 'tangibles' is the smallest ($\beta = 0.114, t = 3.43$). One of the possible explanations is that customers in China are becoming much more mature and they

pay more attention to the invisible aspect of customer-perceived service quality or customization, especially the 'empathy'.

The impacts on customer-perceived value

Results in Table 6.6 also indicate the impacts of service quality-related factors on each dimension of customer-perceived value. As discussed in Chapter 4, functional value is defined as overall service quality, which means that all service-related factors except reliability have a positive and significant impact on functional value. In comparison, all the five service-related factors influence emotional value and social value significantly and 'empathy' is the most important influential factors in these two cases. The path coefficient is 0.586 ($t = 9.82$) for emotional value and 0.333 ($t = 4.90$) for social value respectively. For customer-perceived sacrifice, it is found that all service-related factors except 'reliability' have a negative and significant impact on it. Among them, 'empathy' is the most important factor again ($\beta = -0.602, t = 8.96$), which implies that the more empathy customers feel, the less sacrifice they will perceive. And 'assurance' is found to be the second important influential factor ($\beta = -0.244, t = 2.97$). Therefore, proposition 3 is partially supported too. The reason for the insignificant impact of 'reliability' on both functional value and perceived sacrifice may be that 'reliability' has become one of the most preliminary standards during the customers' perception process of customer value and most customers tend to take offering of higher reliability for granted, which makes it play an insignificant role in the perception process of functional value and perceived sacrifices while other important factors such as 'empathy', 'assurance', etc., play a more significant role.

The impacts on customer satisfaction

As expected, our structural equation model also shows that each dimension of customer-perceived value does play a different and significant role in affecting customer satisfaction, which implies that proposition 4 is strongly supported. The results in Table 6.6 indicate that all dimensions of customer perceived value have a significant impact on customer satisfaction with the impact of social value the most important ($\beta = 0.537, t = 10.07$) and that of emotional value the least important. By contrast, the impacts of customer-perceived sacrifice and functional value (overall customer-perceived service quality) are in the middle, the path coefficients are -0.169 ($t = 2.31$) and 0.139 ($t = 1.96$) respectively. What should be noted is the role of customer-perceived sacrifice since it, unlike other dimensions of customer-perceived value, has a significant but negative impact as expected on customer satisfaction.

The impacts on behavioral intentions of customers

The path coefficients and significance levels of our structural equation model show proposition 6 is strongly supported and proposition 5 is partially supported. As reported in Table 6.6, customer satisfaction is the most important influential factors of the behavioural intentions ($\beta = 0.433, t = 5.93$). However, among the four dimensions of customer-perceived value, only social value has a significant impact on the behavioural intentions of customers ($\beta = 0.171, t = 2.31$) while the direct influence of other dimensions is insignificant. This means that social value and customer satisfaction become the focus when customers decide whether they should retain the relationship, repurchase, or recommend the offerings to others.

Structural equation models based on data from the senior manager survey

After the interrelationships among dimensions of customer-focused performance and their impacts on behavioral intentions of customers were examined and tested, we began to build structural equation models based on data from the senior manager survey and examine how resource-based determinants interact with each other and how they affect each dimension of customer-focused performance.

The overall model excluding variables of environmental turbulence

As shown in Figure 6.3, an overall structural equation model was developed for the testing of propositions from 7 to 10 based on data from the senior manager survey.

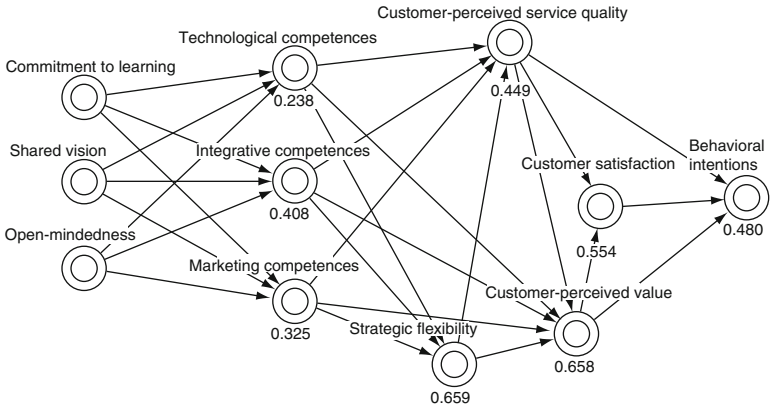


Figure 6.3 The overall structural equation model developed based on data from the senior manager survey

Again, in order for significance testing of path estimates, a bootstrapping resampling method with replacement was used and the results are reported in Table 6.7. The strength of such path coefficients provides us some insights into the relationships among the constructs of our model. As indicated in Table 6.7, among the 26 structural paths, 16 of them are found statistically significant at $P<0.01$ level, 5 of them are found statistically significant at $P<0.025$ level or marginally significant at $P<0.05$ level, and 5 of them are found to be not statistically significant. To make it much easier to interpret and to be understood, Figure 6.4 reports the overall structural equation model developed based on data from the senior manager survey excluding insignificant paths.

The impacts on customer-focused performance Based on the results indicated in Table 6.7, it can be concluded that both the key constituents of core competences and strategic flexibility have significant and positive influences on customer-perceived service quality and customer perceived value with two exceptions. One is that we found no significant impacts of marketing competences on customer-perceived service quality; the other is that the impact of integrative competences on customer-perceived value is found insignificant. Therefore, proposition 7 is partially supported and proposition 9 is strongly supported. One possible explanation of the insignificant impact of marketing competences on customer-perceived service quality is that, generally speaking, the improvement of customer-perceived service quality usually requires higher technical and integrative capabilities rather than marketing capabilities. In comparison, the creation and delivery of superior customer-perceived value will necessarily depend on the marketing knowledge such as knowledge about what customers value and how such value can be delivered by deploying unique marketing competences. The reason for the insignificant influence of integrative competences on customer-perceived value may be due to the fact that firms usually achieve superior customer-perceived value by improving customer-perceived service quality based on the deployment of integrative competences, which implies an indirect impact of integrative competences on customer-perceived value. For example, based on our overall structural equation model, although the impact of integrative competences on customer- perceived value is not significant, but they do influence customer-perceived value by affecting customer-perceived service quality while the latter has stronger impact on customer-perceived value. In other words, customer-perceived service quality plays a mediating role between integrative competences and customer-perceived value. Similarly, integrative competences can also exert stronger influence on

Table 6.7 Results of the overall structural equation model building for propositions testing based on data from manager survey without variables of environmental turbulence

Related propositions	*Construct relationships*			*Standardized path coefficient*	*t-values*	*Assessment*
P7	Customer-perceived service quality	←	Technological competences	0.210	2.78***	S
P7	Customer-perceived service quality	←	Integrative competences	0.223	2.53***	S
P7	Customer-perceived service quality	←	Marketing competences	0.096	1.17	No
P7	Customer-perceived value	←	Technological competences	0.113	2.16**	S
P7	Customer-perceived value	←	Integrative competences	0.006	0.62	No
P7	Customer-perceived value	←	Marketing competences	0.128	1.86*	S
P8	Strategic flexibility	←	Technological competences	0.205	3.46***	S
P8	Strategic flexibility	←	Integrative competences	0.518	6.53***	S
P8	Strategic flexibility	←	Marketing competences	0.173	1.86*	S
P9	Customer-perceived service quality	←	Strategic flexibility	0.230	2.42***	S
P9	Customer-perceived value	←	Strategic flexibility	0.242	3.57***	S
P10	Technological competences	←	Commitment to learning	0.223	2.58***	S
P10	Integrative competences		Commitment to learning	0.205	2.06**	S
P10	Marketing competences		Commitment to learning	0.086	0.87	No
P10	Technological competences		Shared vision	0.275	3.52***	S
P10	Integrative competences	←	Shared vision	0.397	6.07***	S

P10	Marketing competences	←	Shared vision	0.283	3.67***	S
P10	Technological competences	←	Open-mindness	0.095	1.07	No
P10	Integrative competences	←	Open-mindedness	0.163	2.03**	S
P10	Marketing competences	←	Open-mindedness	0.293	3.64***	S
P4	Customer satisfaction		Customer-perceived service quality	0.447	5.51***	S
P4	Customer satisfaction		Customer-perceived value	0.353	4.56***	S
P3	Customer-perceived value		Customer-perceived service quality	0.409	5.36***	S
P5	Behavior intentions		Customer-perceived service quality	0.247	2.63***	S
P5	Behavior intentions		Customer-perceived value	0.440	5.06***	S
P6	Behavior intentions	←	Customer satisfaction	0.067	0.83	No

Notes: ***significant at $P < 0.01$ level;**significant at $P < 0.025$ level;*significant at $P < 0.05$ level (one tailed).

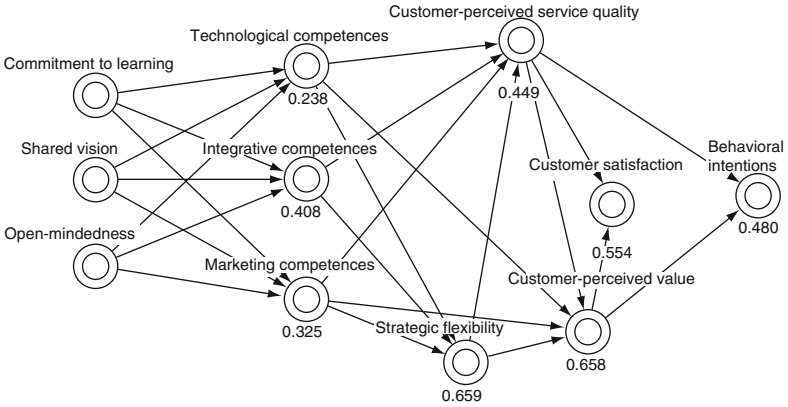


Figure 6.4 The overall structural equation model developed based on data from the senior manager survey excluding insignificant paths

customer-perceived value by strengthening strategic flexibility and the latter is the most important factor that affects customer-perceived value. Furthermore, if the impact of customer-perceived service quality on customer-perceived value is not taking into consideration, we do find that integrative competences have a significant impact on customer-perceived value, which will be reported later when the moderating effects of environmental turbulence are examined.

Among the resource-based determinants of customer-perceived service quality, strategic flexibility is the most important and the path coefficient is 0.230 ($t = 2.42$). The impact of integrative competences come the second ($\beta = 0.223, t = 2.53$), and technological competences are the least important, but significant factor ($\beta = 0.210, t = 2.78$). As for customer-perceived value, the most influential factor is strategic flexibility too and the path coefficient is 0.242 ($t = 3.57$). Then marketing competences come the second and the path coefficient is 0.128 ($t = 1.86$). Again, technological competences are the least important, but significant factor ($\beta = 0.113, t = 2.16$).

The impacts on strategic flexibility As expected, our structural equation model also shows that each constituent of core competences does play a different and significant role in affecting strategic flexibility, which implies that proposition 8 is strongly supported. The results in Table 6.7 indicate that all constituents of core competences have a significant impact on strategic flexibility with the impact of integrative competences the most important ($\beta = 0.518, t = 6.53$) and that of marketing

competences the least important but significant ($\beta = 0.173, t = 1.86$) while technological competences rank the second ($\beta = 0.205, t = 3.46$).

The impacts of organizational learning Results in Table 6.7 also indicate the impacts of organizational learning on each constituent of core competences. Overall, it is found that the three dimensions of organizational learning have significant and positive influences on each constituent of core competences with only two exceptions, which implies that proposition 10 is partially supported. Specially, commitment to learning, shared vision and open-mindedness all influence integrative competences positively and significantly with shared vision as the most important influential factor ($\beta = 0.397, t = 6.07$). By contrast, commitment to learning ranks the second ($\beta = -0.205, t = 2.06$) and open-mindedness comes next ($\beta = 0.163, t = 2.03$). As for technological competences, shared vision is the most important influential factor and the path coefficient is 0.275 ($t = 3.52$). Commitment to learning ranks the second and the path coefficient is 0.223 ($t = 2.58$). However, we found no evidence to support the significant impact of open-mindedness on technological competences. This may be due to the fact that the enhancement and upgrading of technological competences usually requires the harmony communication between experts or employees so that they can share the technical knowledge and skills and make efforts for possible technological innovations. By contrast, open-mindedness is the most important influential factor of marketing competences ($\beta = 0.293, t = 3.64$) since it is necessary for employees to be open minded in order to challenge the shared assumptions about their customers currently or in the past, detect the changing preferences of customers, or launch innovative marketing projects as a reaction to the competitive behaviors of current and potential competitors. In addition, shared vision is the other significant factor that affects marketing competences and the path coefficient is 0.283 ($t = 3.67$), which means that a shared vision is very important too in the building and leveraging process of marketing competences. Similarly, we did not in enough evidence to support the significant impact of commitment to learning on marketing competences.

The interaction of key dimensions of customer-focused performance In addition to the testing of propositions from 7 to 10, the path coefficients and significance levels of our structural equation model also indicate the interaction of key dimensions of customer-focused performance as perceived by senior managers. These relationships are highly related to propositions 3 to 6, which have been discussed and examined by the development of a structural equation model based on data

from the customer survey in the previous section. Results in Table 6.7 show that customer-perceived service quality (or functional value in customer survey) does influence customer satisfaction ($\beta = 0.447, t = 5.51$) and customer-perceived value ($\beta = 0.447, t = 5.36$) significantly, and customer-perceived value does affect customer satisfaction ($\beta = 0.353, t = 4.56$), all of which coincide with the results and conclusions drawn based on data from the customer survey. However, we found no evidence to support the significant impact of customer satisfaction on behavioral intentions. This may be due to the fact that in our current model, customer-perceived service quality becomes the significant influential factor and exerts its impact directly on behavioral intentions of customers. Also this may be caused by the perceptual and cognitive gaps between customers and managers, which imply the necessity for managers to devote more efforts to narrowing such gaps in order to influence customer behavior effectively and efficiently so that the performance of a firm can be improved significantly.

The moderating effects of environmental turbulence

By following the procedures described in Chapter 4, the PLS product-indicator approach was adopted to examine the moderating effects of environmental turbulence in this book. However, due to the limitation of the maximum number of variables in the application of PLS-Graph software (200 variables), two sets of structural equation models were developed in order to test proposition 11 and proposition 12. One set is for the testing of proposition 11 (the moderating effects of environmental turbulence on the relationship between strategic flexibility and customer-focused performance) and the other is for the testing of proposition 12 (the moderating effects of environmental turbulence on the relationship between core competences and customer-focused performance). For each set, structural equation models were built with customer-perceived service quality and customer-perceived value as the endogenous variables respectively. Then a two-stage approach was followed as mentioned in Chapter 4 in order to test the moderating effects, and two structural equation models were built with customer-perceived service quality as the endogenous variable and customer-perceived value as the endogenous variable respectively. Furthermore, it should be noted that only those variables related to the moderating effects are included due to the limitation of the maximum number of variables in the software of PLS-Graph.

The moderating effects of environmental turbulence on the relationship between core competences and customer-focused performance were examined first, and structural equation models were developed

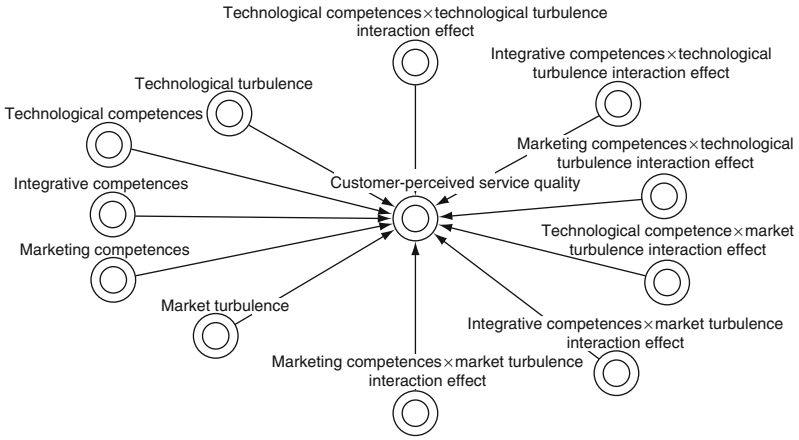


Figure 6.5 The moderating effects of environmental turbulence on the relationship between core competences and customer-focused performance with customer-perceived service quality as the endogenous variable

with customer-perceived service quality and customer perceived value as the endogenous variables respectively, as shown in Figures 6.5 and Figure 6.6. As mentioned in Chapter 4, similar to the technique of moderated regression analysis, 'main effects' model and interaction model were developed respectively in two stages and then compared to determine the overall size of the interaction. Intially, we look at the main effects.

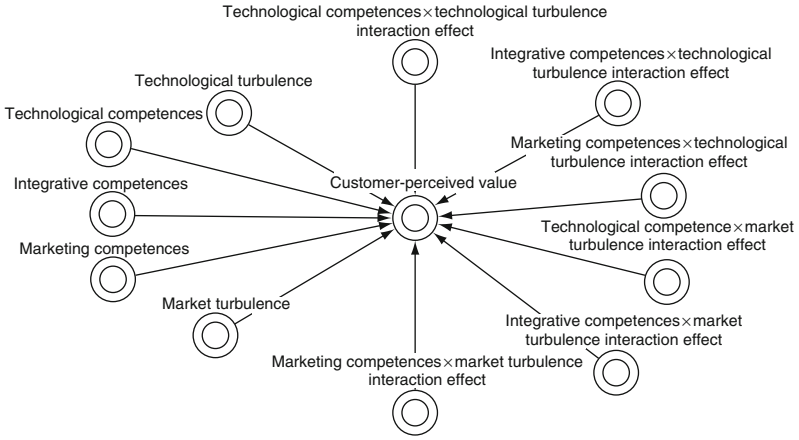


Figure 6.6 The moderating effects of environmental turbulence on the relationship between core competences and customer-focused performance with customer-perceived value as the endogenous variable

Table 6.8 shows related results with only hypothesized variables. As mentioned before, since PLS does not make any distributional assumptions and can not estimate standard error as in the case of LISREL or AMOS that makes use of the maximum likelihood (ML) estimation technique. Therefore, a bootstrapping resampling method with replacement was used and standard errors for significance testing of path estimates were computed through this book based on 500 bootstrapping runs given that traditional parametric tests are inappropriate.

Results in Table 6.8 indicate that the R^2 for stage I is 0.4654 when customer-perceived service quality was considered as the endogenous variable, while the R^2 for stage I is 0.5532 when customer-perceived value was examined.

Also, in the model with customer-perceived service quality as the endogenous variable, as shown in Table 6.8, the path coefficients of technological competences, integrative competences and marketing competences are, respectively, 0.242 ($t = 3.76$), 0.262 ($t = 4.85$) and 0.122 ($t = 1.86$), which are all statistically significant. Again, this provides support for a positive main effect of core competences on customer-perceived service quality. At the same time, in the model with customer-perceived value as the endogenous variable, as shown in Table 6.8, the path coefficients of technological competences, integrative competences and marketing competences are, respectively, 0.255 ($t = 4.88$), 0.306 ($t = 4.15$) and 0.200 ($t = 2.33$), which are all statistically significant. Such evidence indicates that proposition 7 is strongly supported again, which, by and large, coincides with the results in our overall model mentioned above. However, it is worth noting that the insignificant impact of marketing competences on customer-perceived service quality found in our overall model becomes marginally significant in this model, which implies that marketing competences may also be an important driver of customer-perceived service quality. Similarly, the insignificant impact of integrative competences on customer-perceived value becomes significant as well after the impact of customer-perceived service quality on customer-perceived value was ignored. Clearly, such differences are due to the fact that only subset of variables involved in the moderating effects are included in the current model to avoid too complicated to deal with and the fact of the limitation of the maximum number of variables in the application of PLS-Graph software.

Then, at the second stage, we included the product construct in addition to the predictor construct and the moderator construct. As in a regression analysis, the predictor and moderator variable are multiplied to obtain the interaction terms. As suggested by Chin, it et al. (1996), we standardized the indicators by using SPSS 11.0 prior to multiplying

Table 6.8 PLS path analysis results: the moderating effects of environmental turbulence on the relationship between core competences and customer-focused performance

	Customer-perceived service quality		Customer-perceived value	
Exogenous variables	Stage I	Stage II	Stage I	Stage II
Technological competences	0.242(3.76***)	0.246(3.69***)	0.255(4.88***)	0.302(5.01***)
Integrative competences	0.262(4.85***)	0.239(2.76***)	0.306(4.15***)	0.176(1.90*)
Marketing competences	0.122(1.86*)	0.106(1.72*)	0.200(2.33***)	0.226(3.22***)
Market turbulence	0.015(0.21)	0.064(0.95)	0.064(0.96)	0.09(1.37)
Technological turbulence	0.137(1.71*)	0.196(2.53***)	0.141(2.43***)	0.15(2.70***)
Technological competences × market turbulence		−0.257(2.17**)		−0.222(2.32**)
Technological competences × technological turbulence		0.170(1.98**)		−0.003(0.03)
Integrative competences × market turbulence		0.078(0.78)		0.081(0.67)
Integrative competences × technological turbulence		0.112(1.72*)		0.123(1.82*)
Marketing competences × market turbulence		0.131(1.94*)		0.191(1.73*)
Marketing competences × technological turbulence		0.091(0.88)		−0.064(0.56)
R square	0.4654	0.5474	0.5532	0.6088

Note: Path coefficients (t-values); ***significant at P <0.01 level;**significant at P<0.025 level;*significant at P <0.05 level (one tailed).

them to reduce the Multicollinearity problem given that Likert scales were employed, reflective measure models were adopted and the indicators were considered to be theoretical parallel. Such a step of standardizing also allows an easier interpretation of the resulting regression beta for the predictor variable. The results of the second stage were also reported in Table 6.8. The R^2 for stage II is 0.5474 when customer-perceived service quality was taking into consideration while the R^2 for this stage is 0.6088 when customer-perceived value was analyzed as the endogenous variable. Then the 'main effects' model and interaction model were compared and the overall effect size f^2 for the interaction was calculated by using the equation provided by Chin, Marcolin, and Newsted (1996, 2003).[4] It is found that the overall effect size f^2 for the interaction is 0.181 with customer-perceived service quality as the endogenous variable, which signifies a moderate effect size; the overall effect size f^2 for the interaction is 0.142, which implies a marginally moderate effect size when customer-perceived value is taken as the endogenous variable. Therefore, as proposed in Chapter 4, environmental turbulence does moderate the relationships between the key constituents of core competences and customer-focused performance. On the one hand, as shown in Table 6.8, market turbulence positively moderates the relationships between marketing competences and customer-perceived service quality, and customer perceived value. The path coefficients are, respectively, $0.131(t = 1.94)$ and $0.191(t = 1.73)$ while it negatively moderates the relationships between technological competences and customer-perceived service quality ($\beta = -0.257$ and $t = 2.17$), and customer-perceived value ($\beta = -0.222$ and $t = 2.32$). On the other hand, technological turbulence positively moderates the relationship between technological competences and customer-perceived service quality, and the path coefficient is 0.170 ($t = 1.98$) while no statistical evidence is found to support its moderating effects on the relationship between technological competences and customer perceived value. Furthermore, it is found that technological turbulence positively moderate the relationships between integrative competences and customer-perceived service quality, and customer-perceived value. The path coefficients are, respectively, 0.112 ($t = 1.71$) and $0.123(t = 1.82)$. By contrast, we found no evidence to support that market turbulence moderates integrative competences and customer-perceived service quality or customer-perceived value. Therefore, proposition 12 is partially supported.

Similarly, we repeated the same procedures as mentioned above for the testing of the moderating role of environmental turbulence in the relationship between strategic flexibility and customer-focused performance and structural equation models were developed with customer-perceived

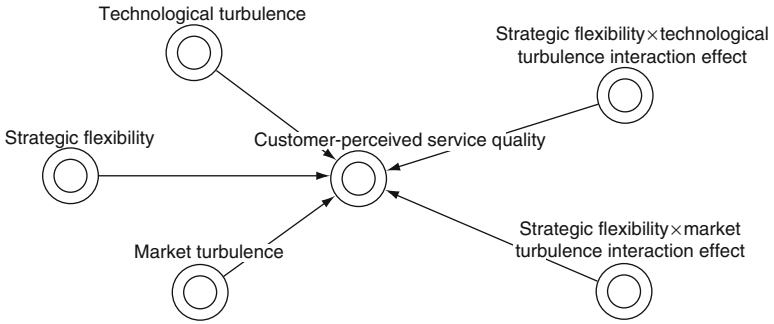


Figure 6.7 The moderating effects of environmental turbulence on the relationship between strategic flexibility and customer-focused performance with customer-perceived service quality as the endogenous variable

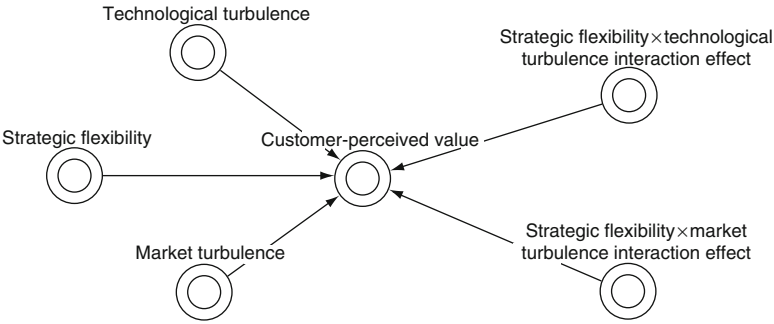


Figure 6.8 The moderating effects of environmental turbulence on the relationship between strategic flexibility and customer-focused performance with customer-perceived value as the endogenous variable

service quality and customer-perceived value as the endogenous variables respectively, which is shown in Figure 6.7 and Figure 6.8.

Table 6.9 shows related results with only hypothesized variables. As indicated in Table 6.9, the R^2 for stage I is 0.4133 when customer-perceived service quality was examined and 0.5189 when customer perceived value was considered as the endogenous variable. Furthermore, the impact of strategic flexibility on customer-perceived service quality and customer-perceived value are all statistically significant and the path coefficients are, respectively, 0.587 ($t = 12.28$) and 0.633 ($t = 12.30$). Again, this provides significant support for a positive main effect of strategic flexibility on customer-focused performance and suggests that proposition 9 is strongly supported, which coincides with the findings from our overall model discussed in the previous section. Besides,

Table 6.9 PLS path analysis results: the moderating effects of environmental turbulence on the relationship between strategic flexibility and customer-focused performance

	Customer-perceived service		Customer-perceived value	
Exogenous variables	Stage 1	Stage II	Stage I	Stage II
Strategic flexibility	0.587(12.28***)	0.498(7.94***)	0.633(12.30***)	0.558(10.51***)
Market turbulence	0.059(1.00)	0.100(1.24)	0.106(1.38)	0.122(1.48)
Technological turbulence	0.134(1.80*)	0.154(1.74*)	0.168(2.83***)	0.178(3.31***)
Strategic flexibility × market turbulence		0.205(2.20**)		0.130(1.76*)
Strategic flexibility × technological turbulence		0.130(1.82*)		0.105(1.96**)
R^2	0.4133	0.4659	0.5189	0.5470

Note: Path coefficients (t-values);*** significant at $P < 0.01$ level; **significant at $P < 0.025$ level;* significant at $P < 0.05$ level (one tailed).

the results of the second stage were also reported in Table 6.9. The R^2 for stage II is 0.4659 and the overall effect size f^2 is 0.098 when customer perceived service quality was considered the endogenous variable, which implies a small to moderate effect. Furthermore, The R^2 for stage II is 0.5470 and the overall effect size f^2 is 0.062 with customer-perceived value as the endogenous variable, which also implies a small to moderate effect. Although the two overall effect size is not large enough to represent a moderate effect, they are quite bigger than 0.02 that implies a small effect. Furthermore, as emphasized by Chin *et al.* (1996, 2003), a small overall effect size f^2 does not necessarily imply an unimportant effect and even a small interaction effects can be meaningful under extreme moderating conditions, for instance, the resulting beta changes are meaningful. Therefore, it is rational to conclude that the moderating effects of environmental turbulence on the relationship between strategic flexibility and customer-focused performance are detected. Therefore, as proposed in Chapter 4, environmental turbulence does moderate the relationship between strategic flexibility and customer-focused performance. Specifically, it is found that both market turbulence and technological turbulence positively moderate the relationship between strategic flexibility and customer-perceived service quality, and customer-perceived value. When the former was examined (customer-perceived service quality), the path coefficients are, respectively, 0.205 ($t = 2.20$) and 0.130 ($t = 1.82$). By contrast, the path coefficients are, respectively, 0.130 ($t = 1.76$) and 0.105 ($t = 1.96$) when customer-perceived value was taken into consideration. This shows that the higher the level of market turbulence or technological turbulence, the stronger the relationship between strategic flexibility and customer-focused performance. Therefore, proposition 11 is supported. However, it should be noted that the moderating effect of technological turbulence on the relationship between strategic flexibility and customer perceived service quality, as shown in Table 6.9, is only marginally significant.

It is worth noting that there are maybe several reasons for those insignificant moderating effects. However, alternatively, it is also possible that the hypothesized moderating effects do exist but were not detected in this book because of the potentially insufficient power of the statistical test as a result of the relatively small sample size or because the reliabilities of the measures were not sufficiently high.

Complementary analysis based on the combined data

As a complementary step, this section is intended to provide further evidence of the relationship between customer-focused performance

perceived by customers themselves and the key resource-based determinants perceived by senior managers. In order to realize such a complementary analysis, the two databases (database from customer survey and database from manager survey) were merged together according to the ID number of investigated firms. However, as mentioned in Chapter 4, only those firms with three or more customer responses are included. Furthermore, before the merging of the two databases, relevant data from the customer survey were averaged based on the ID number of respective firms so that each firm involved corresponds with only one averaged record from the customer survey. In total, a combined database with 86 cases was created.

Then a PLS-based structural equation model was built with technological competences, marketing competences, integrative competences and strategic flexibility as the exogenous variables (based on data from the senior manager survey) and customer-perceived service quality and customer-perceived value as the endogenous variables (based on data from the customer survey). The results indicate that only strategic flexibility is the key determinant of both customer-perceived service quality and customer-perceived value, and the path coefficients are, respectively, 0.279 ($t = 1.87$) and 0.295 ($t = 1.92$). However, it was found that the magnitude of R^2 values for latent endogenous variables (customer-perceived service quality and customer-perceived value) have not been reasonably large enough to accept this proposed model (0.13 for the former and 0.092 for the later), which implies that related research findings may not be reliable and valid.

Therefore, a regression analysis was conducted finally instead of building structural equation models with the independent variables coming from customer survey and the dependent variables coming from senior manager survey given the small sample size. In doing so, the averaged value of the measurement items was calculated for each latent variable. For example, by averaging items from 1 to 22 in the customer survey, we obtained the value of customer-perceived service quality; by averaging items from 23 to 40 in the customer survey, we obtained the value of customer-perceived value. Similarly, the average values of technological competences (items from 13 to 20), integrative competences (items 21–9), marketing competences (items 30–7) and strategic flexibility (items 38–46) were calculated and obtained. As shown in Table 6.10, in the regression model developed based on the combined data, only the impact of strategic flexibility is significant with customer-perceived value as the dependent variable while both strategic flexibility and marketing competences influence customer-perceived service quality significantly. In comparison, there is no evidence to

Table 6.10 Results of regression analysis based on the combined data

Independent variables	*Customer perceived service quality (Q1–22)*	*Customer perceived value (Q23–40)*
Technological competences(Q13–20)	NS	NS
Integrative competences(Q21–9)	NS	NS
Marketing competences(Q30–7)	0.289**	NS
Strategic flexibility(Q38–46)	0.522***	0.334***
F	6.08***	10.57***
Adjusted R^2	0.128	0.112

Notes: *** Significant at $P < 0.01$ level; ** significant at $P < 0.025$ level; * significant at $P < 0.05$ level (one tailed); NS = Not significant; Q# represents the item no. in the questionnaires, which is used to show the meaning of each variable.

support the significant impacts of technology competences and integrative competences on customer-perceived service quality or customer-perceived value. Therefore, proposition 9 is supported and proposition 7 is partially supported, which can be considered as the complementary evidence to support relevant propositions.

As shown in Table 6.10, what is more interesting is that not all the key resource-based determinants identified in Chapter 4 appear to be significant factors affecting customer-focused performance when such customer-focused performance was assessed using the perception data from the customer survey rather than from the senior manager survey while the resource-based factors (determinants) were assessed by senior managers. This is very similar to the situation that most of previous studies encountered by taking two distinct approaches to firm performance: judgmental and objective measures. For example, in the famous study of market orientation by Jaworski and Kohli (1993), they find that market orientation is significantly related to perceptional measures of senior managers while no significant relationship is detected between market orientation and the objective measures of performance (market share). For our study, since there are no objective measures for customer-focused performance, so we took two distinct approaches as well. One is the perception measures from senior managers and the other is the perceived performance as assessed by their customers rather than objective measures as previous studies.

In addition, similar to most of previous studies, for example investigating the relationship between perceptual (primary) and publicly available objective (secondary) data on firm performance (e.g. Venkatraman and Ramanujam, 1985; Robinson and Pearce, 1988), the correlation

coefficients of each variables measured in two methods (one is based on the senior manager survey and the other is based on the customer survey) were calculated and shown Table 6.11. It was also found that there is positive and strong statistical associations between the perceptual data from the senior manager and from the customers of each firm, offering strong support for the validity of the subjective measurement technique perceived by senior managers in some sense as many other related studies (e.g. Robinson and Pearce, 1988). However, it should be pointed out that the coefficients between subjective and objective measures in previous studies are relatively high, for example, the Spearman correlations range from 0.45 to 0.92 in the study of Robinson and Pearce (1988). By contrast, however, the coefficients in our study seem a little bit low, and the range is from 0.200 to 0.879, which are shown in Table 6.11.

These results would appear to provide somewhat mixed support for the importance of some of the key resource-based determinants, which implies that it may be problematic to measure customer-focused performance based on senior manager survey rather than customer survey. In other words, in this book, although the customer-focused performance measures from senior manager survey were used in most of related analysis given the data availability, the limited time and financial resources, and especially the exploratory nature, we have to be cautious enough in interpreting the empirical results when using measures such as customer satisfaction, customer-perceived value, customer-perceived service quality and the behavioural intentions of customers based on the senior manager survey as indicators of truth in the analysis. Accordingly, although the desirable results for the construct validation have been achieve based on the procedures suggested by Fornell and Cha (1994) and Fornell and Larcker (1981) as mentioned above, and our measures have shown good validity according to their criteria, we have to be more cautious to interpret such results since others (e.g. Campbell and Fiske, 1959; Heeler and Ray, 1972; Bagozzi and Yi, 1991; O'Leary-Kelly and Vokurka, 1998) have suggested that construct validity should be checked by collecting multiple-item measures using multiple methods, i.e. the multitrait–multimethod (MTMM) matrix, which is the correlation matrix for different traits (concepts or constructs) in which each trait is measured by a different method. They consider convergent validity as the degree to which multiple methods of measuring a variable provide the same results and view discriminant validity as the degree to which measures of different latent variables are unique.

Therefore, unlike most of similar studies[5] in the literature that ignore the necessity of checking validity with the multitrait–multimethod

Table 6.11 A multitrait-multimethod matrix based on the combined data: four traits-two methods

	a1	*a2*	*a3*	*a4*	*b1*	*b2*	*b3*	*b4*
a1 Customer satisfaction–senior manager survey (Q53–5)	0.818							
a2 Customer-perceived value-senior manager survey (Q56–9)	0.716 *∗	0.801						
a3 Customer-perceived service quality-senior manager survey(Q60–2)	0.552**	0.750**	0.832					
a4 Behavioral intentions of customers–senior manager survey(Q63–5)	0.581**	0.726**	0.636**	0.871				
b1 Customer satisfaction-customer survey (Q41–3)	0.357**	0.240*	0.200*	0.248*	0.906			
b2 Customer-perceived value–customer survey (Q23–0)	0.342**	0.257*	0.234**	0.216*	0.879**	0.972		
b3 Customer-perceived service quality–customer survey (Q1–2)	0.274*	0.240*	0.359**	0.209*	0.676**	0.636**	0.928	
b4 Behavioral intentions of customer–customer survey(Q44–6)	0.342*	0.257*	0.261*	0.234*	0.691**	0.778**	0.629**	0.870

Notes: The reliability is on the diagonal; ** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed); Q# represents the item no. in the questionnaires, which is used to show the meaning of each variable.

(MTMM) matrix, further analysis was conducted in this book by adopting the multitrait-multimethod matrix method, the traditional way in which convergent validity and discriminant validity has been assessed. Data collected from the senior manager survey and customer survey at the same time to reflect customer-focused performance makes it possible to further assess the construct validity by using such an approach. As shown in Table 6.11, assessment is based on three sets of correlations. The first set is correlations between different constructs (or traits) and the same method, which are refered to as heterotrait–monomethod (HTMM) correlations. The second is correlations between different constructs (or traits) and different methods which are refered to as heterotrait–heteromethod (HTHM) correlations. The last is correlations between the same construct as measured by different methods, monotrait–heteromethod (MTHM) correlations. When the correlations of the same construct (or trait) measured by different methods are relatively large and significantly different from zero, convergent validity is evident. On the other hand, the checking of discriminant validity includes three different criteria as follows: (1)any one MTHM correlation must be significantly larger than any of the other correlations located on the same row and column; (2) a variable should correlate higher with the same variable measured by different methods (MTHM correlations) than with different variables measured by the same method (HTMM correlations); and (3) the pattern of correlations between HTMM and HTHM correlation-triangles must be the same. Failure to meet these criteria may indicate that the measures are corrupted potentially by method bias (Bagozzi *et al.*, 1991). Thus, as shown in Table 6.11, although MTHM correlations are significantly different zero, they are not relatively large enough to meet the criteria mentioned above, which implies undesirable results in assessing the construct validity. However, we have to be cautious to draw our conclusions based on these results given the limitations associated with the MTMM matrix method[6] and the fact that all the measurement items used in this book to reflect customer-focused performance (both in the customer survey and the senior manager survey) have been adapted from extant studies and most of them have already shown reasonable validity in different contexts. It is more likely that there are large gaps between customer perceptions and the senior manager perceptions, and measures on the customer survey have better claim to the truth than measures on the manager survey.

The existing gap between customer perceptions and senior manager perceptions may be caused by many complex factors. However, several important issues warrant mention in this context. First, this may be due to the fact that senior managers were asked to give their perceptions of

the overall performance in terms of customer-perceived service quality, customer-perceived value and customer satisfaction (e.g. 3 items for customer-perceived service quality, 4 items for customer-perceived value and 3 items for customer satisfaction) while relevant customers were asked to give their evaluation of the detailed indicators of customer-focused performance in terms of the three key dimensions in this book (e.g. there are 22 items for customer perceived service quality, 18 items for customer-perceived value and 3 items for customer satisfaction). Secondly, it is quite possible that there is a lag in the effect of key resource-based determinants such as core competences and strategic flexibility on customer-focused performance perceived by customers, i.e. key constituents of core competences such as technological competences, integrative competences and marketing competences may lead to superior customer-focused performance perceived by customers over a relatively long time of period. If so, such effects may not be captured by the cross-sectional design employed in this book and the perception gap between customers and senior managers may exist. Thirdly, according to the gap theory of Parasuraman *et al.* (1985), a set of discrepancies or gaps may exist regarding senior managers' perceptions of service-quality and the tasks associated with service-delivery to consumers. For example, as they point out, such set of gaps may exist between consumer expectation and manager perception, management perception and service-quality specification, service-quality specification and service delivery, service delivery and external communications, and expected service and perceived service. Although our performance measures include not only customer-perceived service quality, similar set of gaps may also exist for such measures as customer-perceived value and customer satisfaction used in this book. This means that, similar to the conclusion about perceptional measures and objective measures of firm performance in previous studies, we should also be very cautious in measuring customer-focused performance based on the perceptions of senior managers on the one hand and on the other hand senior managers must devote more efforts to narrowing such gaps in order to achieve higher customer-focused performance perceived by customers.

Summary and golden rules

This chapter presents the research findings as the results of propositions testing. It begins with the construct validation process. In this section, the reliability and validity of the measures and scales used in this book are assessed by taking both classical and contemporary approaches. In the second section, several sets of structural equation models are developed and propositions are tested.

1. Our focus is moved on to the propositions testing of the relationship between the key resource-based determinants and customer-focused performance by building structural equation models based on the data from the senior manager survey. Furthermore, the moderating role of environmental turbulence is examined in this section.
2. Structural equation models are built based on the data from the customer survey to test propositions on the relationships among dimensions of customer-focused performance.

Based on these analyses, we can propose the following golden rules for building and leveraging of core competences and strategic flexibility: (a) a firm has to be strategically flexible enough to achieve superior customer-focused performance since strategic flexibility is the most important driver of both customer-perceived service quality and customer-perceived value in the turbulent environments of China; (b) priority has to be given in practice since core competences can influence customer-focused performance directly and indirectly; (c) emphasis has to be given integrative competences in strengthening the level of strategic flexibility, then technological competences and the last market competences; and (d) In the process of core competences building through organizational learning, managers has to make it clear first that which constituents of core competences they expect to enhance since all of the three dimensions of organizational learning orientation exert the same influences on each constituent of core competences. To put it more concretely, if managers expect to strengthen technological competences, then they have to pay more attention to 'shared vision' first, and then 'commitment to learning' and; if they expect to strengthen integrative competences, then they have to make full use of the impact of 'shared vision' first, and then comes 'commitment to learning,' and the last one is 'open-mindedness' and; if they expect to enhance marketing competences, then they have to focus on 'open-mindedness' first, and then 'shared vision.'

In the third section regression analysis is conducted to provide complementary evidence based on the combined data from the customer survey and the senior manager survey. In addition, coefficients between the performance measures perceived by senior managers and customers are calculated, the consistencies and discrepancies are explored and the possible reasons for the existence of such gaps are provided. In Chapter 7, conclusions, contributions, managerial implications and further research directions will be discussed.

7
Conclusions and Implications

This final chapter discusses the empirical findings and potential implications for both researchers and managers; in particular, it aims at advancing potential implications of the results in light of the questions and theoretical frameworks of this book. It also offers possible directions of future research. This chapter will first discuss the conclusions about the direct relationships between dimensions of customer-focused performance, the direct effects of organizational learning on core competences and the direct impacts of core competences on strategic flexibility. Then the direct impacts of core competences and strategic flexibility on customer-focused performance and the moderating role of environmental turbulence are explored. Next, more attention is given to the contributions and implications of this book to the literature and managerial practices. Finally, limitations are addressed and directions for future research are presented.

Discussions and conclusions

The purpose of this book is to develop a conceptual framework of creation of core competences and strategic flexibility for superior customer-focused performance in the context of China in turbulent environments and to examine salient factors affecting customer-focused performance in perspective of the resource-based theory of a firm, as well as to develop a set of measurement instruments with a higher degree of psychometric properties. By integrating research findings and best practices of firms in the fields of service marketing and strategic management, a comprehensive framework was proposed conceptually and tested empirically. However, before we could test empirically the research framework and identify such vital factors as core competences and strategic flexibility for superior customer-focused performance, a set of measurement instruments with desirable psychometric properties

was developed and refined through systematic and vigorous approaches incorporating with both the paradigm of Churchill (1979) and Moore and Benbasat (1991). Then several sets of structural equation models were built and the empirical results did significantly support our propositions. Generally speaking, there are two kinds of propositions in this book, one focuses on the direct effects, and the other emphasizes the moderating effects. We will examine the direct effects first, and then concentrate on the examination of the moderating effects.

Direct relationships among dimensions of customer-focused performance and their impacts on behavioral intentions of customers

As reported in Chapter 6, the structural equation model developed on the basis of data from the customer survey discloses the relationships between different dimensions of customer-focused performance and their impacts on behavioural intentions of customers, which is shown in Figure 6.2.

As expected, significant evidence has been found to support that customer-perceived service quality has a positive impact on customer-perceived value, and both customer-perceived value and customer-perceived service quality have a positive impact of customer satisfaction. Furthermore, it has also been found that customer-perceived service quality, customer-perceived value and customer satisfaction influence the behavioural intentions of customers positively and significantly, and they together can explain 73.8 per cent of the variance in the behavioural intentions of customers. However, unlike previous studies, the adopted disaggregated approach in this book enables us to examine the decomposed effects of customer-perceived service quality on each dimensions of customer-perceived value and the decomposed effects of customer-perceived value on customer satisfaction and behavioural intentions of customers. For example, as reported in Chapter 6, the five service quality-related factors ('tangibles', 'reliability', 'responsiveness', 'assurance' and 'empathy') explain 81.4 per cent of the variance in 'functional value', 71.6 per cent of the variance in 'emotional value', 58.2 per cent of the variance in 'social value', 72.1 per cent of the variance in 'customer-perceived sacrifice'. Such an approach not only helps to deepen our understanding of the direct relationship among the three dimensions of customer-focused performance but also provides valuable information and suggestions for managers to improve the customer-focused performance of their firms in practice. Our empirical results indicate as follows:

1. Only the influence of 'reliability' on customer-perceived service quality is found insignificant among the five service quality-related

factors. This implies that investment of a firm in 'reliability' may have the least, if any, impact on the improvement of customer-perceived service quality.
2. By contrast, we fail to find the influence of 'reliability' on 'customer-perceived sacrifice' even though all of the five factors have a significant impact on 'emotional value' and 'social value'.
3. Furthermore, all of the four dimensions of customer-perceived value identified in our conceptual framework have been found to have significant influence on customer satisfaction and they together explain 79.90 per cent of the variance in customer satisfaction.
4. It seems that the impact of customer satisfaction on the behavioural intentions of customers is stronger and larger (the path coefficient is 0.433) than any dimension of customer-perceived value.
5. Only 'social value' has a significantly positive and direct impact on the behavioural intentions of customers (the path coefficient is 0.171) among the four dimensions of customer-perceived value (one dimension is called 'functional value' and represents the same meaning as overall customer-perceived service quality). This implies that the direct impacts of 'emotional value', 'functional value', 'customer-perceived sacrifice' or customer-perceived service quality on the behavioural intentions are not supported. However, this does not mean that they are not important at all since they may also exert indirect influences on the behavioural intentions through customer satisfaction.
6. 'Social value' is the most important positive factor among the factors affecting customer satisfaction. Therefore, this suggests that, at the organizational level, the creation and delivery of social value should be the focus now and in future.

Direct effects of organizational learning on core competences

It has been widely agreed in the field of strategic management that organizational learning helps to enhance core competences of a firm. But little is known about how organizational learning can affect core competences in practice. Again, our empirical findings, by taking a disaggregated approach, provide more insightful ideas about how such influences could be realized in practices as follows:

1. Not all of the three dimensions of organizational learning orientation exert significant influences on each constituent of core competences.
2. 'Open-mindedness' can influence core competences by affecting integrative competences and marketing competences while having no significant impact on technological competences.

3. Similarly, 'commitment to learning' can contribute to the enhancement of core competences by influencing technological competences and integrative competences while its influence on marketing competences is insignificant.
4. In comparison, 'shared vision' has a significantly positive impact on all of the three key constituents of core competence simultaneously.

Direct effects of core competences on strategic flexibility

As special and strategic capabilities of a firm, strategic flexibility plays an extremely important role in turbulent environment and such role is inevitably affected by the overall level and constitution of core competences of a firm. Our empirical investigation strongly supports such an argument.

1. The three key constituents of core competences all exert significant influence on strategic flexibility and they together can explain 65.89 per cent of the variance in strategic flexibility.
2. The relative importance of them is different. Generally speaking, (a) the role of integrative competences in strengthening the level of strategic flexibility is the most important; (b) technological competences rank the second; and (c) marketing competences the least. However, this does not mean that the role of marketing competence is not important in enhancing strategic flexibility of a firm. Valuable customer knowledge and superior capability of mass customization, etc. are very important to enable a firm to respond quickly and effectively to the rapidly changing demands of customers.

Direct effects of core competences and strategic flexibility on customer-focused performance

As discussed in our conceptual framework, both core competences and strategic flexibility have strong influences on customer-focused performance. And structural equation model developed indicate the results as follows:

1. Core competences and strategic flexibility together can explain 44.87 per cent of the variance in customer-perceived service quality, 65.78 per cent of the variance in customer-perceived value and 55.43 per cent of the variance in customer satisfaction.
2. Not all of the key constituents of core competences contribute equally to customer-perceived service quality or customer-perceived value: (a) Only technological competences and integrative competences exert significant influences on customer-perceived service quality.

The insignificant impact of marketing competences may be due to several reasons. In addition to those mentioned in chapter 6, one should not ignore the fact that China is a transitional developing country that is now changing from the central economy towards a market-oriented economy, in which the role of marketing competences in the improvement of customer-perceived service quality may be very limited at the initial stage of such a change. However, it is widely believed that with the rapid development of China's economy, the role of marketing competences in improving customer-perceived service quality will necessarily increase step by step in the near future; and (b) Similarly, it has also been found that only technological competences and marketing competences contribute to customer-perceived value significantly while the influence of integrative competences is not significant based on the data from the senior manager survey. This finding is very interesting and worthy of further exploration since it is widely recognized that with the increasing importance of the cooperation and coordination within a functional department, a business unit, the whole company and even out of the boundary of a firm, integrative competences may be one of the significant sources of the sustainable competitive advantages of a firm. As explained in Chapter 6, such an insignificant impact may be due to the fact that customer-perceived service quality plays too much an important role in affecting superior customer-perceived value, which may decrease the direct influence of integrative competences on customer-perceived value given the fact that integrative competences are the most important drivers of customer-perceived service quality. This explanation is confirmed by our models for the testing of the moderating effects that will be discussed in the next section.[1]

3. In addition, according to the results of our empirical analysis, the impact of strategic flexibility on customer-perceived service quality is the most important among all the influential factors involved in this book. This is true for customer-perceived value as well. Besides, our empirical finding concluded from the senior manager survey confirmed most of the relationships among customer-perceived service quality, customer-perceived value and customer satisfaction as reported above in this chapter.
4. However, what is very interesting is that the significant impact of customer satisfaction on behavioral intentions found in the models developed based on the customer survey becomes insignificant, which is clearly different from the conclusions of previous relevant studies. This may be due to the fact that senior managers in China

consider their customers are becoming much more mature than ever and they are more rational, thus they will focus primarily on what about the quality level of the offerings and how much value they can obtain when making any behavioural decisions. This may also be caused by the perception gaps that may exist between managers and consumers as described in Chapter 6. Furthermore, the cross-sectional nature in this book may also contribute to the failure to capture the significant influence of customer satisfaction on behavioral intentions of customers as long as time lag in such an effect exists.

It should be noted that, as many other studies, the research findings found in this section are based exclusively on the senior manager survey. So we have to be cautious in interpreting the influences of the key resource-based determinants on customer-focused performance since, as discussed at the end of Chapter 6, it may be problematic to use measures such as customer satisfaction, customer-perceived value, customer-perceived service quality and the behavioural intentions of customers based on the senior manager survey as indicators of truth in the analysis.

The moderating role of environmental turbulence

In this book, in addition to the direct effects mention above, we also focus on the contingency effects of core competences and strategic flexibility on customer-focused performance by identifying the moderating roles of environmental turbulence. Based on our empirical results, it can be concluded that environmental turbulence does moderate the relationships between the key constituents of core competences and customer-focused performance and that between strategic flexibility and customer-focused performance. Related empirical findings show as follows:

1. Market turbulence positively moderates the relationship between marketing competences, integrative competences and customer-perceived service quality. In other words, the higher the level of market turbulence, the stronger the relationship between marketing competences and customer-perceived service quality; Market turbulence negatively moderates the relationship between technological competences and customer-perceived service quality. In other words, the higher the level of market turbulence, the weaker the relationship between technological competences and customer-perceived service quality.

2. In comparison, technological turbulence positively moderates the relationship between technological competences, integrative competences and customer-perceived service quality. That is to say, the higher the level of technological turbulence, the stronger the relationship between technological competences and customer-perceived service quality. Thus, taking the above findings of market turbulence into consideration, we can conclude that as long as environmental turbulence increases (no matter which kind of environmental turbulence), the relationship between integrative competences and customer-perceived service quality will become stronger; No significant moderating effect of technological turbulence on the relationship between marketing competences and customer-perceived service quality has been found in our analysis. This implies no matter how technologically turbulent, the relationship between marketing competences and customer-perceived service quality keeps almost constant.
3. Similarly, market turbulence positively moderates the relationship between marketing competences and customer-perceived value; Market turbulence negatively moderates the relationship between technological competences and customer-perceived value; No significant moderating effect of market turbulence has been detected on the relationship between integrative competences and customer-perceived value. The possible reason for this may be that for a firm in environments characterized by market turbulence, the major challenge during the value creation and delivery processes might be how to detect and forecast the potential customer preference and demands, and how to reconfigure its resources/competences to create superior customer-perceived value, which inevitably strengthens the importance of marketing competences and integrative competences at the same time.
4. Furthermore, it has also been found that technological turbulence positively moderates the relationship between integrative competences and customer-perceived value; No evidence has been found to support any significant moderating effect of technological turbulence on the relationship between customer-perceived value and marketing competences or technological competences. This may be due to the major challenges encountered by firms in different kinds of environmental turbulence. For example, in environments characterized by technological turbulence, the major challenge for a firm to create and deliver superior customer-perceived value might be how to integrate its various competences/resources to combine the existing technological expertise with those that are newly developed so that superior

customer-perceived value can be created and delivered by applying different streams of technological competences and combining them with marketing competences.

5. In addition, the positive moderating effects of both market turbulence and technological turbulence on the relationship between strategic flexibility and customer-perceived service quality or customer-perceived value. This implies that firms should keep a lower but necessary level of strategic flexibility in relatively stable environments so as to make sure the benefits derived from strategic flexibility exceed the costs during the improvement process of strategic flexibility. With the increasing level of environmental turbulence, it would be more favourable for any firm to improve strategic flexibility in order to obtain more benefits from its enhanced contribution to customer-focused performance.

However, we have to emphasize again that the environment turbulence may not be the objective reality given the subjective measures used as many other studies. This implies that professional caution be required in interpreting the moderating role of environmental turbulence since senior managers may have different perceptions of the environmental turbulence even they are in the same environment at the same time.

Contributions and implications

All the research findings summarized above support the fact that this book makes theoretical contributions to strategy-related literature and service-management studies with significant managerial implications.

Theoretical implications

For the past several years, firm performance has been dominated by views advocating core competence building and leveraging in strategy related studies. Yet to date, many related studies focus on the relationship between core competences and firm performance, but less research has been conducted to explore the connotation of customer-focused performance in the eyes of customers externally and to delineate how resource-based determinants such as core competences may influence it. As a result, few studies on performance explicitly measure and systematically identify the key dimensions of customer-focused performance and their interrelationships, and little is known about how core competences are constituted, how different constituents of

core competences make differentiated contributions to each specific dimension of customer-focused performance. Furthermore, although it has been widely recognized that organizational learning contributes to core competences of a firm, few studies, if any, have been conducted empirically to disclose how organization learning may affect different constituents of core competences. In addition, few empirical studies are designed to examine the relationship between core competences and strategic flexibility although the significance of the latter has been widely acknowledged with the increasing level of environmental turbulence, resulting in the fact that the knowledge about how core competences may influence strategic flexibility is extremely scarce. In addition, it is urgently needed for both managers and scholars to know more about how such effects are moderated by different kinds of environmental turbulence in practice.

This book provides an operational methodology for filling such gaps and contributes to studies in the fields of both strategic management and service marketing. This book, based on the comprehensive literature review in the marketing and strategic management areas and the fieldwork by interviewing managers in China, takes a first step towards conceptualizing and empirically examining the dimensions of customer-focused performance in terms of three key dimensions, i.e. customer-perceived service quality, customer-perceived value (including customer-perceived sacrifices) and customer satisfaction in the eyes of customers externally instead of the customer-related performance in perspective of firms internally. Furthermore, it proposes that the key resource-based determinants of customer-focused performance can be characterized by core competences, strategic flexibility and organizational learning. What's more important, this book bridges the gaps between marketing and strategic management identified based on previous research and explicitly addresses the relationships between key resources-based factors and customer-focused performance. This attempt not only broadens our focus of marketing strategy but also enhances our understanding of firm success in turbulent environment, and thus enriches the theories. In addition, research on the implementation of strategies is lacking although strategic failures are often attributed to the poor implementation (Walker and Ruekert, 1987). Though not directly, this book addresses the issue of strategic implementation for the improvements of customer-focused performance by examining how such improvements can be achieved by deploying the key resource-based determinants in firms and focusing a specific aspect of core competences based on the relative importance in different context.

We also contribute to strategy related literature such as the growing stream of studies of core competences in more ways than one. First,

we contribute to strategy literature by decomposing core competences into three major constituents (marketing competences, technological competences and integrative competence), viewing them as three distinct constructs and examining their discriminant validity, especially distinguishing integrative competences from marketing competences and technological competences, both of which have been emphasized by previous studies. Secondly, we contribute to related literature by exploring the impacts of different dimension of organizational learning on core competences, and the discussion of the contribution of organizational learning provides a clear picture of how to build and upgrade competences of a firm. Further, we contribute to related literature by examining the influence of each constituent of core competences on strategic flexibility and each dimension of customer-focused performance by taking a disaggregated approach and test relationships involved by developing structural equation models. Furthermore, by examining the decomposed effects of organizational learning and core competences, and empirically identifying the differentiated effects of each major constituent of core competences on strategic flexibility and customer-focused performance in a context-specific developing country setting (China), this book provides researchers a reliable and valid measure that is more comprehensive than before, which helps to clarify, sharpen and add to the existing understanding of these complicated but important relationships. Based on our research findings, the model is well confirmed empirically in China's transitional context. In fact, it is the first attempt, to the best of the researcher's knowledge, that the impacts of key resource-based determinants on customer-focused performance are examined in China and this book extends the empirical works from Western countries to a transitional region. Though not exhaustive, empirical results of this book show that these resource-based factors do exist in China.

Thirdly, this book enables us to test the moderating effects of different kinds of environmental turbulence on the differentiated influences of each major constituent of core competence and strategic flexibility on each dimension of customer-focused performance, which helps to achieve an in-depth understanding of how the influences of core competences and strategic flexibility on customer-focused performance are affected by environmental turbulence. Such findings also have implications on the strategic contingency theory, which is widely adopted in the literature (Child, 1972). Previous studies in this stream take environmental factors as moderators and attempt to investigate environmental conditions under which a specific strategy is more or less effective (Sandberg, 1986; McDougall *et al.*, 1994). This book generalizes

these findings to a transitional economy where market power is emerging. More importantly, few studies in the literature have examined the moderating role of environmental turbulence on the relationships between resource-based factors and customer-focused performance. By focusing on environmental factors, this book contributes to an understanding of the conditions under which improvement strategies of customer-focused performance could be implemented more effectively.

The last, by taking a disaggregated approach, we are able to examine the decomposed effects of customer-perceived service quality on each dimension of customer-perceived value and their differentiated influences on customer satisfaction and the behavioral intentions of customers. As a result, this is also very helpful for us to deepen the knowledge about how to achieve higher customer satisfaction and how to affect the behavioral intentions of customers more effectively and efficiently by emphasizing some dimensions of customer-perceived service quality or customer-perceived value, which contributes to the research of service management in some sense.

Managerial implications

This book also offers a number of additional research findings and insights that can be added to our understanding of competence-centered practices and their contributions to superior firm performance by way of the improvement of customer-focused performance. Thus it provides several guidelines for implementing core competences building and leveraging process. For example, the findings of the book, albeit exploratory, shed light on important sources of competitive advantage to both firms in China and those companies that wish to enter, capitalize upon and exploit the mass market of China with more than one billion people at this critical juncture. Over the past two decades, the centralized economy in China has been changed towards a more market-oriented economy and a relatively open and free competitive market is coming into being with the deepening of economy reforms in China. As a result, many functional and fundamental changes have taken place and China has been considered one of the biggest emerging markets in the world for the rapid and sustainable development of its economy. However, one of the implications of such a reform is the elimination of sources of competitive advantages that resulted from government actions and the emergence of more traditional sources of competitive advantages seen in developed countries, which exerts increasingly much more pressures on domestic firms in China. Therefore, more firms are struggling to build dynamic competitive advantages and achieve superior performance by unique competence building and leveraging processes and practices in today's turbulent environments. Moreover, such pressures have

been intensified by the fact that the competition from foreign players continues to increase after China's entry into WTO. In particular, the findings of this book establish the importance of different constituents of core competence in a developing country setting that is still in transition and provide support for different constituents of core competences as differentiated powerful drivers of business performance in the changed economic climate. This is very useful for overseas firms that already have a presence in the Asian sub-continent and those that are interested in spreading their wings to other countries in the region. This book also underscores the necessity of incorporating the constituents of core competence and environmental turbulence into the strategy formulation process in order to obtain a sustainable competitive advantage by relating the superiority of specific constituent of core competence to the extent of environmental turbulence and critical performance measures in perspective of customers. Specifically, the managerial implications can be summarized as follows:

First, our findings encourage management to incorporate all three major constituents of core competences into value creation and delivery process and take all of them into consideration when making decisions about how to build, leverage, upgrade a firm's overall core competences with limited resources so that superior customer-focused performance can be achieved successfully. Each of the major constituents should not be ignored and firms, therefore, should focus on the dynamics of competence development as a whole while emphasizing with sufficient flexibility some special constituent of core competences based on the specific requirements from the internal and external environments since not all constituents of core competences play an equal role in the improvement process of customer-focused performance. Generally speaking, the exclusion of any constituent may reduce the efficiency and uniqueness of core competences. As concluded by Hamel and Prahalad (1990), core competences are collective learning in a firm, and we believe that managers should keep in mind that they have to consider core competences as collective learning about harmonizing different streams of technologies, various marketing capabilities and integrative competences in order to realize the potential advantages derived from core competences. In other words, a firm aiming at achieving performance superior to the competitors in turbulence environments must have a dynamically harmonizing combination of marketing competences, technological competences and integrative competences.

Secondly, the three constituents are distinct constructs with unique functions. Hence, a firm should not only include them but also differentiate them, and set specific objectives for each constituent in the

decision process of competence building and leveraging. Besides, our findings indicate that the three constituents may vary in intensity and exert different impacts on customer-focused performance, especially in different contexts with various levels of environmental turbulence. These different impacts of the constituents of core competences on customer-focused performance may explain: why firms with apparently superior core competences whose constitution is not in harmony with specific environmental context do not have the above industry-average performance. For example, according to the findings of Miller and Shamsie (1996), discrete knowledge-based resources such as technical and creative skills (elements of technological competences) contribute less to financial performance during periods of uncertainty than systemic knowledge-based resources, such as coordination and collaboration skills (elements of integrative competences). This book deepens such understanding by examining empirically the differentiated roles of three different constituents of core competences in determining customer-focused performance in environments characterized by two kinds of environmental turbulence respectively, which makes our findings more practical and useful. Furthermore, the role of each constituent of core competences in improving distinct dimensions of customer-focused performance may be also different. For example, on the one hand, our empirical evidence indicates that the increasingly more important role of integrative competences during period of uncertainty concluded by Miller and Shamsie (1996) does exist in technologically turbulent environments, but we found no statistical evidence to support the existence of such phenomena in environments characterized by market turbulence. On the other hand, the increasingly weak impact of technological competences on both customer-perceived service quality and customer-perceived value in context of market turbulence is supported in this book. In comparison, it has been found that the contribution of technological competences to customer-perceived value seems constant in technologically turbulent environments, and their influence on customer-perceived service quality tends to increase. Besides, it has also been found that the impact of marketing competences tends to increase in environments with market turbulence. Therefore, given the moderating role of environmental turbulence identified in our empirical models, a firm has to pay more attention to the architecture and structure of core competences and make necessary adjustments according to the kinds and the levels of environmental turbulence over time during the core competence building and leveraging process by focusing on those constituents that contribute the most to the specific dimension of customer-focused performance in dynamic environments.

In other words, firms should be flexible in their focus on these competences and make adjustments in accordance with ever changing environmental conditions. Rigidity will inevitably weaken the effectiveness of these competences as 'collective knowledge' (Hamel and Prahalad, 1990) in improving customer-focused performance in today's rapidly changing environments.

Thirdly, although no significant evidence has been found to support the moderating role of market turbulence in affecting the impact of integrative competences on any dimension of customer-focused performance, the impact of integrative competences is not only significantly positive but also the biggest among the three key constituents of core competences. At the same time, it has also been found that the impact of integrative competences tends to increase in technologically turbulent environment. Such a finding is unlike the studies that conclude that the impact of inter-functional coordination (e.g., the integration of marketing and R&D) is very weak (Gatignon and Xuereb, 1997). In practice, this may be due to the extremely important role of integrative competences in creating and delivering technologically innovative products or services that customers actually value and the higher barriers of imitation associated with integrative competences. Generally speaking, integrative competences are more difficult for competitors to duplicate since they are more comprehensive patterns of internal and external co-ordinations and learning. By contrast, it is quite possible that a competitor may acquire some elements of technological or marketing competences. Furthermore, lacking such integrative competences will limit the potential for the firm to leverage and integrate both firm-specific and firm-addressable competences. Therefore, it is recommended that firms should focus on their integrative competences in all kinds of contexts characterized by different levels of environmental turbulence to enable them to combine marketing competences and technological competences more efficiently and effectively. Nowadays, firms are increasingly seeking to acquire or ally with other firms in turbulent environments in order to extend the current competencies or develop new ones (Hitt *et al.*, 1999), and the role of integrative competences to combine the underlying knowledge and acquire new competences is becoming even more significant. For example, by deploying integrative competences, small or new firms that may not have enough resources to focus on the development of all constituents of core competences may have the option to 'unbundle' these different types of competencies, concentrate on one area, and then link to other competence areas outside the firms (Hagel and Singer, 1999). For large firms, they can benefit from strategic efforts to access competences outside the

organization and quickly capitalize on valuable, but transient, internal competencies by leveraging integrative competences nowadays.

Fourthly, as one the most powerful weapons to compete successfully in turbulent environments besides the dynamic process of competence building and leveraging, the role of strategic flexibility should be acknowledged. In the overall structural equation model (model excluding the influences of environment turbulence), the two-stage structural equation models for the testing of moderating effects based on the data from the senior manager survey, and the regression model based on the combined data, the significant and positive impact of strategic flexibility is all supported.[2] Therefore, firms should give at least the equal attention, if not more, to strategic flexibility in practice and struggle for the improvement of strategic flexibility in accordance with the level of environmental turbulence over time. In this process, firms can take advantage of their unique competences since about 65.78 per cent of the variance of strategic flexibility can be explained by the three key constituents of core competences of firms.

Fifthly, this book also provides valuable insights and suggestions on how to strengthen different constituents of core competences by way of organizational learning. By examining the decomposed effects of organizational learning on each constituent of core competences, this book not only witnesses the statistically positive impact of organizational learning on core competences, but also deepens our understanding of such an impact. As mentioned above, firms must set dynamic priorities for the development of specific constituents of core competences given their differentiated effects on customer-focused performance. But how to enhance such a specific constituent of core competences in practice? Results of our empirical investigation show that managers can strengthen integrative competences by motivating 'commitment to learning', sharing company vision and being more open-minded. In comparison, the development of marketing competences depends on 'shared vision' and 'open-mindedness' since there is no significant relationship between 'commitment to learning' and marketing competences has been found. Similarly, firms should focus on 'share vision' and 'commitment to learning' in order to enhance technological competences given that the impact of 'open-mindedness' is very weak.

Directions for future research

Although this book has covered extensively broad areas in the field of strategic management and marketing, and developed comprehensive models conceptually and empirically, there are several areas of interest

which can be further explored and the limitations discussed above offer several interesting opportunities for future research. The following are but a few of the possible avenues for future research.

First, the sample used in this book does not constitute a pure random sample because the participation of the senior managers is voluntary and only three big cities in China are involved. To improve external validity of the research findings, a direction of future research is to replicate the principal features of ours within different industries, regions or countries using a random sampling technique. Such comparative studies involving firms in other industries and other areas of China would be useful to test the framework, elaborate the relationships between core competences, strategic flexibility and various industry setting. Furthermore, building on our findings, future research is needed to examine cross-national differences in the constituents of core competences and their differentiated contributions to customer-focused performance. This may enable scholars and managers to understand more precisely the effects of culture and other specific factors on core competences and strategic flexibility and their impacts on customer-focused performance.

Secondly, the constructs in this book are measured mainly based on self-reports. Though the subjective data used in this book provides empirical support for most of propositions, this should not exclude the use of alternative methodologies. For example, these findings can be strengthened with more objective data or the perceptual performance measures perceived by customers given the existence of perception gaps between managers and customers. Furthermore, the rationality and validity of measuring customer-focused performance based on the senior manager survey should be explored extensively, and the adoption of multiple-item measures using multiple methods (e.g. the multitrait–multimethod matrix technique) should be advocated for construct validition. Besides, a good direction for future research is towards validating and extending the findings in this book by collecting and analyzing longitudinal data as far as the lag of some effects is concerned. It is strongly believed that this approach may provide better understanding of how competences and strategic flexibility change over time and influence customer-focused performance dynamically. In addition, relevant studies can also be conducted to extend and examine the impact of customer-focused performance on financial performance of firms.

Thirdly, although our measurement models of such complex constructs as core competences and strategic flexibility that are intangible, dynamic and soft assets of a firm have shown good reliability and validity, there is still a long way to go to establish well-developed scales. Clearly, significant study is necessary to better describe and measure

competences (Fowler *et al.*, 2000) and strategic flexibility beyond the boundary of new product development. In particular, the development of reliable and valid sector-specific indicators and a wider group of general indicators for core competences and strategic flexibility is needed to improve our understanding of the role of core competences in determining performance differentials among firms.

Fourthly, although we posit several possible explanations for the differentiation of effects found in this book, we did not empirically substantiate our theoretical reasoning. Further research may identify relevant internal and external factors and investigate their relationships with core competences to deepen our understanding about why, how and when such differences may exist. In addition, this book looks at the role of resource-based determinants such as core competences, strategic flexibility and organizational learning in customer-focused performance. However, other factors may also play an important role. For example, different strategic orientations are very critical since they may influence customer-focused performance directly or interact with core competences and contribute to performance indirectly.

Fifthly, the critical nature of the research subject in this book, crossing the boundaries of multiple academic disciplines such as technology and marketing, innovation and change management, strategic management, epistemology and psychology, necessitates a rich and diverse research method for empirical testing. A series of detailed empirical studies may provide other fertile contexts in which to test the dynamic relationships we propose and may also offer constructive insights into processes that high performance organizations may employ to enhance and upgrade their dynamic competences and strategic flexibility. In this book, we have integrated findings from a variety of disciplines to clarify and suggest relationships that may provoke thoughts and add value to studies concerning learning, knowledge management, competence-based competition, service marketing and performance. We hope that the findings of this book forms a basis for improved understanding of customer-focused performance and other related challenges faced by businesses and managers in the turbulent environments now and to come.

Sixthly, the perspectives presented in this book also highlight the need for a thorough exploration of how organizational learning, strategic flexibility, core competences and environmental turbulence achieve superior fit with each other and determine customer-focused performance. For example, what is the unique contribution of each constituent of competences, especially for firms with different environmental turbulence, knowledge bases, or learning orientation? Are these conditions all

necessary for firms to achieve superior customer-focused performance and sustainable competitive advantages? If not, which one is indispensable and in which context? Should marketing competences always be seen as the most important? Additional research is needed on how to create infrastructure and systems that may reflect new organizational forms or rapid information technology and reward the management of strategic flexibility, organizational learning and competence building and leveraging. In this framework, organizational learning, strategic flexibility and core competences are identified as central to achieving superior customer-focused performance and sustainable competitive advantages because these three form the basis for the development of new products or services with superior attributes performance reflecting what targeted customers may value and beyond the threshold level. In fact, the key resource-based determinants are not exhaustive in this book and other complementary capabilities, such as those in financial management or human resources, network capabilities, and flexibility of infrastructure should also be considered in the future research since they may be indispensable in that they can support or enable a firm to advance its technological, marketing, and integrative competencies, organizational learning activities and strategic flexibility in certain environmental contexts (Argyris, 1990; Boydell, and Leary, 1996; Rucci, *et al.*, 1998).

Finally, based on the analysis results of the combined data, there may exist perceptions gaps between performance perceptions of managers and customers. It is urgently needed to conduct further research to disclose whether such gaps exist in general, how and why such gaps are generated and how to narrow such gaps, which may be of significance for firms to improve their customer-focused performance and sustain their competitive advantages.

In conclusion, we note that this is a small, preliminary attempt to study a large and complex issue, albeit one in which we have provided a tested theoretical framework. Based on this framework, moreover, further advances in knowledge can be made by deepening the search for sources of superior competitive capabilities, and also by expanding the framework across industries and national boundaries. It is expected that this book, along with all other related literature, would provide fertile contexts to offer preliminary insights into specific constituents of core competences that successful organizations employ to achieve superior performance, test the generalizability of our findings that may provoke thoughts and add value to meaningful conversations regarding core competences and customer-focused performance, and sharpen the understanding of how these competences can be developed

and how their differentiated impacts on customer-focused performance are moderated and mediated since the dynamics of competences development and their impacts on customer-focused performance are becoming a major managerial concern and an academic challenge in the future given the fast pace of change and the increasingly important role customers play in today's world. We hope that findings of this book forms the basis for an improved understanding of the strategic challenges that firms and managers face in turbulent environments.

Despite the significance of this book, we acknowledge the exploratory nature in our book. However, this is necessary due to the lack of theory in this cross-discipline area. We hope that this book will become the building block of a framework of middle-range theory that would make such studies more rigorous both theoretically and methodologically in future.

Notes

2 Philosophical Notions and Framework

1. For a discussion of rents, please refer to the paper 'Amit, R. and Schoemaker, P.J.H., 1993, Strategic assets and organizational rent, Strategic Management Journal, 14: 33–46'

4 Constructs and Constituents of Core Competences

1. For example, a firm may have different positionings such as operational excellence, customer intimacy, and product leadership or any combination of them on the basis of its own strategic intent. Operation excellence implies companies excel at competitive pricing, product and service quality, and on-time delivery; customer intimacy implicates companies excel at offering personalized service to customers and at building long-term relations with them; product leadership implies companies excel at creating unique products that push the envelope.
2. It refers to whether the product or service does what it is supposed to do and possesses features that meet the needs of customers.
3. It represents to what extent the product is free from deficiencies.
4. Performance means a product's primary operating characteristics; features refer to the additional features or the 'bells and whistles' of the product; conformance represents the extent to which a product's design and operating characteristics meet the established standards; reliability indicates the probability a product will operate properly over a specified period of time under stated conditions of use; durability means the amount of use the consumer gets from a product before it physically deteriorates or until replacement is preferable; serviceability refers to the speed, competence and courtesy of repair; aesthetics shows how a product appeals to our five senses and customer-perceived quality indicates a customer's perception of a product's quality based on the reputation of the firm.
5. In fact, all the attributes of the performance of products or services have to meet the threshold level in competition to survive, see Bogner and Thomas (1996). 'From skills to competences: the "play-out" of resource bundles across firms', In Sanchez, R., Heene, A. and Thomas, H. (eds) (1996), *Dynamics of Competence-Based Competition: Theory and Practice in the New Strategic Management* John Wiley, pp. 101–17.
6. Those innovations result from revolutionary breakthrough rather than incremental improvements.
7. Among them, knowledge acquisition is the process by which knowledge is obtained; information distribution is the process by which information from different sources is shared and thereby leads to new information or understanding; information interpretation is the process by which distributed information is given one or more commonly understood interpretations;

organizational memory is the means by which knowledge is stored for future use.

5 A Structured Survey in Beijing, Tianjin and Shenzhen

1. In this book, we define active customers as those who have had transactions at least once with the firm within the past three months.
2. The eight steps suggested by Churchill are: (a) specify domain of construct; (b) generate sample of items; (c) collect data; (d) purify measure; (e) collect data; (f) assesses reliability; (g) assess validity; and (h) develop norm.
3. Scales with multiple and high level items; scales with internal consistency; scales with adequate construct validity.
4. they propose a product-indicator approach to assess measurement error, in which measure of latent constructs are cross-multiplied to form interaction terms that are used to estimate the underlying latent interaction construct within the LISREL algorithm.
5. One is the 'main effects' model excluding product terms developed in stage I, and the other is the interaction model with interaction terms developed in stage II.

6 Creation of Strategic Flexibility and Core Competence

1. This means that these hypothetical constructs can not be measured directly.
2. The item-to-total correlation is calculated for the subscale and whole scale respectively for these multiple dimenion construct such as core competences, organizational lreaning, environmental turbulence and customer-focused performance, etc. In the former, the individual dimention is taken as a scale while all the dimensions of a complex constructs are considers as a scale in the calculating process.
3. The approach to adopting customer-focused performance measures based on data from senior manager survey instead of customer survey may make these measures less valid.
4. For the equation to calculate f^2, please refer to page 179.
5. For example, based on the studies of Bagozzi and Yi (1991), despite the importance of construct validation, the MTMM design has been used infrequently in consumer research. Only a few studies using this procedure can be found in the *Journal of Consumer Research* and few related consumer research could be found in the *Journal of Marketing Research*.
6. For example, one of the most frequently cited criticisms is that there are no precise standards for determining the degree to which the criteria outlined above are met. The other is the assumption that traits are all equally influenced the different methods used to measure them, which implies that the degree of method effect (or bias) introduced into the measure by different methods will be the same.

7 Conclusions and Implications

1. In the model for the testing of moderating effects, we ignored the influence of customer-perceived service quality on customer-perceived value, and we

did witness the significant impact of integrative competences on customer-perceived value, which is even bigger than that of any other key constituent of core competences.
2. Strategic flexibility may be the most important determinant of customer-focused performance since its influence is always statistically significant no matter whether the perception data used to measure customer-focused performance is from the senior manager survey or from the customer survey.

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