Sustaining competitive advantage of the Chinese clothing industry a resource-based view

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SUSTAINING COMPETITIVE ADVANTAGE OF THE CHINESE CLOTHING INDUSTRY: A RESOURCE-BASED VIEW

By

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ABSTRACT

China has established strong competitive advantage in the global apparel industry, accounting for almost 40% of world clothing exports in 2012. However, this position has been largely established through an export-oriented approach in the low labour-cost manufacturing segment of the industry. For Chinese clothing firms, sustaining this competitive advantage has been increasingly challenged within the context of global market depression and rising domestic production costs since 2008. Against this background, this research explores and tests sources of Sustained Competitive Advantage (SCA) of the Chinese clothing industry using a uniquely synthesised theoretical framework underpinned by global value chain theory and the Resource-Based View (RBV) of the firm. The hypothesized resources-SCA relationships are tested by using Structural Equation Modelling and with data collected from over 200 Chinese clothing companies. The results are largely consistent with RBV theory: constructs of *Fundamental Resource* and *Upgrading Capability* are shown to be significantly related to sustained competitive advantage whilst, interestingly *Dynamic Capability* is not. At the same time, all three resource constructs are significantly correlated to each other, confirming the importance of resource bundling effects on SCA. Based on the data analysis, strategic recommendations are provided for SCA of the Chinese clothing industry offering solutions to the challenges of rising costs, price-based competition and the lack of strong brands. Cost-control strategies are highlighted as key to retaining competitive advantage in the manufacturing segment of the industry, whilst upgrading strategies are the critical driver in sustaining competitive advantage of the entire industry as it seeks to compete on quality and brand rather than price. The research extends knowledge in the discipline in four key ways: firstly, the synthesised research framework originally designed for this study; secondly, the holistic research model testing RBV logic which is also originally formulated for this study; thirdly, measurement and operationalisation of the relevant concepts which are also originally developed for this study; and fourthly empirical test of RBV and the resource bundling effect.

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ABBREVIATIONS

AAGR (Average Annual Growth Rate)

AGR (Annual Growth Rate)

ATC (Agreement on Textile and Clothing)

AVE (Average Variance Extracted)

BDCC (Buyer-Driven Commodity Chain)

Business Performance Management System (BPMS)

Br (Branding)

CBI (Carribean Basin Initiative)

CC (Cost Control)

CFA (Confirmatory Factor Analysis)

CR (Customer relationship)

EFA (Exploratory Factor Analysis)

EC (External Communication)

En (Entrepreneurship)

EU (European Union)

FIEs (Foreign Envestment Enterprises)

FMM (Formative Measurement Model)

GCC (Global Commodity Chain)

GDP (Gross Domestic Product)

GVCs (Global Value Chains)

HRM (Human resource management)

IC (Internal Cohesion)

In (Innovation)

IT (Information Technology)

LIC (Local Industrial Cluster)

LP (Labour Productivity)

MFA (Multi-fibre Agreement)

MSI (Market Share Increase)

NAFTA (North America Free Trade Agreement)

NIEs (Newly Industrialised Economies)

OA (Order Acquisition)

OBM (Original Brand Manufacture/ Manufacturer/Manufacturing)

ODM (Original Design Manufacture/ Manufacturer/Manufacturing)

OEA (Original Equipment Assembly)

OEM (Original Equipment Manufacture/ Manufacturer/Manufacturing)

OL (Organisational Learning)

PCA (Principal Component Analysis)

PDCC (Producer-Driven Commodity Chain)

PE (Plant & Equipment)

RMM (Reflecctive Measurement Model)

QC (Quality Control)

QR (Quick Response)

RBV (Resource- Based View)

VRIN (Value, Rare, Inimitable and Non-substitutable)

SA (Strategic Adaptability)

SCA (Sustained Competitive Advatage)

SEM (Structural Equation Modeling)

SG (Sales Growth)

SP (Sales Profit)

SPG (Sales Profit Growth)

SR (Supplier Relationship)

SW (Skilful Worker)

WTO (World Trade Organisation)

SUSTAINING COMPETITIVE ADVANTAGE OF THE CHINESE CLOTHING INDUSTRY: A RESOURCE-BASED VIEW

CHAPTER ONE: INTRODUCTION

This chapter generally introduces the thesis concerns and the research. It starts with a brief introduction to the thesis including an outline of the research issue and background, research scope, research aim and objectives. This is followed by the research process which considers theoretical foundations, methodology, main findings and contributions. The final section summarises the thesis structure.

1.1 Thesis concerns

1.1.1 Research issue and background

This thesis explores and examines the sources for Sustained Competitive Advantage (SCA) of the Chinese clothing industry. SCA is the research issue and the Chinese clothing industry is the research background.

The clothing industry is one of the traditional pillar-industries in China and it has played a significant role in the national economic and social development, particularly in national employment and foreign trade (Details in Chapter 2.3). For example, the clothing industry employed an average of about 5 million persons in 2011, which accounted for over 12% of total employment in the manufacturing industries[1]. Moreover, according to the national statistics, clothing exports steadily grew from 181.8 billion RMB (i.e. about 29.0 billion USD[2]) in 2003 up to 321.8 billion RMB (i.e. about 51.3 billion USD) in 2011[3].

The Chinese clothing industry has integrated into the global clothing value chain and China is now the world's largest clothing manufacturer and exporter. According to World Trade Organisation (WTO), China's clothing exports was $160 billion by value, accounting for over 37.8% of world clothing exports in 2012[4]. However, the

[1]Source: *2011-2012 China Garment Industry Development Report* (China National Garment Association 2012).

[2] According to the State Administration of Foreign Exchange (SAFE), the middle exchage rate of RMB/ USD on 27th June 2014 is 6.27. This exchange rate is used throughout the thesis where equiulent value is provided.

[3] The clothing exports include manufacture of clothing, footwear and caps by industrial enterprises above designated size. From January 2011 on, industrial enterprises above a designated size refer to those with the annual revenue over 20 million RMB (about 3.2 million USD) from the principal business while the figure was 5 million RMB (roughly equal to 0.8 million USD) from 2007 to 2010.

[4] Source: WTO's database, *International Trade Statistics* in 2013, [online] available from < www.wto.org/statistics>

competitive advantage of the Chinese clothing industry in the global market is based on low labour-cost manufacture. Sustaining this competitive advantage has been increasingly challenged by external dynamics, particularly by rising domestic production costs and global market recession since 2008.

In this context, the issue of sustaining competitive advantage has become a big concern in China amongst policy makers, domain scholars and experts, and industrial practitioners.

The SCA issue is often positioned at the centre of strategic management field (Details in Chapter 3.3). Academics and practitioners are interested in exploring where and how competitive advantage is gained and sustained. For a long time before the resource-based view started to gain popularity in the 1990s, the dominant approach investigating the issue was from external perspectives such as the PEST analysis framework and Michael Porter's Five Forces model. The PEST framework is used to analyse external-macro (i.e., national or international) factors while the Five Forces model is used to analyse external-meso (i.e., industrial) factors.

However, the external theories fail to explain variations in business performance and competitive advantage between companies which share similar external contexts. In contrast, the Resource-Based View (RBV) of the firm argues that the heterogeneous and valuable firm-level resources are the source of competitive advantage and the firm sustains competitive advantage unless the valuable and rare resource bundle is duplicated by other firms (Details in Chapter 3.3). RBV arguments and underpinnings provide an appropriate theoretical foundation to address the issue which external theories could not. In this context, since the early 1990s, RBV has gradually become popular in the field of strategic management, particularly concerning issues of competitive advantage and SCA. In view of the above analysis, this research adopts RBV as the theoretical foundation.

1.1.2 Research scope

To clarify the research scope, key terms in the title need to be defined. ***Firstly***, it is quite common that the term "clothing" consists of both textile and apparel industries (Figure 1-1). The primary reason is that textiles constitute the primary input into apparel production and some apparel companies do extend and include this upstream industry. However, this research focuses only on the apparel industry with textiles excluded since the two industries are quite different in terms of their main inputs. Particularly, textile manufacturing is more capital-intensive while apparel production is more labour-intensive (Dicken 2011). ***Secondly***, this study addresses the sustainability issue

[4th May 2014]. The world clothing exports was about 423billion USD in 2012.

of the Chinese apparel industry but not that of the foreign direct investment (FDI) in China. In other words, the Chinese clothing companies (i.e., the nationality identity) rather than the clothing companies in China (i.e., the geographical identity) is the focus. ***Thirdly***, the Chinese clothing industry is dominanted by manufacturers while specialised clothing retailers and branded clothing marketers are relatively weak. More often than not, many of the clothing manufacturers have extended their businesses to distribution, retailing and marketing. Therefore this research focuses on, though it is not strictly limited to, the manufacturers of the Chinese clothing industry. That is to say, in addition to apparel manufacturing, the other segments of entire clothing value chain are not excluded (Figure 1-1).

Fibre →	Textile production →	Apparel industry and its value chain
✧ Artificial/or synthetic fibres ✧ Natural fibres	✧ Thread spinning ✧ Clothing weaving ✧ Knitting or knitwear ✧ Finishing (dyeing, printing)	(scope of this research) ✧ Apparel design ✧ Apparel R&D ✧ Apparel manufacturing ✧ Sub-contracting ✧ Apparel branding and marketing ✧ Apparel wholesale & retail
	Textile-related industries: ✧ Textile machinery ✧ Chemicals	

Figure 1-1: Clothing industry and the supply and supporting industries

Source: author's creation based on Cammett (2006)

In summary, the scope of this research is the Chinese clothing industry, focusing on the apparel manufacturers and covering the whole value-chain segments such as apparel manufacturing, design, R&D, sub-contracting, branding and marketing, etc.

1.1.3 Research aim, research questions and research objectives

This study aims to explore and test firm specific sources for sustained competitive advantage of the Chinese clothing industry. To this end, the principal research questions are raised as follows.

Q1: What are the main problems concerning the Sustained Competitive Advantage (SCA) of the Chinese clothing industry?

Q2: What are the main firm-level resources for SCA from the perspective of the resource-based view of the firm?

Q3: Which of the potential resources are significant in leading to SCA of the Chinese

clothing industry?

Q4: How and why do the identified resources contribute to SCA of the Chinese clothing companies?

According to the intended research aim and the stated questions, the research objectives are set as follows, which break the aim into steps to make it achievable. In addition, the objectives address the above corresponding questions, e.g., Obj1 to Q1, Obj2 to Q2, Obj3 to Q3 and Obj4 to Q4.

Obj1: To investigate the problems with sustained competitive advantage of the Chinese clothing industry in the global value chain.

Obj2: To identify the main firm-level resources for SCA based on the resource-based view of the firm and taking into account the global value chain for reference.

Obj3: To test effects of the identified resources on SCA of the Chinese clothing industry in a hypothesised model designed for this study.

Obj4: To contextualise and illustrate the statistical results through case studies of clothing firms.

In addition, based on the research findings in terms of the above 4 objectives, this study also intends to provide strategic recommendations and a correponding executive plan to the clothing managers and the policy makers concerning SCA of the Chinese clothing industry.

1.2 Research brief

After the main concerns of the thesis are clarified, this section previews the research including theoretical foundations, methodology and main findings.

1.2.1 Theoretical foundations

Two main theories adopted as the research foundations are Resource-Based View of the firm (RBV) and Global Value Chains (GVCs). RBV provides the theoretical base determining the source of SCA, i.e., firm-level resources, whilst GVC provides the influential contexts (Figure 4-1).

RBV is a relatively new theory but has increasingly gained its popularity in the strategic management field since the 1990s. The theory holds that the firm-level resources with the VRIN (i.e., Valuable, Rare, Inimitable and Non-Substitutable) attributes are the source of SCA and that dynamic capability reconfigures and updates resources to

achieve SCA in the dynamic environment, particularly in the clothing GVC.

In the clothing GVC, the power relationship is asymmetric in terms of the governance structure. The dominant powers and the lead firms on the one hand, mainly located in the developed economies such as the USA and the UK, are global non-factory manufacturers such as Levi's and Lee, branded marketers such as Zara and Adidas, and giant retailers such as Wal-Mart and M&S. They specialize in the high value-added segments such as clothing design, R&D and marketing but outsource clothing manufacturing to low labour-cost economies. On the other hand, the clothing manufacturers, which are dependent on the global market are mostly located in the developing economies such as China, India and Vietnam, specialize in the low value-added manufacturing segment. Their already thin profit margins are subject to both increasingly rising production costs and pressure to reduce prices. In this context, the GVC literature suggests that upgrading toward higher value-added ends is a practical strategy for the manufacturers to sustain their competitive advantage and correspondingly upgrade their capabilities.

1.2.2 Methodological overview

In order to achieve the research aim and objectives, this study follows a series of sequential steps. The ***first step*** reviews relevant literature to explore key firm-level resources which contribute to SCA. As a result of the literature review, 12 specific resources are identified and the conceptual research framework is drawn up. The ***second step*** conducts primary research, involving collection of data through a survey questionnaire to provide data for the statistical analysis and interviews to provide materials for the case studies. The ***third step*** is analysis of the primary data collected. Three main factors are extracted through Exploratory Factor Analysis (EFA). The three factors capture dimensions of resources, namely, *Fundamental Resource* for sustaining current competitive advantage in the clothing manufacturing segment, *Dynamic Capability* for updating and reconfiguring resources for SCA in dynamic environment and *Upgrading Capability* for further SCA of the entire Chinese Clothing industry. Structural Equation Modeling (SEM) is adopted as the method of analysis and it follows a two-step approach. That is, Confirmatory Factor Analysis (CFA) as the first step validates constructs and the measurement model and the second step tests the hypothesised relationships between the exogenous constructs (measures of resources) and the endogenous construct (measure of SCA) using the survey data collected from the Chinese Clothing industry. The ***fourth step*** is an explanatory study of three cases, which provide detailed and contextual interpretations of the statistical results.

1.2.3 Main findings and contributions

Main findings of this study are summarised as follows. ***Firstly***, the Chinese clothing

industry has developed its competitive advantage in the global market. As the world's largest clothing exporter, its primary competitive advantage is the clothing manufacture in terms of capability, capacity, quality and flexibility. ***Secondly***, however, this competitive advantage is based on low labour costs and cheap prices and sustaining competitive advantage has been increasingly challenged due to both rising domestic production costs and competition from the other lower-cost global manufacturers. ***Thirdly***, the statistical results (Details in Chapter 6) suggest that both Fundamental Resource and Upgrading Capability are significantly related to SCA of the Chinese clothing industry but Dynamic Capability is not. The statistical results also indicate that all the three constructs of resources, namely, Fundamental Resource, Upgrading Capability and Dynamic Capability, are correlated to each other which confirm a bundling effect on sustained competitive advantage of the Chinese clothing industry. These statistical results are further evidenced and illustrated within the rich contexts of three individual cases (Details in Chapter 7).

The statistical results are consistent with the RBV theory in terms of the resources-SCA relationships and the resource bundling effect. Therefore, this research makes both theoretical and empirical contributions to the RBV theory. The theoretical contributions are summarised into the following aspects (Details in Chapter 8.5). 1) This study develops a synthesised framework, combining internal resources with external dynamic environment, to explore and test sources for SCA. 2) This study formulates a holistic model to test the RVB logic. 3) To quantify the research, this study develops and operationalises the measures of main concepts involved in RBV, namely, resources and SCA.

The research results also provide implications for SCA of the Chinese clothing industry. The implications are concerned with significant resources contributing to SCA, the resource bundling effect and measures of business performance (Details in Chapter 8.5). The implications are mainly for the business managers in the Chinese clothing industry and also to relevant policy makers in the government. Based on the research findings, recommendations of SCA strategies and a suggested executive plan are also provided (Details in Chapter 8.4)

1.3 Thesis structure

This thesis comprises eight chapters. The contents and the logical structure are summarised as follows.

Chapter one: Introduction

This chapter briefly introduces the thesis and the research. It starts by outlining the main

issue and the background, from which the research aim, questions and objectives are developed. This is followed by the research brief in terms of research theories, methods and main findings. This chapter ends with a summary of the thesis structure.

Chapter two: Chinese clothing industry in the global value chain

The chapter examines the status quo of the Chinese clothing industry in the context of the global clothing industry. An overview of the global clothing industry comes firstly in terms of main characteristics of the industry and dynamics of the global clothing industry. This is followed by an overview of the Chinese clothing industry, particularly in terms of its competitive advantage and sustained competitive advantage. From the research background, problems of sustained competitive advantage with the Chinese clothing industry are revealed.

Chapter three: Sources of sustained competitive advantage

This chapter reviews relevant literature and provides the theoretical foundations, from which the research framework concerning sources of sustained competitive advantage is formulated in the next chapter. This chapter reviews two main theories, namely the Resource-Based View (RBV) and Global Value Chains (GVCs). RBV functions as the internal and fundamental theory, which explores the firm specific resources as the source of SCA, while the clothing GVC is the external and influential context affecting the firm's strategic development of its resources and thereby SCA.

Chapter four: Conceptual framework

Based on a synthesis of the RBV and GVC theories, a conceptual framework is formulated. The research framework consists of a conceptual framework and an operationalised framework. The conceptual framework involves the concepts of resources and SCA and the relationships between them. The operationalised framework concerns measures and measurement of the concepts involved, i.e., constructs and the corresponding indicators, and the hypothesised relationships between the constructs. This chapter discusses and generates the conceptual framework (Figure 4-2) and identifies the initial indicators (Tables 4-1 and 4-2) drawn from the literature review while the operationalised framework is the subject of Chapter 6.

Chapter five: Research methodology

This chapter details the research methods. It starts with a discussion of philosophical considerations, which underlie theory for the subsequent discussion of the research paradigm. This is followed by discussion of the research design in terms of the research approaches, the relevant research purposes and corresponding research strategies (Table

5-1). This chapter also introduces data generation process and survey design.

Chapter six: Statistical analysis

This chapter focuses on the statistical analysis, using the data generated from the survey questionnaire. The analysis begins with data description and proceeds to extract a set of constructs (Figture 6-9) from the initial indicators drawn from the literature via Exploratory Factor Analysis (EFA). The extracted constructs are then used to test the hypothesized model (Figure 6-10) by adopting a two-step approach of Structural Equation Modeling (SEM). This chapter ends with comparison of alternative models with the original model to further verify appropriateness of the hypothesized reserach model.

Chapter seven: Case studies

This chapter presents studies of three cases, aiming to further understand the statistical results and to offer a rich context and evidence to illustrate and to interpret these statistical results in terms of how and why the key resources leading to SCA of the Chinese clothing industry.

Chapter eight: Discussion and conclusion

This chapter discusses and concludes the research findings by examining whether and how the research questions have been answered. Based on the findings, this chapter also provides recommendations of SCA for the Chinese clothing industry. Contributions, limitations and opportunities for future research are identified and reflected on at the end of this chapter.

CHAPTER TWO: CHINESE CLOTHING INDUSTRY IN THE GLOBAL VALUE CHAIN

2.1 Chapter introduction

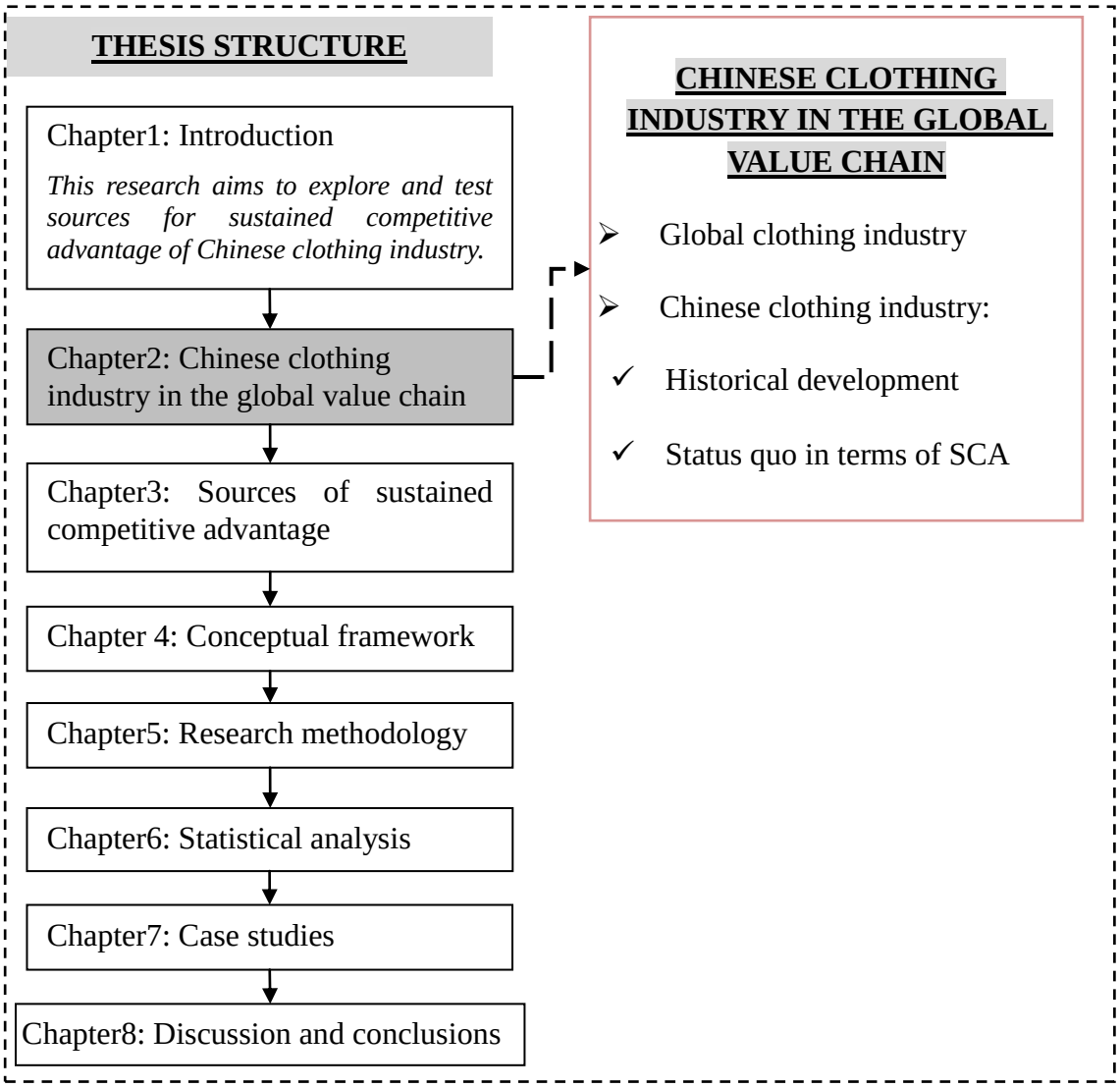

Figure 2-1: Thesis structure and focuses of Chapter 2

Source: The Author.

As stated in the preceding introductory chapter, the primary aim of this research is to explore and examine firm specific resources for Sustained Competitive Advantage (SCA) of the Chinese clothing industry. To this aim, the study follows a series of research steps (Figure 2-1). This chapter looks into the Chinese clothing industry from both its historical development and status quo, aiming to reveal the problems with SCA.

The Chinese clothing industry has integrated into the Global Value Chain (GVC) and therefore the global clothing industry and its changing environment definitely influences the Chinese clothing industry and its development (Bonacich et al. 1994). In this context, the bigger picture of the global clothing industry is first profiled and this is followed by a detailed overview of the Chinese clothing industry.

2.2 Overview of the global clothing industry

This section is structured into four subsections. The issue of production costs is first addressesed because this is a key in understanding the structure of the global clothing industry and also because it underlies global dynamics of the industry (Subsection 2.2.1). Next, trade patterns of the global clothing industry are introduced in Subsection 2.2.2, followed by an analysis of the dynamics of the global clothing industry in terms of production, consumption and trade (Subsection 2.2.3). The last subsection provides a summary of the global apprarel industry (Subsection 2.2.4).

2.2.1 Production costs

The clothing industry is primarily characterised by high labour intensity and simple technology inputs (Taplin & Winterton 2004). Technology development in the industry is mainly reflected in two major aspects:

- Quick response to demand and markets and
- Improving productivity and reducing labour costs.

Concerning the former for example, electronic point-of-sale technologies and application of electronic bar codes establish a direct link between sales and production. This enables the manufacturers' quick response to the market and facilitates better inventory control.

An example of improving productivity and reducing labour costs is the application of microelectronic techniques such as computer-aided cutting and trimming and computer-aided design, enormously saves on materials wastage and greatly increases the speed of the process. For example, '…computer-controlled cutting can reduce the time taken to cut out a suit from one hour to four minutes' (Dicken 2007: 259).

However, a problem is that out of the total labour costs, the sewing and assembly segment accounts for the largest proportion (about 80%) but so far has achieved very limited technology innovation and therefore clothing manufacturing remains a labour-intensive industry with labour costs representing about 30-50% of the final product costs (Liu & Gu 2007). This is the key explanation for the fact that over its history, clothing manufacturing has been continuously relocated to low-wage locations

worldwide due to widely varying labour costs in different geographic locations of the world. For example, in 2008, the hourly labour cost was about $41 in Switzerland, $31 in France, $18.5 in the UK while only $2.5 in Mexico, $1.8 in China and $0.5 in Bangladesh (Figure 2-2). The majority of the listed economies experienced rising labour costs between 2005 and 2008 although the rate of increase varies. Among them, China had the highest rate of increase (125%), France (45%) followed, and the others were India (25%), Italy (24%), Switzerland (17%) and the USA (13%) while the hourly labour costs in three countries, namely UK, Germany and South Korea, decreased during the period. Generally, the increase in labour costs is related to economic growth and inflation while the decrease is broadly related to efficiency and innovation in technology and organisation.

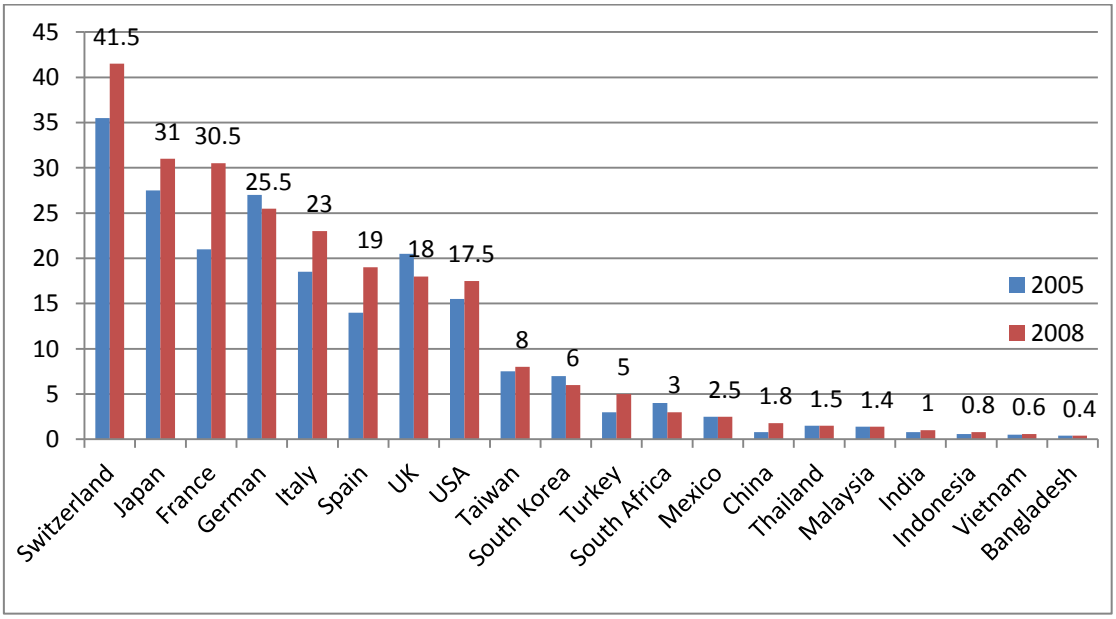

Figure 2-2: Hourly labour costs in the apparel industry of selected countries, 2005 and 2008 (unit: USD)

Source: Adapted from Dicken (2007, 2011: 309).

Production cost is not the only factor to determine production locations. For example, fashion garments are subject to a quick response to market demand and therefore geographical proximity is taken into consideration. That is why Mexico is a favoured manufacturing site for the American market; the Western European market prefers sites in North Africa and Eastern Europe; Japan prefers offshore manufacturing in the East and South Asian region (Gereffi 1999).

2.2.2 Trade patterns

The clothing industry is one of the most globalized industries and this is mainly reflected in international trade and globally dispersed production. For example, the global clothing trade amounted to about $316 billion in 2009, which accounted for over 30% of the global clothing retail value and 2.6% of the world's total merchandise exports[5].

Global clothing production is mainly located in the cheap labour-cost developing economies and regions. Among the global top ten leading exporters, which accounted for 87.9% of the total clothing trade in 2012, 55.4% of the value of exports was from the developing economies (Figure 2-3). China alone represented 37.8% of global clothing exports by value and the other important clothing suppliers included Hong Kong (7.3%), Bangladesh (4.7%), Turkey (3.4%), India (3.3%) and Vietnam (3.3%).

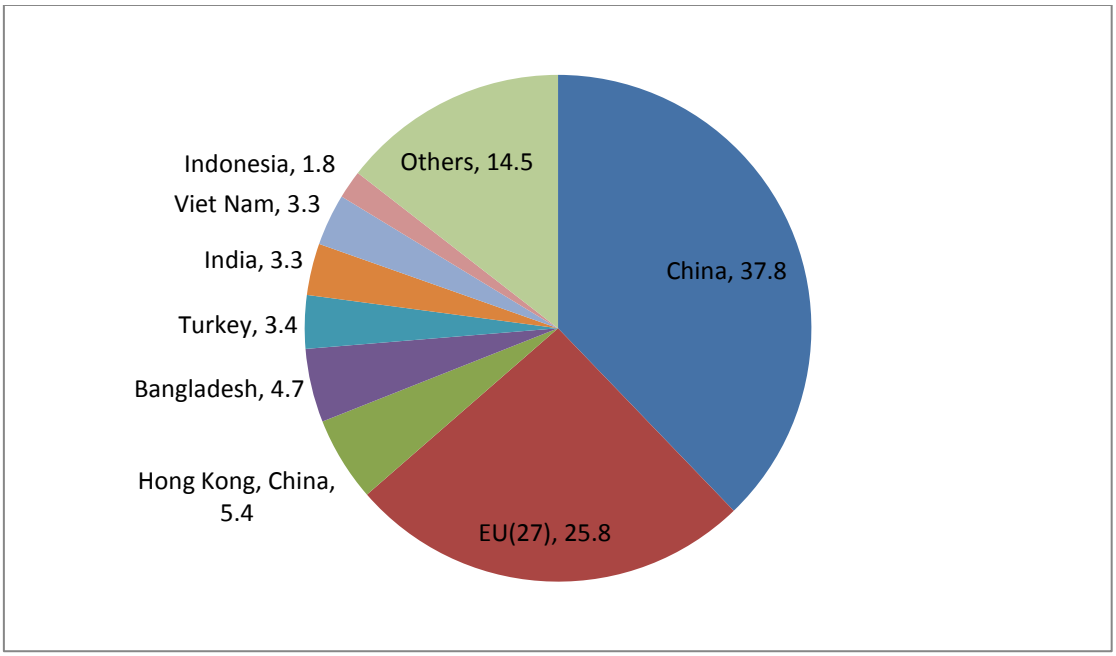

Figure 2-3: World leading clothing exporters by market share, 2012 (unit: %)

Source: Adapted from WTO's *International Trade Statistics*, 2013[6].

The main clothing markets (i.e., clothing importers) are situated in the developed economies and regions (Figure 2-4). The global top ten importers accounted for 82.5% of the total trade and among them the top three, European Union, United States and

[5] Source: DATAMONITOR (2010): Global Apparel Retail [online] available from <www.datamonitor.com> [4th May 2012]; WTO's International Trade Statistics of 2010 [online] available from <www.wto.org> [4th May 2012].

[6] Source: [online] available from <http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf> [5th April 2014].

Japan, are the major global clothing markets, accounting for 66.1% of the total clothing imports by value. The other important clothing importers include Japan (7.7%), Hong Kong (3.8%), Canada (2.1%), Russian (2.1%), South Korea (1.4%) and Australia (1.4%).

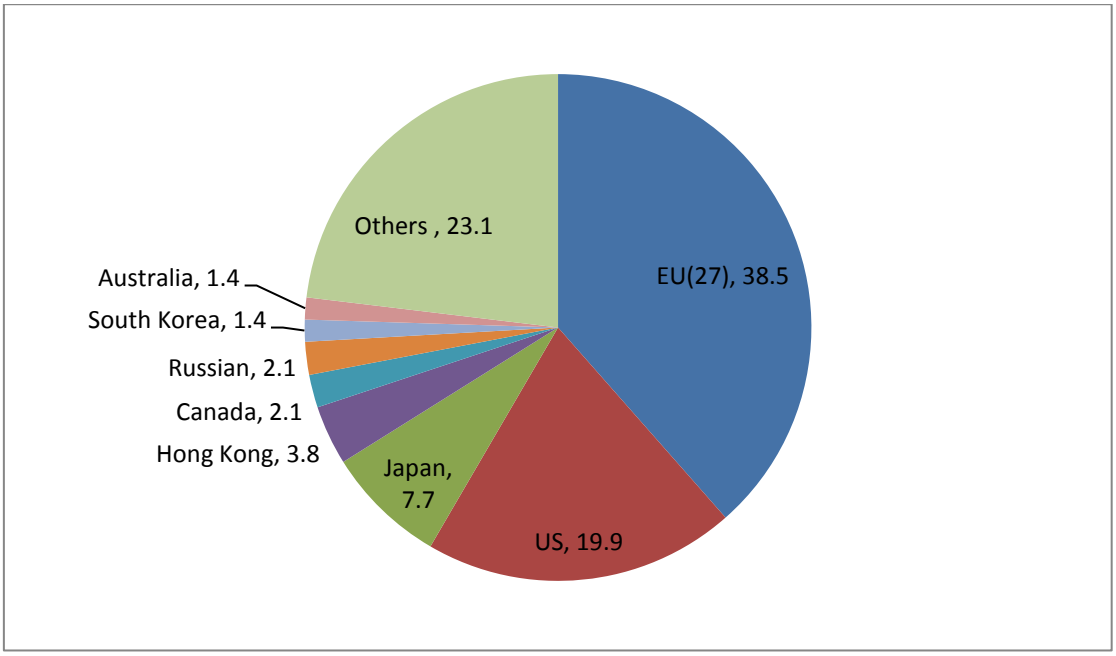

Figure 2-4: World leading clothing importer by market share, 2012 (unit: %)

Source: Adapted from WTO's *International Trade Statistics*, 2013[7].

2.2.3 Dynamics of the global clothing industry

Globalisation of the clothing industry is a gradual and dynamic process. The dynamics, particularly during the last three decades, is mainly reflected in three aspects, namely, trade patterns, apparel production and apparel consumption. The dynamics of the global clothing industry are fundamentally attributable to the labour-intensiveness of the industry. Moreover, the employment issue and thereby relevant trade regulations, materially affect and reinforce these changes.

2.2.3.1 Employment

The employment issue in the clothing industry is closely linked to its labour-intensive nature of the industry and also related to the regulatory regime of the global clothing industry. Almost all governments in the world adopt various means to protect their

[7] Source: [online] available from <http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf> [5th April 2014].

domestic clothing markets to some extent. One of the key reasons is that the clothing industry, especially clothing manufacturing, remains labour-intensive so it provides substantial job opportunities especially for non-skilled workers in both developed and developing countries (Figure 2-5). However, clothing manufacturing mainly locates in the developing economies where there is an endowment of comparatively abundant and cheap labour. The top four countries with the highest employment in the clothing industry are China (about 4.6 million), Indonesia (about 1.3 million), Mexico (907,000) and Turkey (714,000).

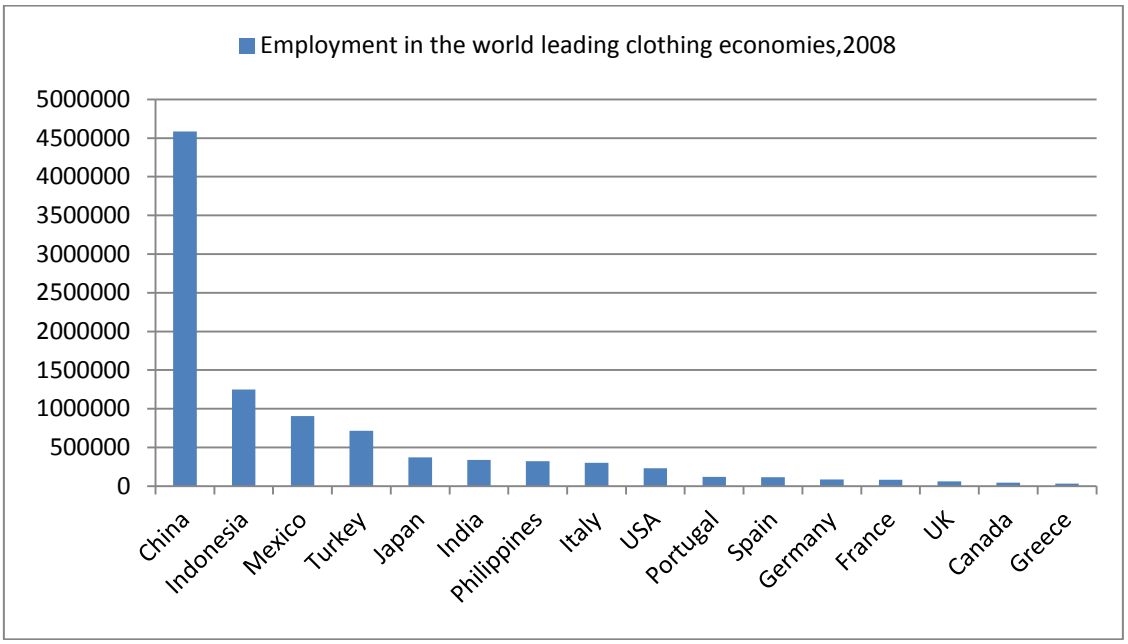

Figure 2-5: Employment of the clothing industry in world leading economies, 2008*

Source[8]: Author's creation based on database of International Labour Organisation (ILO), 2011.

Note: * This is the up-to-date data from the ILO website (Laborsta) and data of the last years are unavailable.

Global clothing manufacturing has been steadily moving from the established developed economies to the Newly Industrialised Economies (NIEs) and then to the transition economies, which has resulted in employment shifts amongst those economies involved. For example, employment in the clothing industry of the US has declined steadily since 1973 where total employment fell from 1.4 million in 1973 to

[8] India's employment data in 2008 (about 338.700 persons) is author's calculations based on its ILO employment number in 2000 (i.e., about 186,000), which was access to the online website available from <http://laboursta.ilo.org/STP/guest> [5th April 2014]. The employment number of Indian clothing industry is estimated with reference to India's apparel export growth rate during the same period (about 82.11%). India's apparel export growth rate is calculated based on data from WTO's International Trade Statistics of various years [online] available from <www.wto.org>[5th April 2014] . China's data is based on China Statistic Yearbook, 2009.

1.3 in 1979, 1.1 million in 1989, 763,000 in 1998, and 684,000 in 1999 (Brown, 2001) and that is, total employment in apparel manufacture declined by 52.4% from 1973 to 1999. Employment in the UK clothing industry shrank even more. For example, employment fell by 59.7% between 1978 and 1999 (Jones & Hayes 2004). During the eight years from 2000 to 2008, almost all of the developed economies witnessed a further and steady decline in clothing employment (Table 2-1). The US, Canada and the UK were the worst amongst them, with employment falling by more than 50%, while Italy, which has maintained most of its clothing manufacturing segment untill now, experienced a 20% decrease. In contrast, the employment figures in the developing countries, like China (by 158%), India (by 82%), Indonesia (64%) and Turkey (21%), have steadily increased. However, the developed economies have not abandoned the whole industry, but instead their competitive advantage has upgraded into high value-added segments such as design, marketing and retailing.

Table 2-1: Clothing employment in selected economies (Unit: 1,000 persons)

Economy	2000	2001	2002	2003	2004	2005	2006	2007	2008
Canada	92	102	88	86	78	63	62	55	44
China	1780	1760	1870	2892	3203	4817	3776	4142	4587
France	134	124	116	91	91	90	79	79	84
Hong Kong SAR	37	30	24	23	23	22	20	17	14
Japan	n/a	n/a	n/a	480	430	410	410	390	370
Germany	151	155	137	132	120	97	98	98	86
Greece	56	60	54	54	45	40	39	33	34
India	186	230	236	n/a	n/a	n/a	n/a	n/a	339
Indonesia	764	747	n/a	n/a	n/a	n/a	n/a	1177	1252
Italy	374	371	350	339	331	310	277	280	300
Mexico	1056	944	874	841	912	987	929	878	907
Philippines	n/a	335	367	410	415	413	376	362	324
Portugal	223	215	200	188	164	151	154	146	120
Spain	208	202	200	192	181	158	133	129	115
Turkey	590	558	611	619	701	745	735	743	714
UK	140	122	103	100	86	77	67	63	62
USA	552	473	400	348	320	290	269	248	232

Source[9]: author's calculations based on ILO database, 2011.[10]

[9] Notes: The data are based on the International Standard Industry Classification (ISIC), by ISIC categories of D18 (i.e., manufacturing of wearing apparel except footwear) and D20 (manufacturing of footwear). Among the ILO data, some of the data are based on labour force surveys (Mexico, Canada, Indonesia-2007 and 2008, Italy, Greece,

Note: This is the up-to-date data and data of the last years are unavailable. China's data is based on China Statistics Yearbook, from 2003 to 2008. India's data of 2000 is the average amount of1999 (i.e., 179,000) and 2001 (i.e., 192,000); India's data of 2008 is author's estimation (Details referring to Footnote 7).

2.2.3.2 Trade regulations: from MFA to ATC

The two prevailing trade agreements which substantially affect the dynamics of the global clothing industry are the Uruguay Multi-Fiber Arrangement (MFA) and its subsequent WTO Agreement on Textile and Clothing (ATC) (Dicken 2007).

In the 1970s, to respond to increasingly severe competition from the low labour-cost producers in the developing economies, the established apparel producers, mainly the United States and EU members, turned to trade regulations for protection of their domestic markets and employment. This is the background to the emergence of the MFA, which came into force on 1st January 1974.

The MFA was a temporary regulation to allow developed countries to impose quotas on the imports of textile and clothing from the developing economies, in particular the threat posed by the traditional garment producers such as China and India. The import quotas are based on bilateral negotiations. However it has not stopped the steady process of apparel production moving out of the developed countries or the dispersion of global production capacity amongst some 140 low-cost developing economies (Appelbaum 2008). Due to the MFA quotas, the traditional production economies such as China and India have had to restrain their trade to the EU and the US markets.

Under these circumstances, some apparel manufacturers moved their facilities to the countries which were not signatories to the MFA or whose quotas were not fully used by domestic producers. As a result, for example, in Bangladesh and Cambodia where the EU imposed no restrictions or duties on imports, the apparel production experienced explosive growth and by 2009 clothing exports in both countries accounted for over 71% of their national total merchandise exports (Dicken 2007: 261). The Nien Hsing Corporation, the Taiwanese multinational and the world's largest jeans maker, has established factories in Taiwan, Mexico, Nicaragua and Lesotho since the mid 1970s, where 40 million pairs of jeans were produced in 2000 for Wal-Mart, JC Penny, K-Mart, Gap, Sears and Target (Appelbaum 2008).

Germany, France-2005 -2008, Japan, Philippines, Portugal, Spain), some on establishment surveys (USA, India, Indonesia-2000 and 2001, Hong Kong SAR), which are less comprehensive than the labour force surveys, and the others on official estimate (UK, France-2000-2004), so the data provide only a rough picture of employment comparisons rather than a strict comparisons among the economies.

[10] Source ILO Table: Employment-2F paid employment in manufacturing (thousand) [online] available from <http://laboursta.ilo.org> [5th April 2014].

The adoption of triangular manufacturing is another consequence. To respond to the tightening grip of the MFA quotas from the mid 1970s through the 1980s and 1990s, East Asian NIEs organised triangular manufacturing arrangements (Gereffi 1999). In these arrangements, manufacturers based in NIEs shifted some or all production of clothing orders from the US or other overseas buyers to affiliated offshore factories in low-wage countries (further referring to Figure 2-6). This triangular pattern of manufacturing 'thus changes the status of NIE manufacturers from established suppliers for US retailers and designers to middlemen in buyer-driven commodity chains that can include as many as 50 to 60 exporting countries' (Gereffi 1996: 85).

In summary, the MFA has played an important part in leading to the present globally dispersed or decentralized production and in shaping the trade patterns in the global clothing industry from 1974 to 1995. Meanwhile, the MFA greatly curtailed the momentum of apparel import penetration into the developed markets from the developing suppliers.

After a ten-year phase-out period, on 1st January 2005, the MFA was finally abolished and the apparel trade was incorporated into the framework of WTO and started to be subject to the Agreement on Textile and Clothing (ATC). In this context, those countries whose apparel exports heavily rely on the quota system had witnessed a big market loss while China and India were among the big winners. However, the USA and EU cited China's WTO accession agreement allowing them to restrict the rate of growth to 7.5% per year until 2008[11].

2.2.3.3 Dynamics of clothing trade pattern

By the end of 2012, eight years having passed since abolition of the MFA, the post-MFA clothing trade pattern has changed dramatically. The dynamics of the post-MFA era, particularly during the economic recession from the end of 2007 and beginning of 2008, are reflected as follows.

Tables 2-2 presents main global clothing exports by regions, showing changes in market share and export value between 2005 and 2012. Asia ($246bn), Europe ($127bn) and South & Central America ($16bn) account for about 92.0% of the world's total clothing exports by value (in 2012), whilst China itself ($160bn) accounts for 37.8%. The annual growth rate (AGR) of the global clothing exports was 6% over the period, amongst which Asia's exports AGR (9%) grew faster than the world average while both Europe's (3%) and South & Central America's (1%) grew more slowly. Remarkable AGRs are noted as follows:

[11] In June 2005, China agreed with the EU to limit the rate to 10% for 3 years while no such bilateral agreement was reached with the USA

Table 2-2: World clothing exports of major regions/economies by destination (units: billion USD, %)

Region/economy	*2012*	*2005*	*2012*	*2005-12*
	Value	*Share in world exports*	*Share in world export*	*Annual change(%)*
World	423	--	--	6
Asia				
--World	246	48.3	58.1	9
--Europe	72	13.1	17.1	10
--North American	71	17.6	16.9	6
--Asia	60	11.6	14.1	9
China				
--world	160	26.7	37.8	12
--Asia	47	8.9	11.2	10
--Europe	41	6.3	9.6	13
--North America	35	6.6	8.4	10
Europe				
--World	127	36.2	30.0	3
--Europe	103	30.3	24.3	3
--Asia	7	1.5	1.7	8
South and Central America				
--World	16	5.1	3.7	1
--Noth America	10	4.3	2.5	-2
--South & Central America	5	0.7	1.1	14
Total above 3 regions	**389.0**	**89.6**	**92.0**	

Source: author's recreation based on WTO's International Trade Statistics, 2013 [online] available from <http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf> [5th April 2014].

a) China's export AGR (12%) was twice the global figure (6%) and grew fairly evenly across the main destinations such as Asia/intra-region (10%), Europe (13%), and North America (10%);

b) Europe's AGR to Asia (8%) was much higher than to the world as a whole (3%), which suggests Europe increased its exports to Asia in comparison to everywhere else;

c) South & Central America's AGR to North America was -2% while its internal AGR was 14%, which suggests that South & Central America lost the market share to North America while increasing its intra-regional exports.

Concerning changes in market share between 2005 and 2012, Asia (from 48.3% in 2005 up to 58.1% in 2012) particularly China (from 26.7% in 2005 up to 37.8% in 2012) is a clear winner while both Europe (36.2% in 2005 down to 30.0% in 2012) and South & Central America (from 5.1% in 2005 down to 3.7% in 2012) are losers.

Table 2-3 presents world clothing imports of major regions/economies showing changes in imports share and imports value between 2005 and 2012.

Table 2-3: World clothing imports of major regions/economies by destination (units: billion USD,%)

Region/economy	***2012***	***2005****	***2012***	***2005-12***
	Value	***share in region/world imports***	***Share in region/world imports***	***Annual chang(%)***
World	423	100	100	4
United States				
--World	88.0	29.0	19.9	1
--Asia	67.2	65.2	76.4	4
-- South & CentralAmerica	9.8	14.5	11.1	-2
--North America	4.6	9.8	5.3	-7
European Union (27)				
--World	170.1	46.7	38.5	4
--Europe	93.7	59.0	55.1	3
--Asia	67.4	33.6	39.7	6
Japan				
--world	33.9	8.2	7.7	6
--Asia	31.8	90.4	93.8	7
--Europe	1.7	7.7	4.9	-1
Total above 3	292.0	83.9	65.7	

Source: Author's recreation based on WTO's International Trade Statistics of 2013 [online] available from <http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf> [5th April 2014].

Note: * Figures in this column are based on WTO's International Trade Statistics, 2006 [online] available from <http://www.wto.org/english/res_e/statis_e/its2006_e/its06_toc_e.htm> [6th April

2014]; European Union's data is based on 25 nations in 2006. On 1st January 2007, Romania and Bulgaria became EU members and therefore, Statistics for EU consist of 27 members between 2007 and 2012. On 1st July 2013, Croatia became the 28th EU member and therefore the 2013 data are 28 EU members.

The three major import regions/ economies, namely the US, European Union and Japan, accounted for 65.7% of world imports by value (in 2012). From 2005 to 2012, all three of the major importing regions/ economies have decreased their shares of world import, e.g., the US from 29.0% in 2005 down to 19.9% in 2012， EU from 46.7% down to 38.5% and Japan from 8.2% down to 7.7%. Meanwhile, all three regions/ economies have remarkably increased the share of their imports coming from Asia, e.g., US from 65.2% up to 76.4% (with annual change by 4%), European Union from 33.6% up to 39.7% (with annual change by 6%), and Japan from 90.4% up to 93.8% (with annual change by 7%).

To summarise, the world clothing trade increased between 2005 and 2012. Concerning clothing production and exports, the comparative advantage amongst regions/ economies varied, of which Asia, particularly China, was the biggest winner at the cost of the other regions. However, the developed regions and economies such as the EU and the US, specialised in high value-added segments such as marketing, retailing and design. Another remarkable feature is that US, EU and Japan, as the global major clothing markets, their shares of world purchasing power have been reduced. For example, their total share in world imports accounted for 83.9% in 2005 and steadily reduced to 65.7% in 2012. Who has gained then? According to the WTO database, those major economies who gained the clothing import shares were Russion Federation (up by 39%), Turkey (up by 19%), Chile (up by 17%), China (up by16%), United Arab Emirates and Saudi Arabia (both up by13%), which might be related to economic development in these economies.

Table 2-4 presents changes in shares of the world leading exporters between 2000 and 2012. Among the world's leading clothing exporters in 2012, China and EU are dominant, accounting for 63.6% the market shares, with the next seven most important exporters having a total share of 22.6%; including Hong Kong (5.4%), Turkey (3.4%), India (3.4%), Bangladesh (4.7%), Vietnam (3.3%), US (1.3%) and Mexico (1.1%). During 2000-2012, China's clothing exports experienced fast and steady growth; its market share rising from 18.3% in 2000 to 37.8% in 2012, representing a growth of 100.1% over the 12-year period. Though with quite small absolute shares, Bangladesh and Vietnam even grew faster with their shares growing by 135% and 266.7% respectively. The major reason for their market-share growth is related to the fact that the developed regions and economies such as the EU and the US were outsourcing clothing production to these economies. The other possible explanation might be the

stable economic growth in the leading global clothing markets, which resulted in increased clothing consumption. The increasing dispersal of the global clothing manufacturing was also influenced by the international regulations (e.g., MFA) and regional economic integration agreements (e.g., EU and NAFTA).

In contrast, during the same period (Table 2-4), export shares dropped dramatically in some regions, e.g., US exports dropped by 70.5%, Mexico by 75.0%, and Hong Kong by 56.1%. Mexico's decrease in market share may result from its major buyer, the US's market shrinking and shifting to Asia suppliers while the decrease of market shars in the US and Hong Kong reflects the general trend of clothing production moving to low-cost manufacturing economies. The other three leading regions/ economies (i.e., Turkey, India and EU) had only slight changes in their shares of imports throughout the same period.

Table 2-4: Share changes of world leading clothing exporters, 2000-2012 (unit: %)

Economy/region	2000	2005	2006	2007	2008	2009	2010	2011	2012
China	18.3	26.9	30.6	33.4	33.2	34.0	36.9	37.3	37.8
European Union*	27.0	29.2	26.8	29.9	31.3	30.7	28.1	28.2	25.8
Hong Kong	12.3	12.2	9.1	8.3	7.7	7.3	6.8	6.1	5.4
Turkey	3.3	4.3	3.8	4.1	3.8	3.7	3.6	3.4	3.4
India	3.1	3.0	3.3	2.8	3.0	3.6	3.2	3.5	3.3
Bangladesh	2.0	2.3	2.8	2.9	3.0	3.4	4.5	4.8	4.7
Vietnam	0.9	1.7	1.7	2.1	2.5	2.7	3.1	3.2	3.3
United States	4.4	1.8	1.6	1.2	1.2	1.3	1.3	1.3	1.3
Mexico	4.4	2.6	2.0	1.5	1.4	1.3	1.2	1.1	1.1

Source: Author's creation based on data of WTO's *International Trade* of various years.

Note*: Statistics for EU consists of 25 members before 2006. On 1 January 2007, Romania and Bulgaria became EU members and therefore, Statistics for EU consists of 27 members since 2007.

Table 2-5 shows share changes of the world leading clothing importers during 2000-2012. Their total share accounted for 78.2% in 2012, amongst which the top three, namely EU, US and Japan, accounted for 66.1% and the next six for 12.1%. In comparison with the corresponding figures in 2000, the import shares reduced among the EU (-3.5%), the US (-38.6%), Japan (-18.9%), Hong Kong (-50%) and Switzerland (-13.3%) in 2012 by varied degrees while at the same time the import shares increased

among the rest four, e.g. Australia (55.6%), South Korea (133.3%), Canada (16.7%) and Russia (61.5%). An explanation for the relative changes of the import shares might be related to the outsourcing and offshore production in these economies during this period and other reasons such as the decline in EU imports since 2009, keeping in mind the impact of the global economic recession from 2008 and the subsequently introduced austerity measures into these countries. This was also coupled with economic development in emerging economies.

Table 2-5: Share changes of world leading clothing importers, 2000-2012 (unit: %)

Economy/region	2000	2005	2006	2007	2008	2009	2010	2011	2012
European Union	39.9	44.8	43.6	45.5	47.3	48.5	44.7	43.8	38.5
United States	32.4	27.9	25.6	23.7	22.0	21.8	22.3	20.5	19.9
Japan	9.5	7.8	7.4	6.7	6.9	7.7	7.3	7.6	7.7
Hong Kong	7.6	6.7	6.1	5.4	5.1	5.1	4.8	4.1	3.8
Canada	1.8	2.1	2.1	2.1	2.3	2.3	2.3	2.2	2.1
Russian Federation	1.3	2.7	4.1	2.5	5.7	2.2	2.0	1.8	2.1
Switzerland	1.5	1.6	1.4	1.4	1.5	1.6	1.4	1.4	1.3
Australia	0.9	1.1	1.0	1.0	1.1	1.2	1.3	1.4	1.4
South Korea	0.6	1.0	1.2	1.2	1.1	1.0	1.2	1.4	1.4

Source: Author's creation based on data from WTO's *International Trade Statistics* of various years [online] available from < http://www.wto.org/english/res_e/statis_e/statis_e.htm> [4th May 2014].

2.2.3.4 Changing location of global apparel production

In the late 1950s and early 1960s, global apparel production started to shift out of the developed regions such as Western Europe and North America. Throughout the subsequent three decades, especially in the 1980s and 1990s, the pace of the production shift accelerated away from the high-cost developed regions/economies of West Europe, the US and Japan[12] to the low-cost developing regions/ economies; initially to East Asian NIEs (e.g., Taiwan, Hong Kong and South Korea) in the late 1960s throughout the 1970s, and later on in the 1980s expanding to mainland China and other Asian

[12] Japan developed its clothing manufacturing during the 1950s and 1960s and shifted the production to Eastern Asia NIEs in the 1970s and 1980s.

countries (*mainly* India, Malaysia, Indonesia, Philippines, Bangladesh, Sri Lanka, Thailand and Vietnam), Latin America (especially Mexico), East Europe (especially Turkey), and Africa (mainly Kenya, Zimbabwe, Mauritius and Tunisia). The decentralized production process is quite complex as explained below.

Figure 2-6 illustrates the production shift in terms of geographic distribution and patterns, taking the Pacific Rim as an example. US retailers, branded distributers and m non-factory anufacturers outsource clothing production through commercial contracts to East Asian NIEs and then the NIEs subcontract the orders to the other lower-cost regions mainly through the triangular manufacturing arrangement (Gereffi 1999). US retailers, branded distributers and manufacturers also arrange production in Mexico & the Caribbean Basin through offshore processing. The latter may subcontract part of the order to lower-cost Asian economies.

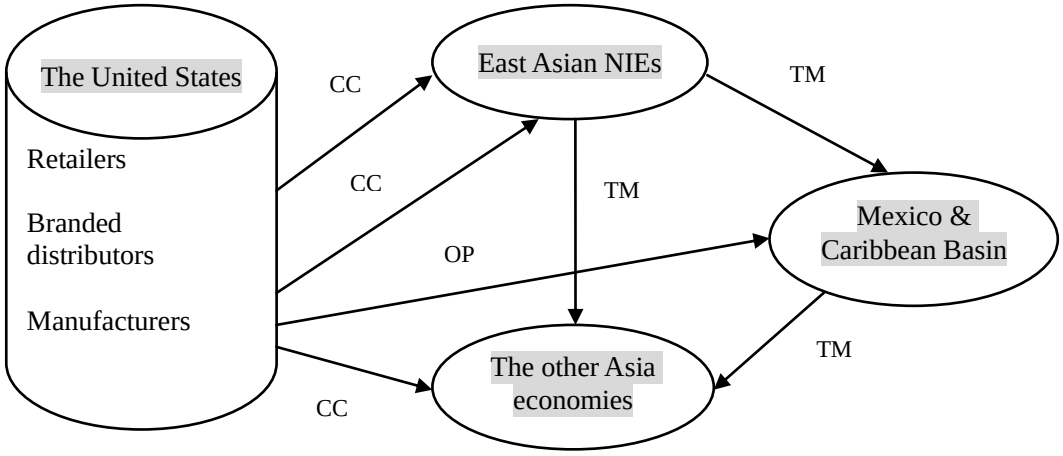

Figure 2-6: Clothing production shift by location and the main patterns in the Pacific Rim

Source: The author

Notes: CC stands for commercial contract, OP for offshore processing, and TM for trianglular manufacturing.

Taking some cases as examples, the jeans manufacturer, Levi Strauss, quickened the speed of closing down its operations at home and in Europe to move to low-cost locations such as East Asia in the late 1980s and South America in the 1990s (Gereffi 1999). In 2003 it closed all of its home manufacturing and finishing plants and became an entirely non-factory manufacturer. In Europe, many UK and German clothing companies went through the same process of shifting to offshore production and subcontracting to low-cost offshore locations (Tokatli 2003). The German fashion company Hugo Boss increasingly outsourced its production garments to Turkey in the

1990s and the company itself concentrated on design, marketing and logistics (Tokatli 2007b). Even Italy, which enjoys fame for its highly fashionable and designer-label garments in the world clothing industry, started to join in the offshore production arrangements. Armani is a case in point, which is now outsourcing to China. As a result of these global shifts, clothing production in the high-wage economies is often regarded as a "sunset" industry (Taplin 1997).

The key and long-term reason for the global geographic shift in apparel production is labour costs. However, low cost is not the only factor to determine production location. Other influential factors include perceived product quality of sourcing economies, geographic proximity and both international and regional trade regulatory agreements.

Quality, in addition to labour costs, is another consideration in determining outsourcing locations (Jones 2006). Luxury branded companies, such as Gucci and Ralph Lauren, require high quality of products and skillful workers for their orders, so the main sourcing destinations would be South Korea, Taiwan, Hong Kong and Singapore, which enjoy customers' perception of high-quality. Specialty stores and branded companies such as Gap, Calvin Klein and Liz Claiborne, usually place their orders for top-quality, high-priced garments with manufacturers in China, Turkey, Mexico or Indonesia. Large orders from the mass merchandisers such as Sears and J.C. Penney, or from discount chains with low-priced goods such as Wal-Mart and Kmart, most probably choose contractors in small Southeast Asian countries (e.g., Sri Lanka, Bangladesh and Pakistan) or African countries (e.g., Zimbabwe, Mauritius and Kenya), which have customers' perception of low quality (Gereffi 1994, Gereffi & Pan 1994, Dicken 2007).

Geographic proximity is another important factor in determining production locations. This is the major reason why 'US manufacturers go to Mexico and the Caribbean Basin, European Union firms look to North Africa and Eastern Europe, and Japan and the East Asian NIEs look to lower-wage regions within Asia' (Gereffi 1999:39). This is especially true for West European apparel companies.

> *European outsourcing processing trade favored the Eastern and Central European and Mediterranean countries more than the Asian suppliers'* and therefore *'Turkey has emerged as the second most important individual clothing supplier to the EU after China.* (Dicken 2007:275-276)

The factor of geographic proximity is especially important for the fashion-based apparel companies since the time to meet orders or the principle of agile supply becomes even more important than the costs in this context (Tokatli 2007a). One typical example is the Spanish fashion-garment producer, Zara whose production is based on the principle of geographic proximity.

> *An entirely new Zara garment takes about five weeks from design to delivery; a new version of an existing model can be in the shops within two weeks. In a typical year, Zara launches some 11,000 new items, compared with the 2,000 to 4,000 from companies like H&M or America's giant casual-fashion chain, GAP*. (Dicken, 2011:320)

Another ubiquitously influential set of factors affecting the location of clothing production is the regime of international trade regulations and the regional economic integration process. The industrial trade regulations, MFA and ATC, have had a great impact on the global decentralisation of production, which has been discussed in the previous sub-section. Concerning regional integration, the North American Free Trade Agreement (NAFTA) and the European Union (EU) are the two most influential. With implementation of the regional integration agreement of NAFTA between the United States, Canada and Mexico in 1994, and the subsequent preferential arrangement of the Caribbean Basin Initiative (CBI) amongst the Caribbean countries, the import shares of both Mexico and the Caribbean Basin in the United States' Market increased greatly. By 2000, Mexico had overtaken China to become the leading source of clothing imports into the United States (Dicken 2007:270). However, since China's entry into the WTO in 2001, it regained its position as the main supplier to the American market (Jones 2006: 76).

2.2.3.5 Changes of global apparel consumption

In addition to the dispersed production discussed above, the dynamics of the global clothing industry is also reflected in consumption in terms of the changing pattern of consumption for fashion and for product differentiation.

The most salient and general determinant of apparel demand is personal income (Dicken 2007, Jones & Hayes 2002). The booming clothing market of the late 1980s in the UK is interpreted as being 'supported by high earnings and personal disposable income, driving consumer expenditure' (TMS 1996:1). Jones and Hayes (2002:330) also consider the effects of income elasticity of demand on the consumption patterns, '…over time clothing has changed from being a necessity (with a positive- but- less-than- one income elasticity) to a luxury (with a positive income elasticity of over one) while always being a normal good'. In the comments, the reference to 'always being a normal good' is consistent with the general principle that the clothing consumption is always characterised by price sensitivity, especially for mass products. However, with growing consumption power, clothing purchases become wants driven rather than needs driven (Jones & Hayes 2002). This is consistent with the effects of income elasticity on clothing consumption. That is, with economic development and increased personal disposal income, clothing consumption goes beyond satisfying basic human needs (e.g.,

keeping the wearer warm), more influenced by 'a whole variety of complex social and cultural forces' (Dicken, 2007:254). For example, people may desire to display their individual identity or superior socio-economic class through their choice of clothing. So clothing retailers and manufacturers have to cater for these fast growing needs by offering higher-margin fashion-basic garments. Furthermore, they seek to stimulate this demand through fashion change and a diverse range of differentiated products. Due to the consumers' preference for fast fashion, procurement based on two seasons is not enough and has to extend to 4 lots of procurement and supply. Moreover, the consumption trend also affects companies' performance which is discussed below.

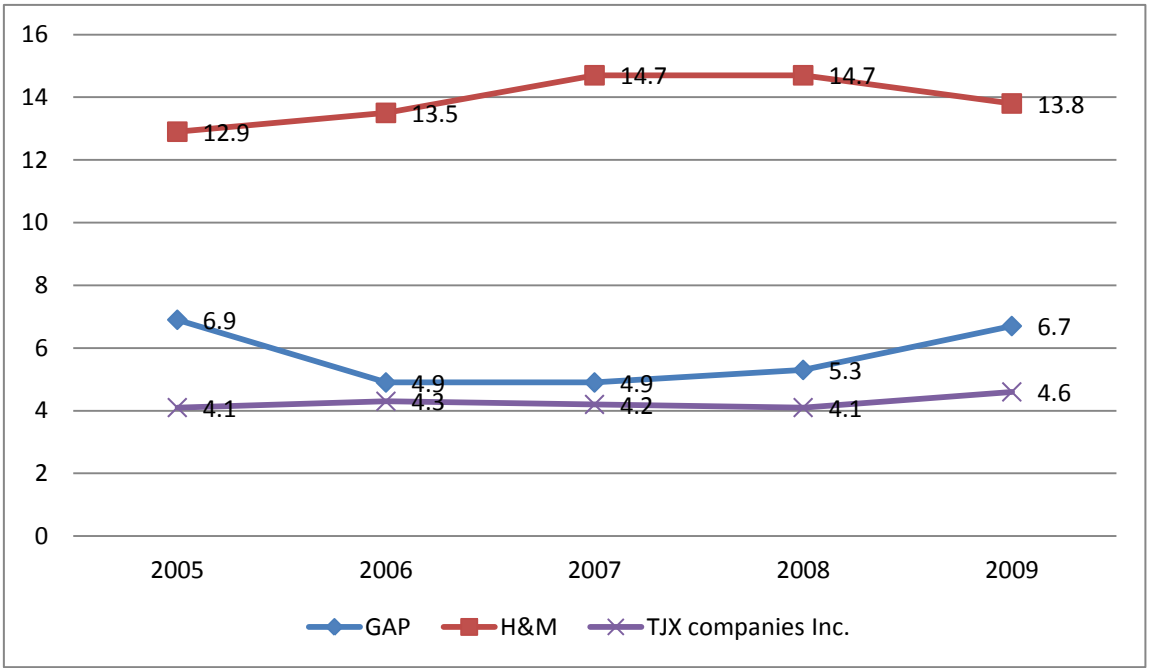

Figure 2-7: Profit margin of the world leading apparel companies (unit: %)

Source: author's creation based on data from DATAMONITOR (2010) about Global Apparel Retail, [online] available from <www.datamonitor.com> [4th May 2012].

Note: This is the up-to-date data and data of the recent years are unavailable.

Generally, garments can be classified roughly into three major types, namely, basic garments (e.g., TJX), fashion-basic garments (e.g., GAP) and fashion garments (e.g., H&M) (Dicken 2007:254). Figure 2-7 provides a comparison of the three world-leading apparel companies in terms of their profit margins during 2005-2009. Despite the ups and downs throughout the period, the highest average profit margin goes to the Swedish fashion-oriented company H&M (e.g., 13.9% in 2009), over three times higher than the lowest one, the US apparel retailer TJX companies (e.g., 4.6%). Situated in the middle is the US casual apparel company, GAP with a profit margin of 6.7% in 2009.

Therefore, it is inevitable that consumption trends in fashion affects the development strategies of the global clothing companies.

2.2.4 Summary of the global clothing industry

The following three points briefly summarise the attributes, present conditions and dynamics of the global apparel industry.

- Clothing remains a labour-intensive industry and labour costs vary substantially between the various apparel economies, which is the primary and long-term reason for the shift of global production from high-wage to low-wage economies.
- The clothing industry, particularly the manufacturing segment, makes a substantial contribution to national employment, which is the key reason for the protective regulations constraining clothing imports. Even so, employment has substantially declined in the developed economies/ regions whilst increasing in the developing economies over the past four decades.
- The global dynamics of the apparel industry are embodied in production, trade and consumption as follows. ***First***, since the 1960s, global clothing production has been constantly shifting from high-cost developed economies and regions, particularly the EU and US, towards low-cost developing economies, firstly Japan, then Asian NIEs, and followed by China, Bangladesh, Vietnam, etc. ***Second***, concerning the clothing trade, Asia particularly China, is the biggest market winner at the expense of the other regions, while the developed regions and economies focus on high value-added segments of the industry, such as marketing, retailing and design. ***Third***, the increasing apparel consumption has led to substantial product differentiation and a growth in casual garments and fashions, which leaves space and opportunities for clothing companies in the developing economies to establish and develop new clothing brands through functional upgrading.

2.3 Overview of the Chinese clothing industry

Following examination of the general background in the previous section, this section focuses on the specific research background, the Chinese clothing industry. An initial overview of the historical development of the industry is followed by an analysis of the status quo of the industry such as production, leading players, employment, labour costs, consumption, etc. Based on both vertical and horizontal description, the main problems associated with sustaining competitive advantage of the industry are revealed and summarised at the end of this section.

2.3.1 Historical development

The last three decades have witnessed rapid development of the Chinese clothing industry in three significant development phases. This sub-section provides a summary of the development contexts and the main features of the phases. Three historic events mark the background and the watershed for division of the phases, that is, China's adoption of the opening-up and reform policy in 1979, Den Xiaoping's "Southbound Tour" in 1992 and China's entry into the WTO in 2001.

Initial development phase (1979-1991)

The initial development phase covers a period from 1979 to 1991. The background was that the Chinese government started to adopt the opening-up and reform policy in 1979. This was a period when China started to develop clothing manufacturing and to integrate into the global clothing industry as a manufacturer and exporter. Through this period, the Chinese stepped out of the "murky grey" (in clothing colors) and "starving" (in clothing consumption) era. "Murky grey" describes the color, design and style of Chinese clothing at that time, which was dull and monotonous, while the term "starving" refers to a situation whereby supply of clothing was insufficient to meet demand (Chen 2008).

At the beginning, there was no notion of a clothing industry in China. Mostly, clothing was produced in collective-owned processing workshops all around the nation and in only a few well-known shirt factories. For a long time, the dominant colors were army green, navy blue, dark and grey, so clothing in other colors was highly demanded. This is generally referred to as the 'starving consumption' era in the history of Chinese clothing development. Under these circumstances, consumers were unsophisticated and followed "fashions" on the basis of one-sided viewpoint. The early "fashions" came from Hong Kong to the neighboring city of Guangzhou, which was one of the earliest cities to open up to the outside world, and then from Guangzhou the "fashions" clothing sold all over China (Chen 2008).

Until the mid and late 1980s, some Sino-foreign joint ventures started in the eastern coast regions (e.g., Guangdong, Zhejiang, Jiangsu and Shandong provinces) and the special economic zones (e.g., Shenzhen, Dongguan and Ningbo). These joint ventures brought advanced technology and manufacturing experience. The majority of the investors came from Hong Kong attracted by both government preferential policies and the cheap labour costs. Meanwhile, some Chinese clothing enterprises were established, originally via two main routes, namely, through reform of the former state-owned or collective-owned clothing factories (e.g., Youngor), or through private- and family-owned establishments, of which the founders and owners had once been staff in the

foreign trade enterprises.

At the same time, from the 1980s and throughout the 1990s, the shift in global clothing production to China accelerated. Under these circumstances, the Chinese clothing industry started as clothing manufactures for global buyers and gradually integrated into the clothing GVC. Due to the low entry barriers, the early development was at a rapid pace.

Scale expansion, global integration together with brand development (1992-2000)

The development phase from 1992 to 2000 was typically characterised by scale expansion and industrialisation whilst at the same time the Chinese clothing industry gradually integrated into the world market and started developing its own brands. The background was Deng Xiaoping's "Southbound Tour" in 1992. Prior to the tour, the government still implemented strict regulations on private enterprises and many private clothing firms had to become a department or branch of state-owned or collective enterprises. During the tour, Deng made a famous speech, encouraging further opening-up policy, which clarified the political direction and resulted in a boost for the Chinese clothing industry and further integration into the global economy.

The Chinese clothing industry gradually increased its manufacturing capacity and competitive advantage in the manufacturing segment during this period. For example, as a world leading clothing exporter, China gained 18.3% of the global market share in 2000, a substantial increase from the share of 8.9% in 1990[13]. In addition to the favorable international environment and the labour-intensive attribute of the clothing industry (discussed in above Chapter 2.2), these achievements are also attributable to national and industrial environmental conditions. ***The first condition*** relates to industrial leadership and organisation. The government gradually shifted its role from being a governor or controller to being a service provider. Various national or local organisations such as the China Textile Industry Association, China Garment Association, China Clothing Designers' Association, Wenzhou Chamber of Commerce, Ningbo Clothing Association, Shanghai Clothing industrial Association, etc., played a very important role in boosting industrial development. ***The second context*** was the organisation of national and regional clothing fairs such as the China International Clothing & Accessories Fair. These fairs provided platforms for the Chinese clothing industry to display, to communicate and to get access to the global market. ***The third context*** was the emergence of the clothing designer as a career. The proposal of 'Famous designer and well-known brand project' in 1997 and the first 'Chinese Clothing Design Expo' and 'China International Fashion Week' held in the same year promoted the social status of the designers and led the domestic clothing companies to

[13] Source: WTO's World Trade Statistics, 2006.

pay more attention to clothing design, seeking competitive advantage based on brand and differentiation. ***In addition***, other favorable conditions also contributed to the fast development of the Chinese clothing industry during this period, including the substantial emergence of the clothing-specific media and educational development in clothing which prepared more technicians and talents for the industrial development. ***Moreover***, a large number of international clothing brands rushed into the Chinese market, creating a more competitive environment for industrial development and international communication which introduced China's clothing culture into the global market.

However, China's clothing enterprises did not fully enter into the era of brand operation until the late 1990s when they were increasingly challenged by both domestic and global competitors. In the early 1980s, some foreign clothing brands such as *Lacoste* and *Montagut* started to enter into China and in the mid 1990s, more and more international brands, particularly luxury brands such as *Dunhill*, *CHANEL* and *PRADA* came to seize the market. Nowadays China is the world no. 2 luxury market. Whilst domestic clothing manufacturers oversupplied the market with homogeneous products, Chinese customers became choosier in comparison with the shortage era in the 1980s and earlier 1990s and were in a better position to buy and wear what they liked by comparing price, quality, style and brand. In this context, in the late 1990s, the situation changed which is described as follows.

> *The fast development started to slow down; inventories began to pile up; expected payment of goods was difficult to complete; the agent sellers who had to queue for delivery in the past started to bargain; what's more, gross profit started to decrease from the past 30% to 12%. (Zheng 2011:16)*

In this context, Chinese clothing enterprises came to understand that their development strategy based on homogeneous products and price competition was not sustainable and that developing their own brands was a necessity for sustainable development whatever at home and abroad. Many of today's most well-known clothing brands were born during that period, e.g., menswear brands like Lilanz (利郎) born in 1987，Sevenwolves (七匹狼) born in 2001，Baoxiniao (报喜鸟) born in 1996，Eve Group (依文) born in 1994 and Judge (庄吉) born in 1993, and womenswear brands like Fairyfair (淑女屋) born in 1991，Marisfrolg (玛丝菲尔) born in 1993，JNBY (江南布衣) born in 1994，White Collar (白领) born in 1994 and ELLASSAY (歌力思) born in 1996.

However, brand building at the initial stage was little more than an awareness of selling trademarks. Gradually, from the late 1990s, the branded Chinese clothing companies started to discover and meditate on brand management: they started to study "Blueprint

strategy"[14] and "Long tail theory"[15]; understood artistry and the commercial value of cultural power; started to learn leveraging capital; realised their social responsibility (Chen 2008:3). This early experience of brand management leads to the latest development stage of the Chinese clothing industry, namely, upgrading and internationalisation.

Industrial transformation and upgrading (2001 up to date)

Since China's accession into the World Trade Organisation (WTO) on 11th December 2001, the Chinese clothing industry has started to step into a new development phase. This new phase is typically characterised by industrial transformation and upgrading, particularly upgrading of the functions in design, marketing and branding (i.e., brand development and brand management), which are weaknesses of the Chinese clothing enterprises in the GVC.

In this phase, China has formally participated in international competition. The Chinese domestic market has become more open to the rest of the world and thus more foreign clothing brands have gained access to the booming market. Therefore, Chinese clothing enterprises have had to compete with the internationals even in the domestic market. Meanwhile, after over 20 years' development, the Chinese clothing industry has achieved its global competitive advantage in the manufacturing segment. However, sustaining competitive advantage of the Chinese clothing industry has been increasingly challenged, particularly due to the effects of the world financial crisis in 2007 and the follow-up global recession.

In this context, many Chinese clothing companies have adopted upgrading strategies. The model of strategic progression can be defined as one of sequential role shifts following the trajectory of Original Equipment Manufacturers (OEMs) through to Original Design Manufacturers (ODMs) and further to Original Brand Manufacturers (OBMs) (Humphrey & Schmitz 2001). OEMs mainly take on the function of production. In addition to production, ODMs move up the ladder handling the clothing design function. Further moving up the trajectory, OBMs can obtain access to the global market as designers, producers, marketers and retailers for their own products under their own brands (Reference to Section 3.2.2.2).

Table 2-6 illustrates the evolution process by taking Youngor for an example. In the first

[14] The printing process allowed rapid and accurate reproduction of documents used in construction and industry. Hence here "Blueprint strategy" means to create a brand's new competitive advantage, to find out the new demand, and to create the new marketing mode, etc.

[15] Long tail in statistics refers to a probability distribution of a large number of occurrences far from the "head" or central part. The term *long tail* is borrowed here to describe the retailing strategy of selling a large number of unique items with relatively small quantities sold of each in contrast to selling fewer popular items in large quantities.

stage througout the 1990s, Youngor took over clothing outsource manufacturing for global buyers such as: Pierre Cardin, Armani, Reebok, Nike, Gap, Lee, Polo, Zara and H&M. Youngor accumulated capital and business size whilst also developing production capability, capacity, quality and flexibility during this first stage. In the second stage, Youngor set up an R&D studio in 2005, and established design centres in Italy, New York, Shanghai, Hong Kong and Ningbo. Youngor could design and sell its products with its own intellectual property rights in design. According to Youngor's Annual Report, Youngor had transformed from OEM into ODM by 2007. In the third stage, Youngor focused on brand enhancement and brand management, opening its brand office in the US in 2004, acquiring the Xinma Group in 2008 and launching its multiple-brand strategy in 2009. All these operations marked Youngor's step towards OBM.

Table 2-6: Youngor's upgrading progress from OEM to ODM and further to OBM

Youngor's upgrading	**Foreign buyer**	**Stage/function**
OEM	Armani, Polo, Calvin Klein, Zara, Nike, etc.	Stage One: Clothing processing
ODM	DALLARD'S, a top-five American department store, ENVOY, a Sri Lanka clothing brand	Stage Two: Developing own R&D, Clothing design, Manufacturing clothing with own intellectual property right in design.
OBM	Sales channels and business operations abroad with Youngor's own brands	Stage Three: Manufacturing clothing with own design and own brand, Brand managent in distribution, retailing and marketing, Brand enhancement and internationalization.

Source: The author.

More and more clothing companies are adopting branding strategies. This includes development and management of the companies' own brands. On the one hand, more national clothing companies, i.e., the OEMs and the ODMs which have previously engaged in clothing manufacturing for foreign customers, are now building up their own brands so that they can sell their own branded products in the domestic market instead of merely manufacturing for global buyers. On the other hand, those companies with

already established brands (i.e., OBMs) are managing and strengthening their brands by introducing multiple brands, brand enhancement (e.g., through development of brand culture) and brand internationalisation (more in Chapter 7). Brand internationalisation in design and style has been particularly noticeable, e.g., GXG with French origin and style, ICICLE with Japanese fashion element and DAZZLE with Italian fashion style and design.

However, corresponding firm-level resources and capabilities are needed for the establishment of a successful and strong brand. Due to varying endowments of resources and capabilities, some enterprises may become more successful by establishing and sustaining their brands while others may fail to do so or may not sustain them even after they are established.

2.3.2 Clothing production

Table 2-7 shows changes of the clothing production during 2005 to 2011 in terms of main indicators such as revenues, costs, profits and exports.

Table 2-7: Main indicators of the clothing enterprises*, 2005-2011 (unit: billion RMB)

Indicator	2005	2006	2007	2008	2009	2010	2011
Revenue from principal business	478.00	591.02	733.58	907.41	1014.05	1198.86	1321.44
Cost of principal business	411.31	505.83	622.80	769.51	862.60	1106.74	1102.05
Total profits	20.62	27.34	35.71	48.73	61.12	85.19	95.20
Exports by value	232.35	269.11	315.83	329.39	314.58	334.46	321.85

Source: Author's creation based on data from China National Bureau of Statistics, [online] available from <http://data.stats.gov.cn/workspace/index;jsessionid=F499F1528B4FE05D17E147A48CAE6B13?m=hgnd> [15th April 2014].

Notes *: The clothing enterprises are above designated size and include manufacturers of clothing, headwear and footwear. According to the National Bureau of Statistics of China, during 1998-2006, the industrial enterprise 'above designated size' refers to all state-owned enterprises and those non-state-owned enterprises with annual revenue from their principal business equal to or above 5 million RMB; during 2007-2010, the National Bureau of Statistic defined industrial enterprise above designated size as referring to all the industrial enterprises with annual revenue from principle business equal or above 5 million RMB; since 2011, under the approval of the State Council, the standard has changed from 5 million RMB to 20 million RMB, which means that industrial enterprises above designated size now refers to those with annual revenue from the principal business equal to or above 20 million RMB. This research applies the criteria of the designated size in China. Data concerning clothing enterprises used in this study is subject to this standard.

Firstly, all indicators increased but to varing degrees (Table 2-6). For example, the total revenue of clothing manufacturing enterprises above designated size was 1,321 billion RMB (equal to about 211 billion USD) in 2011, which increased by 176% in comparison with the 478 billion RMB achieved in 2005. The corresponding costs rose by 167%, from 411.31 billion RMB in 2005 up to 1,102 billion RMB in 2011. The corresponding total profit increased by 363%, which was much higher than either revenue or cost. These results reflect higher added value of the products, which arguably to a large extent reflects improvement and functional upgrading of the industry. ***Secondly***, the ratios of exports to total revenue have gradually reduced (Table 2-6). For example, this ratio was 48.61% in 2005 down to 24.35% in 2011, which suggests the domestic sales have risen more rapidly than exports. The big difference between the two markets is that sales to the domestic market are mainly based on own brand and are to the end users while sales to the global market are based on clothing manufacturing without own brand and are to non-endusers. Therefore, this result provides additional support to the statement above that the Chinese clothing industry has been going through functional upgrading during the recent decade.

2.3.3 Leading players

The following six are the leading clothing enterprises in China:

Youngor Group (雅戈尔集团),
Hongdou Group (红豆集团有限公司),
HLA (海澜之家),
Bosideng International Holdings Limited (波司顿国际控股有限公司),
Metersbonwe (上海美特斯邦威股份有限公司), and
Shanshan Group (杉杉集团).

According to the China National Garment Association (2011), they are amongst the top six clothing enterprises both by sales and by total profit. They are all clothing manufacturers and manage their own design, distribution and marketing as well. In addition, these enterprises have also established their own brands and to some extent have achieved brand development (Table 2-8).

Table 2-8: China clothing brand annual awards, 2003-2012

Award	1st (2003) Brand	2nd (2004) Brand	3rd (2005) Brand	4th (2006) Brand	5th (2007) Brand	6th (2008) Brand	7th (2009) Brand	8th (2011) Brand	9th (2012) Brand
Style	White collar	Sunfed	Exception	ELLASSAY	JNBY	Eachway	GXG	QROQUIS	ICICLE
Quality	Baoxiniao	Red collar	Joe Leighto	Creation	TRANDS	Yeliya	Mailyard	Romon	M.SUYA
Planning	Shanshan	Metersbonwe	Aimer	Should be large	Lilanz	K-Boxing	Tebu	Gloria	Octmami
Innovation	EVE	Paclantic	Peacebird	White collar	Cabbean	VANCL	N&Q	Showlong	Biemlfdkk
Potential	Compro	Sinoer	HLA	Barabara	Notting-hill	Tonlion	Nancy K	Raidy Boer	DAZZLE
Marketing	Metersbonwe	HLA	White collar	Youngor	Semir	Peacbird	Yiner	Elegant	Lancy
Public	Youngor	Seven wolves	Bosideng	Metersbonwe	Jeanswest	Erdos	Anta	Lilanz	Edenbo
Value	Bosideng	Hongdou	Seven wolves	Baoxiniao	Lining	Anta	Aimer	Peacebird	ELLASSA
Achievement	Shanshan	Youngor	Hongdou	Bosideng	Seven wolves	Metersbonwe	Jeanswest	Aimer	Baoxiniao

Source: The China National Garment Association (2011). The 8th & 9th -year data are [online] available from <http://www.efu.com.cn/data/2012/2012-03-26/430796.shtml> [16th April 2014].

Notes: The corresponding Chinese names of the enterprises refer to Appendix 2-1; those shaded are the leading players in the Chinese clothing industry.

To encourage and guide enterprises' brand development, such as in design, quality, marketing and innovation, and also to promote social awareness and social influence of the clothing brand, since 2004 the China National Garment Association has started to organise annual "Chinese clothing brand annual awards" events. Each year, awards cover branding efforts and achievement aspects including style, quality, planning, innovation, potential, marketing, publicity, values and achievement. Table 2-7 lists the up-to-date 9 years' "Chinese clothing brand annual awards" as follows (China National Garment Association 2011:123).

There are some successful newly-developed brands such as Baoxiniao (2001), HLA (2002), Biemlfdkk (2003), QROQUIS (2005) and ICICLE (2006). Also some relatively

old brands still keep active such as Hongdou (1984), Lilanz (1987), Septwolves (1990), Bosideng (1992), Metersbonwe (1995) and Peacebird (1996).

2.3.4 Employment

The clothing industry contributes substantially to national employment (Table 2-9). For example, there were about 4.47 million people employed in clothing enterprises in China in 2010, which accounted for about 13% of the total national employment in the urban manufacturing segment. Amongst the three different forms of ownership, employment in the private enterprises was rising steadily while that in the state-owned enterprises fell from 2006 through 2010. For example, the employment ratio of the private enterprises to total employment rose from about 32.07% (1.21million persons) in 2006 up to 40.93% (1.83 million persons) in 2010 while the corresponding figures for both the state-owned enterprises and the Foreign Investment Enterprises (FIEs) fell. The state-owned enterprises declined from 2.45% (92,700 persons) down to 1.93% (86,400 persons) and the FIEs from 51.48% down to 44.87%.

Table 2-9: Annual average employed persons in China's clothing enterprises above designed size* (unit: 1,000 persons)

	2006	2007	2008	2009	2010
Total national employed persons in manufacture	29,630	30,953	32,103	33,322	34,687
Employed persons in urban clothing manufacture **	3,776	4,142	4,587	4,493	4,470
Employment ratio of clothing to national total (%)	12.74	13.38	14.29	13.48	12.89
Employed persons in clothing enterprises by ownership (Ge)					
In state-owned enterprises	92.7	97.8	90.3	90.6	86.4
In private-owned enterprises	1211.1	1326.5	1695.1	1745.8	1829.7
FIEs ***	1943.7	2185.8	2290.4	2126.7	2005.8

Source: China Statistics Yearbook for various years (2007-2011), [online] available from <http://data.stats.gov.cn/publish/index?m? [19th April 2014].

Note: * This table includes relevant data from 2006 to 2010 due to the comparable nature during this period. Data after 2011 are not included for two main reasons. One reason is the updated data is unavailable and the other reason is that since the standard of defining the industrial enterprise above designated size has sustantially changed before 2006 and after 2010 (Details refer to the note of Table 2-7). ** The clothing industry here includes manufacture of apparel, headwear and footwear. *** FIEs include those companies from Hong Kong, Macau and Taiwan regions of China (HMT).

Moreover, the size of firm by average number of employees varies amongst the three different ownerships (Figure 2-8). The state-owned enterprises have the largest size, e.g.,

with an average of 439 persons in 2006, rising steadily through to 2010 with an average size of 491 persons. The FIEs have the second largest size and have kept relatively stable, employment ranging from 337 persons to 361 persons over the same period. The private enterprises have the smallest size and went through a stable decline from 204 persons in 2006 down to 177 persons in 2010. In addition to these figures, there are many smaller private clothing firms that are outside the scope of the national statistics, typically with only tens of employees. Those small businesses also play their part in national employment and economic development.

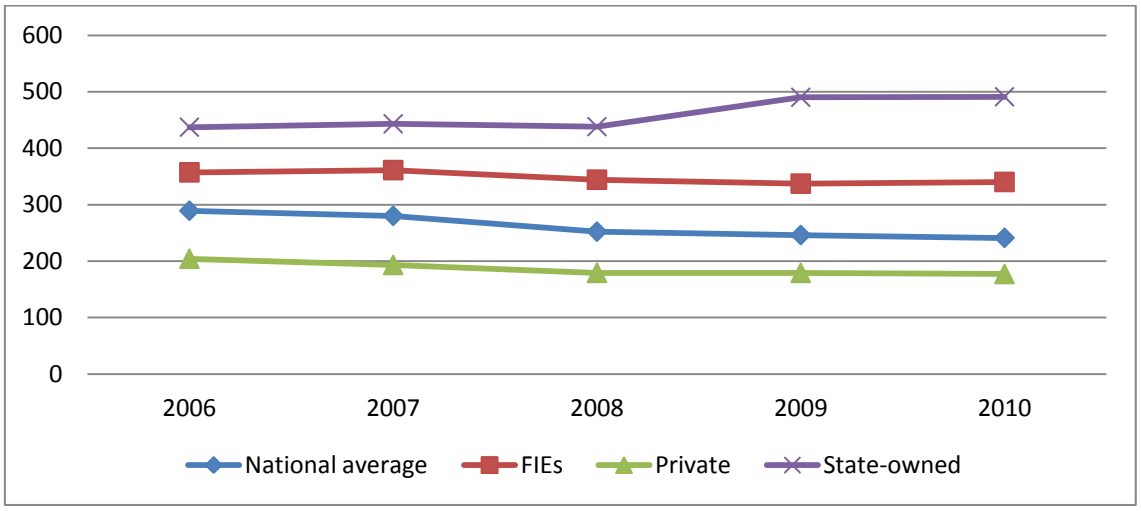

Figure 2-8: Average size of the clothing enterprises by employed persons in China (unit: Ge)

Source: China Statistics Yearbook of various years (2007-2011).

2.3.5 Labour costs

Labour costs have risen dramatically particularly since China's entry into WTO in 2001 and this is one of the fundamental factors affecting the sustained competitive advantage of the Chinese clothing industry in the global market. The preceding Figure 2-2 indicates that China's hourly labour costs went up faster than those of the other developing economies. For example, the average hourly labour costs in China, Vietnam, Bangladesh and Indonesia were $0.8, $0.5, $0.4 and $0.6 respectively in 2005 while in 2008 the corresponding figures changed to $1.8, $0.6, $0.4 and $0.8. That is, China's labour costs increased by 125% during the three years while Vietnam and Indonesia went up by 20% and 33% respectively and Bangladesh even experienced no change. Therefore, the cost-based competitive advantage of the Chinese clothing industry, particularly in the manufacturing segment, is increasingly challenged.

Figure 2-9 illustrates that the national average wage in the urban units almost rose at a similar pace to that of China's per capital GDP during the period from 2005 to 2012. In

other words, China's economic development is one of the main reasons leading to the rising costs.

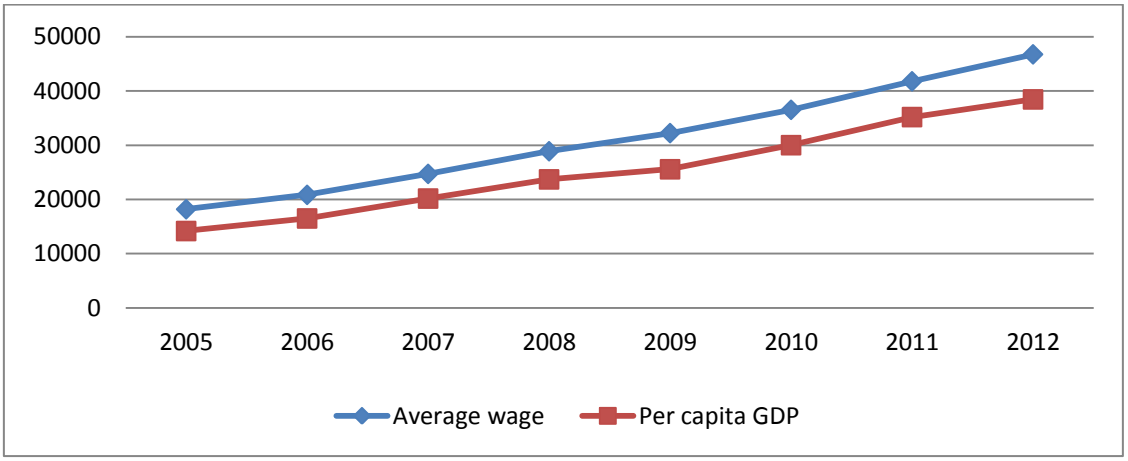

Figure 2-9: Changes of China's per capita GDP and of the corresponding average yearly wages in the urban units, 2005-2012 (unit: RMB)

Source: China's National Bureau of Statistics, [online] available from <http://data.stats.gov.cn/workspace/index?m=hgnd> [17th April 2014].

However, labour costs in China are imbalanced between different economic regions and different forms of ownership[16]. Table 2-10 shows differences of average wage of employed persons in the urban areas in 2012. The absolute figures are coded into indexes. The mean of average annual wages of 43,390 RMB (about 6,920 USD) is indexed as 100 and the other figures are indexed accordingly.

Amongst the four different economic regions, the lowest wages are in the Northestern (mean = 90) and Central (mean = 94) economic regions; the highest is in the Eastern region (mean = 125); the Western region (mean = 100) is situated in the middle range. Therefore, the large population in the rural regions is migrating towards the eastern coast cities where wages are highest. Those immigration workers coming from the central and western rural regions are normally unskilled and less educated and thus in a poor bargaining position. So in the beginning they are paid low wages in the clothing factories of the eastern region and receive no social security benefits which full-time

[16] According to *The 11th Five-Year Guidelines for National Economic and Social Development*, China is divided into four economic regions based on the situations of economic and social development in the regions: East Region, Central Region, West Region, and Northeast Region. The East Region is a prioritized developed region and includes 3 municipalities (Beijing, Shanghai, and Tianjing) and 7 provinces (Hebei, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan). The Northeast Region is the old industrial base, including 3 provinces (Liaoning, Jilin, and Heilongjiang). The Central Region includes 6 provinces (Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan) and the West Region includes 1 municipality (Chongqing city) and 11 provinces (Inner Mongonia, Guangxi, Sichuan, Guizhou, Yunnan, Tibet, Shanxi, Gansu, Qinghai, Ningxia, and Xinjiang). The regional economic development in China is following the Guidelines' spreading direction: from South to North, East to West, and periphery to center.

workers should have. As skills and experiences get improved together with the national economic growth, they claim higher and higher salary and consequently push the labour costs upward in the eastern regions.

Table 2-10: Average annual wages in the urban manufacturing segment by province in three economic regions of China, 2012 (unit:100*)

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Source: The National Bureau of Statistics of China, [online] available from <http://data.stats.gov.cn/workspace/index?m=fsnd> [17th April 2014].

Note*: Mean of average annual wages in the urban manufacturing segment of the Western Region is 43,390CNY which is indexed as 100 and all the other figures are indexed accordingly.

Labour costs vary not only by different economic regions but also by different forms of ownership (Figure 2-10). For example, the industrial average wage was 46,769 RMB (about 7,459 USD) in 2012 and the highest wage was in share-holding corporations (56,254 RMB), followed by foreign investment enterprises (55,888 RMB), while the lowest wage was in the urban collective (38,552 RMB) except others (34,697 RMB). Generally, different payments are related to differences in inter-firm performance, which, according to RBV, are attributable to different firm-level resources. Therefore, the different payments under the different forms of ownership suggest that resource endowment may vary among the enterprises of different forms of ownership. For example, share-holding and foreign-funded enterprises are said to posses more effective

managerial processes compared to the others so they perform better and thereby are in a position to better renumerate their employees.

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Figure 2-10: Average wage in the urban clothing manufacturing enterprises in China by ownership, 2012 (unit: RMB)

Source: The National Bureau of Statistics of China, [online] available from <http://data.stats.gov.cn/workspace/index?m=fsnd> [17th April 2014].

Note: HMT refers to Hong Kong, Macao, and Taiwan regions.

In addition to rising labour costs, the rising price of raw materials also squeezes the profit margins of manufacturing companies. In order to protect the farmers' benefits, the government imposes a quota on cotton imports so as to protect the domestic cotton price. For example, the domestic cotton price (about 10000 RMB/ ton) was twice the price in the international market (about 5000 RBM/ ton) in 2012. Also the China Yuan has been appreciating particularly since 2005. For example, from 21st June 2005 when the exchange rate of CNY/USD was 8.27 to 27th June 2014 when the corresponding rate was 6.27, the appreciation rate of CNY to USD was more than 24%. This further undermines the original cost-based competitive advantage of the Chinese clothing industry in the global market.

2.3.6 Domestic market

Historically, clothing consumption in China has lagged behind production but consumption has grown rapidly during the last decade (Du 2011: 23). For example, average annual clothing sales increased by 14.64% between 2001 and 2010, exceeding the 10.66% corresponding GDP growth rate during the same period. By comparison, the average annual consumption growth rate was just 5.95% in the 1980s which was far

lower than the corresponding GDP growth rate (9.31%) during the same period; in the 1990s, the consumption growth rate was up to 6.43% but still lower than the corresponding GDP growth rate (10.27%). However, the rising domestic consumption provides a strong foundation for sustained and rapid development of the Chinese clothing industry.

The average annual growth rate (AAGR) of the clothing sales in China has increased more than the corresponding global AAGR in recent years (Table 2-11). The world's retailing AAGR was 3.1% during the period spanning 2005-2009. The world's major clothing markets such as Japan (0.8%) and France (0.6%) were amongst the lowest AAGRs; UK (1.9%) and USA (3.2%) were in the next lowest. By comparison, the developing economies such as India (9.9%) and China (7.9%) achieved the highest growth rates. In 2009, Chinese clothing retail revenue reached $102 billion, accounting for nearly 10% of the world total.

Table 2-11: Retail value of the apparel industry in the selected economies (units: billion USD, %)

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Source: DATAMONITA, 2010.

Notes: This is the up-to-date data and data after 2010 is unavailable; AAGR is for Average annual growth rate.

The most profitable market segment in the Chinese clothing industry is menswear, with total retail revenue of $45.4 billion, representing 44.4% of overall revenue while the sales revenue shares in womenswear and childrenswear are 34.9% and 20.7% respectively (Figure 2-11). By comparison, the most lucrative segment in global clothing retailing is womenswear, accounting for 51.8% ($1032 billion) of all sales value whilst the menswear share is 32.5% and the childrenswear share is 15.7%. These differences in profit between segments, compared to the world market, reflect some weaknesses of the Chinese clothing industry. Normally, in comparison with menswear

and childrenswear, womenswear demands for more diversity in style and more skills and capabilities in fashion design, which are among the weaknesses of the Chinese clothing industry as a whole.

Market preferences within clothing consumption in China also follow a similar trend to the world market. That is, general consumers tend to follow fast fashion on the one hand, whilst there is a growing demand for diversity and luxury brands on the other hand.

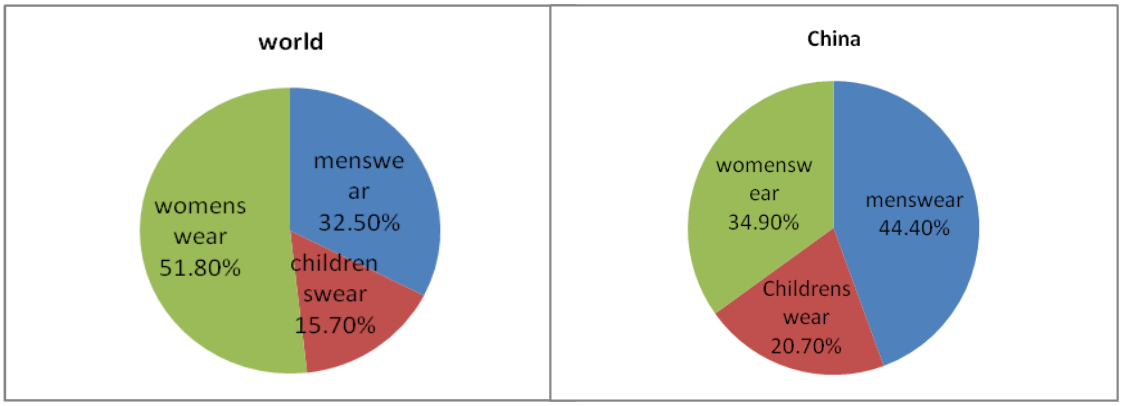

Figure 2-11: Value structures of the apparel retail by segment in China and the world, 2009

Source: DATAMONITA, 2010.

2.3.7 Geographic distribution and local industrial clusters

Due to political and geographical reasons, development of the Chinese clothing industry has varied considerably between regions. For example, the eastern coast region has more convenient transportation and also is the earliest opening area to the outside world and therefore the eastern coast region is better and earlier developed than the other parts of China. The three provinces in the eastern coast regions, namely, Zhejiang, Jiangsu and Guangdong, account for 52.87% of the national total clothing sales and 56.33% of the total number of clothing enterprises (Table 2-12). Amongst them, Zhejiang accounts for about 13.08% ($2.20 million) of the national total revenue ($16.80 million) by sales. In addition, Zhejiang is more export-oriented, exporting about 42.88 % of its total sales compared with the national average level of 28.56%. Jiangsu accounts for 21.16% ($3.56 million) of national sales revenue, which is the highest proportion of the three, but only 26.83% of its sales are for export and the majority (73.17%) for the domestic market. Guangdong accounts for 18.64% ($3.13 million) of national sales revenue with about 32.43% of its sales going for exports. Interestingly, higher gross profit margins are correspondingly related to the higher export ratios, with Zhejiang province (17.36%) having the highest profit margin of the three provinces, followed by Guangdong (12.70%) and Jiangsu (11.74%).

Table 2-12: Economic indices of the Chinese clothing companies above designated size in three main provinces, January to November of 2010

Region	Enterprise number (Ge)	Gross sales profit %	Export proportion %	Domestic sales revenue* (million USD)
Zhejiang	3,254	17.36	42.88	2.20
Jiangsu	3,434	11.74	26.83	3.56
Guangdong	3,449	12.70	32.43	3.13
National total	17,996	14.72	28.56	16.80

Source: China National Garment Association 2011: 131.

Note: *Author's calculation based on the middle exchange rate on 27th June 2014, i.e., RMB/USD=6.27[17].

The presence of local industrial clusters (LICs) is a distinctive feature of the Chinese clothing industry. The industrial cluster paradigm emphasises how geographically bounded and business-specialised clusters of firms horizontally and vertically link together and form a collective network, which boosts industrial growth and local economic development (Schmitz & Nadvi 1999). Specialisation, cooperation and competition within the LICs promote competitiveness and catch-up effects in addition to intra-industrial spillover effects (Krugman 1991, Cammett 2006). Moreover, LICs in developing economies facilitate the industrial upgrading process through both intra-cluster networks and external linkages to GVCs (Rabellotti 1999). The external buyer-seller linkage and cooperation between overseas buyers and domestic manufacturers in the clusters allow a great degree of local learning about the upstream and downstream segments of an industry from the lead firms and this learning facilitates industrial upgrading in developing economies (Liu & Gu 2007).

According to China National Textile and Apparel Councial, there are about 50 big clothing LICs in China, most of which are located in the East coastal regions, particularly the Yangtze River Delta, the Pearl River Delta and the Bohai-Rim region. Figure 2-12 displays 39 main spcialized clothing LICs in China, among which 8 spcialised LICs in both Fujian and Jiangsu provinces, 7 in Guangdong province, 6 in Zhejiang province, 3 in Hebei province, 2 in Shangdon province, and 1 in each of Shanghai, Anhui, Jiangxi, Hunan and Henan province/municipality.

[17] The exchange rate is [online] available from < http://www.safe.gov.cn/wps/portal/sy/tjsj_hlzjj_inquire> [27th June 2014].

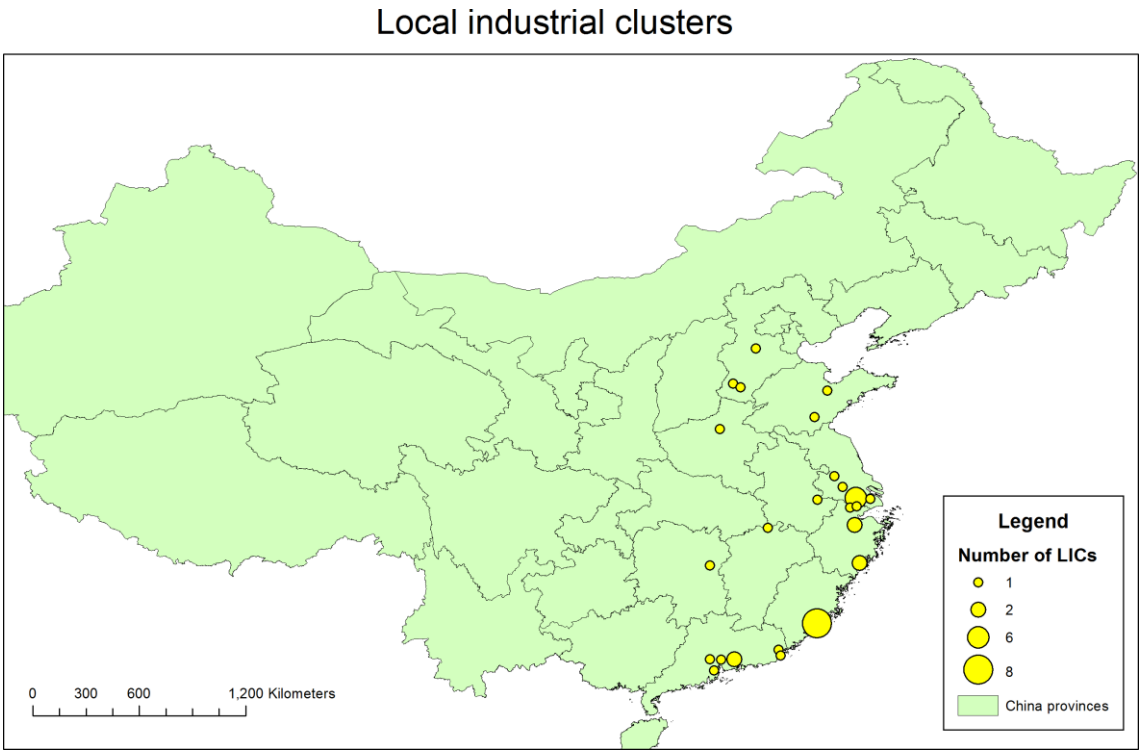

Figure 2-12: Main specialised clothing LICs in China

Source: Author's creation based on data from China National Garment Association[18].

Table 2-13 lists some famous clothing specialised LICs which are situated in three main provinces, i.e., Guangdong, Zhejiang and Jiangsu. Taking Zhejiang province as an example, Ningbo LIC is characterised by specialisation in men's suits and shirts, with famous brands like Youngor, ShanShan, Romon, Peacbird and Progen, while Hangzhou LIC specialises in women's fashion garments with popular brands like Roman Sentiment, Leises, Hopeshow and JNBY. Wenzhou LIC is the national largest leisure-wear and sports-wear wholesale market. Haining LIC is famous for its specialisation in leather garments. It has been estimated that over 70% of the total output of clothing in China is produced in these LICs[19]. However, a major issue in the clothing LICs is dependence upon price-based competition and over-production of similar products, which is increasingly challenging the sustainability of their competitive advantage. To a large extent, insufficient firm-level resources in design, branding and innovation are the key reasons for the existing problems.

[18] The distribution map was generated through the software **Arc GIS 10.1** version. The data concerning geographic location, i.e., longitude and latitude, were gained by referring to ***China gazeteer***.

[19] Source: China National Garment Association [online] available from <http://www.cnga.org.cn/fzxh3/13cygs.asp> [10 April 2014].

Table 2-13: Some notable clothing LICs and the specialised segments in China

LICs location	Province	Specialisation	Own brand or OEM
Dongwan Humen	Guangdong	Childrenswear	Brand:Yichun, Songying OEM
Chaozhou	Guangdong	Wedding dress, evening dress	Brand: Famory, Feona OEM
Shantou Chaonan	Guangdong	Underwear, pajamas	Brand:Qiulu, Meibiao OEM
Changshu city, Changshu Guli, Gaoyou	Jiangsu	Down garment	Brand:Bosideng,Xuezhongfei,Dahongying,fengzhiyun OEM
Changshu Shajiabing	Jiangsu	Casual garment	Brand: Kabulang, Kuobo, Jinyue OEM: Playboy, Valentino
Jintan	Jiangsu	Export processing	OEM: Gap, Lee, JCP, Polo, Nautica, Valentino
Shengzhou	Zhejiang	Necktie	Brand: Babei, Shenshi, Junshi, Zunlong, Mengtianjiao OEM: Pierre Cardin, Armani, Tintori
Pinghu	Zhejiang	Export processing	OEM: Reebok, Rainforst, Lee, Nike, Tom allor, Extpress
Huzhou	Zhejiang	Childrenswear	Brand: Red yellow blue, Jiujiu, Mendeli
Ningbo	Zhejiang	menswear	Brand: Youngor, Rouse, Romon, Progen, Seduno OEM: Adidas, Reebok, Campus, Umbro, H&M, Zara, Sears, OTTO, TCM

Source: Author.

2.3.8 World largest manufacturer and exporter

In spite of the global economic recession since 2008, China's apparel exports are still growing steadily (Figure 2-13) and gaining in global market share (Table 2-4). For example, according to the WTO's *International Trade Statistics*, China's clothing exports value was about 74.16 billion US dollars, accounting for 26.9% of global exports in 2005 and it gradually rose to 160 billion dollars, accounting for 37.8% of global exports in 2012.

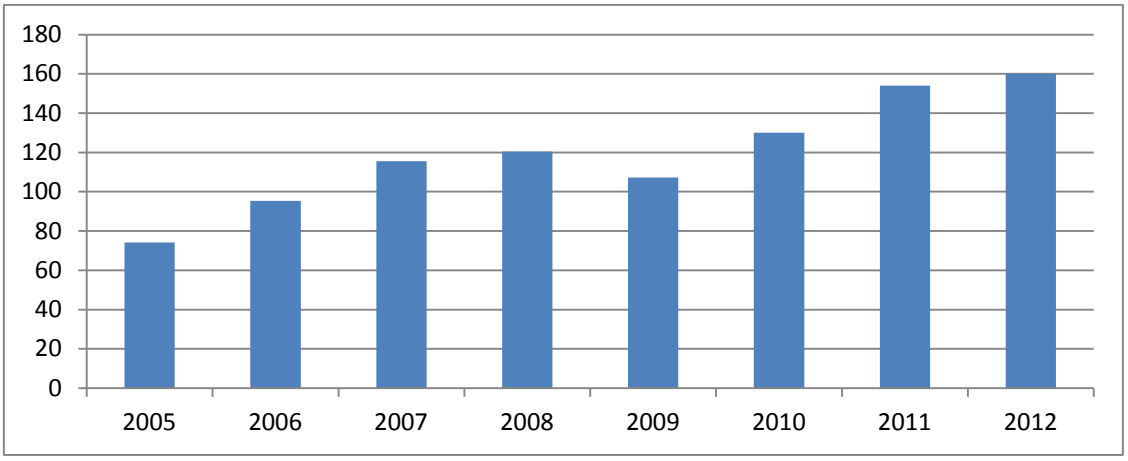

Figure 2-13: Clothing exports value of China (unit: billion USD)

Source: Chinese Statistic Yearbook, various years.

China's major clothing export markets include the European Union (EU 27), the United States (US), Japan and Canada (Figure 2-14). In 2012, these four markets accounted for 64.33% of the total value of China's clothing exports (160 billion dollars) while the corresponding figure was 87.90% (74.16 billion dollars) in 2005. Between 2005 and 2012, China diversified its clothing exports markets by developing others such as the Middle East and South Africa thereby causing a decline in the shares of its hitherto main markets. For example, the EU market share declined from 31.03% in 2005 to 23.51% in 2012 and the US market from 28.50% down to 21.68%.

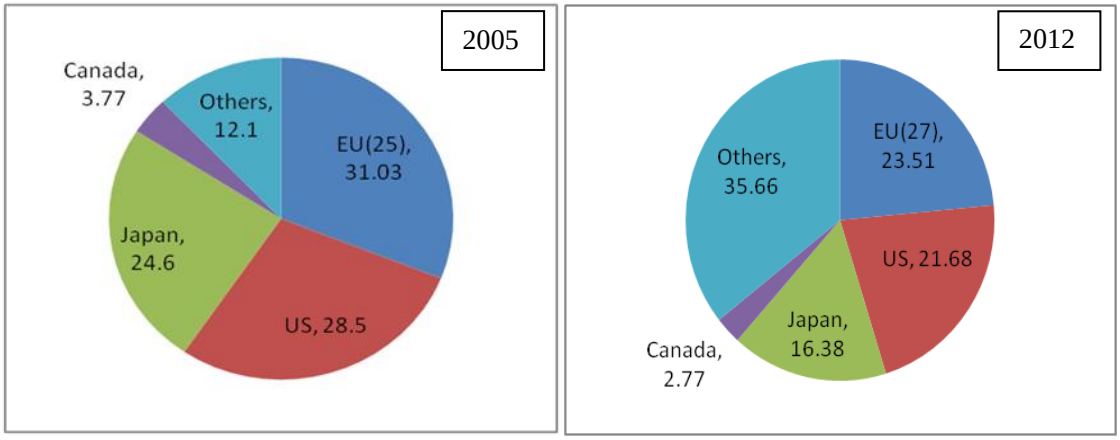

Figure 2-14: China's leading clothing markets in 2005 and 2012

Source: Author's creation based on data from WTO's *International Trade Statistics*, 2006 and 2013.

Note: European Union (EU) includes 25 members in 2005 while 27 members in 2012.

The world's leading clothing markets include the EU, the US, Japan and Canada. According to WTO's statistics, the leading markets accounted for 82.6% of the value of global imports in 2005 and 68.6% in 2012. Except for Japan, China's shares of the clothing sales in these markets all increased between 2005 and 2012 (Figure 2-15). For example, China's clothing exports market share in the US exhibited a big increase, from 26.4% in 2005 up to 39.4% in 2012; the corresponding market shares slightly increased in both Canada (from 46.8% up to 47.3%) and the EU (from 17.9% up to 22.1%). In contrast, China's share of the total clothing sales in Japan slightly declined from 80.9% in 2005 down to 77.2% in 2012.

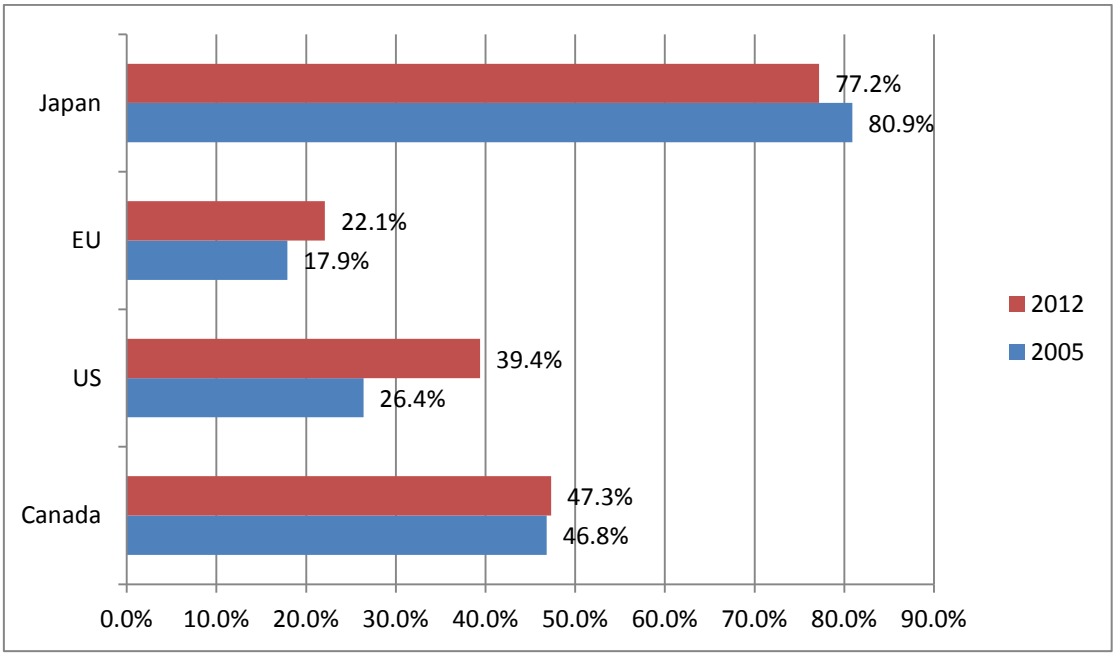

Figure 2-15: Regional shares of Chinese clothing exports in the global leading markets, 2005 and 2012

Source: Author's creation based on data from WTO's *International Trade Statistics*, 2006 and 2013.

Note: European Union (EU) includes 25 members in 2005 while 27 members in 2012.

At present, the Chinese clothing industry is highly integrated into the clothing global value chain (Details in the following Chapter 3.2) mainly through international trade as a full package supplier[20] to many international major buyers of brand retailers or marketers such as NEXT, ZARA, A&F, ADIDAS, NIKE, etc. The major sellers in China are the private-owned firms, accounting for 44% of the value of national clothing

[20] The full package supplier undertakes more functions than the export-oriented assembler does. For example, the supplier organises the manufacturing process from all inputs toward the finished products according to buyers' specifications whereas in the assembling mode, the buyer provides pre-cut components or materials with explicit instructions about the manufacturing.

output[21]. Foreign participation has played a critical role in China's fast growing clothing exports since 1979. FIEs are much more export-oriented than domestic firms and 92.3% of their total output of clothing is exported whereas domestic firms exports only 65.5% (Balasubramanyam & Wei 2005).

2.3.9 Sustained competitive advantage of the Chinese clothing industry

In summary, China has achieved its competitive advantage in the global clothing industry. However, due to the external dynamics, sustaining competitive advantage of this industry has been increasingly challenged. Table 2-14 presents a SWOT analysis of the Chinese clothing industry in terms of SCA.

Table 2-14: SWOT of the Chinese clothing industry in terms of SCA

	External origins	***Internal origins***
Favorable	Opportunities (O)	Strengths (S)
	Freer international trade agreements (e.g.,ATC)	Manufacturing capability, capacity, flexibility and quality
	Stable economic development	Relatively complete industrial chain
	Growing domestic consumption power	Local industrial clusters (LICs)
	Demand for fashion and diversity	Long-established relationships with foreign buyers
Unfavorable	Threats (T)	Weaknesses (W)
	Competition from the global manufacturers	Design
	Rising production costs	Innovation
	Constant appreciation of RMB	Branding
	Dominant governance by global lead firms	Homogeneous products

Source: The author.

Sustaining competitive advantage of the Chinese clothing industry is achievable due to the favorable *opportunities* and the *strengths* that the industry has built throughout its historical development. However, sustaining competitive advantage of the Chinese clothing indusry is subject to the condition that the challenges (i.e., external *threats* and the *weaknesses* of the industry) have to be dealt with (Table 2-13).

Through decades of development, the Chinese clothing industry has evolved and considerably updated (Table 2-13). From the GVC perspective, the competitive

[21] Source: Author's calculation based on Tables 14.10 and 14.2 in China Statistic Yearbook, 2010.

advantage of the Chinese clothing industry is primarily based on the low cost manufacturing segment and the built-up *strengths* include quality, capability, capacity and flexibility in clothing manufacturing and also consist of relatively complete industrial chain (e.g., raw materials, textile, dying and printing), local industrial clusters (LICs) and long-established relationships with foreign buyers.

Sustained competitive advantage of the Chinese clothing industry is backed up by favourable external environment (i.e., *opportunities)* (Table 2-13). At the international and national level, the opportunities consist of freer international trade agreements (e.g., ATC), stable economic development which lead to growing consumption power, and customers' demand for fashion and diversity.

However, the cost-based competitive advantage of the Chinese clothing industry has been gradually challenged. The threats include competition from the global lower-cost manufacturers and domestic rising production costs (e.g., labour costs and material costs) in addition to continual appreciation of RMB and dominant governance by the global lead firms in the clothing global value chain.

In addition, weaknesses in design, innovation and particularly branding are the main problems mitigating SCA of the industry. There are no official statistics on the ratio of branded clothing enterprises to the national total. A recent survey was conducted based on a sample of 60 clothing manufacturing firms in three different cities in the Bohai Trim region: Qingdao, Yantai and Weihai (Yang & Lin 2008). The research results indicate that only 15 firms (25%) have their own brands: 31 firms (about 52%) are interested but are facing some difficulty in building up their own brands; the remaining 14 firms (about 23%) have not yet had the intention. The results support the statement that lack of brand is one of the main problems in the Chinese clothing industry (Berkeley &Steuer 2000).

2.4 Chapter summary

This chapter has examined the research background of the Chinese clothing industry in terms of its sustained competitive advantage. Both the global and Chinese clothing industries are examined.

The global clothing industry provides the general research background. The clothing industry, particularly the clothing production, remains labour-intensive. This is the key reason for clothing manufacturing to have been continuously relocted to low-wage developing economies over the history. In the global clothing trade, low-cost developing economies are the manufacturers and exporters such as China, Bagladesh, and Turkey while the main markets and importers are in the developed economies such

as the EU, the US and Japan. Dynamics of the global clothing industry are mainly reflected in relocation of production, consumption trend and thereby the trade pattern. The dynamics impact on competitive advantage and SCA of the Chinese clothing industry which has integrated into the global clothing industry.

Through examination of the Chinese clothing industry, it is revealed that the primary competitive advantage of the Chinese clothing industry is in the cost-based manufacture such as the product quality, manufacturing capacity, capability and flexibility and that SCA of the industry has been increasingly challenged mainly due to intensified global lower-cost competition, domestic rising production costs, and weaknesses in design, innovation and branding.

From the GVCs' perspective, industrial upgrading and particularly functional upgrading towards value-added segments such as design, marketing and branding is a practical strategy for the clothing companies, particularly the clothing manufacturers in the development economies, to get out of the low value-added trap and to achieve SCA.

Keeping this research background in mind, the next chapter reviews relevant literature so as to gain theoretical underpinnings for this research.

CHAPTER THREE: SOURCES OF SUSTAINED COMPETITIVE ADVANTAGE

3.1 Chapter introduction

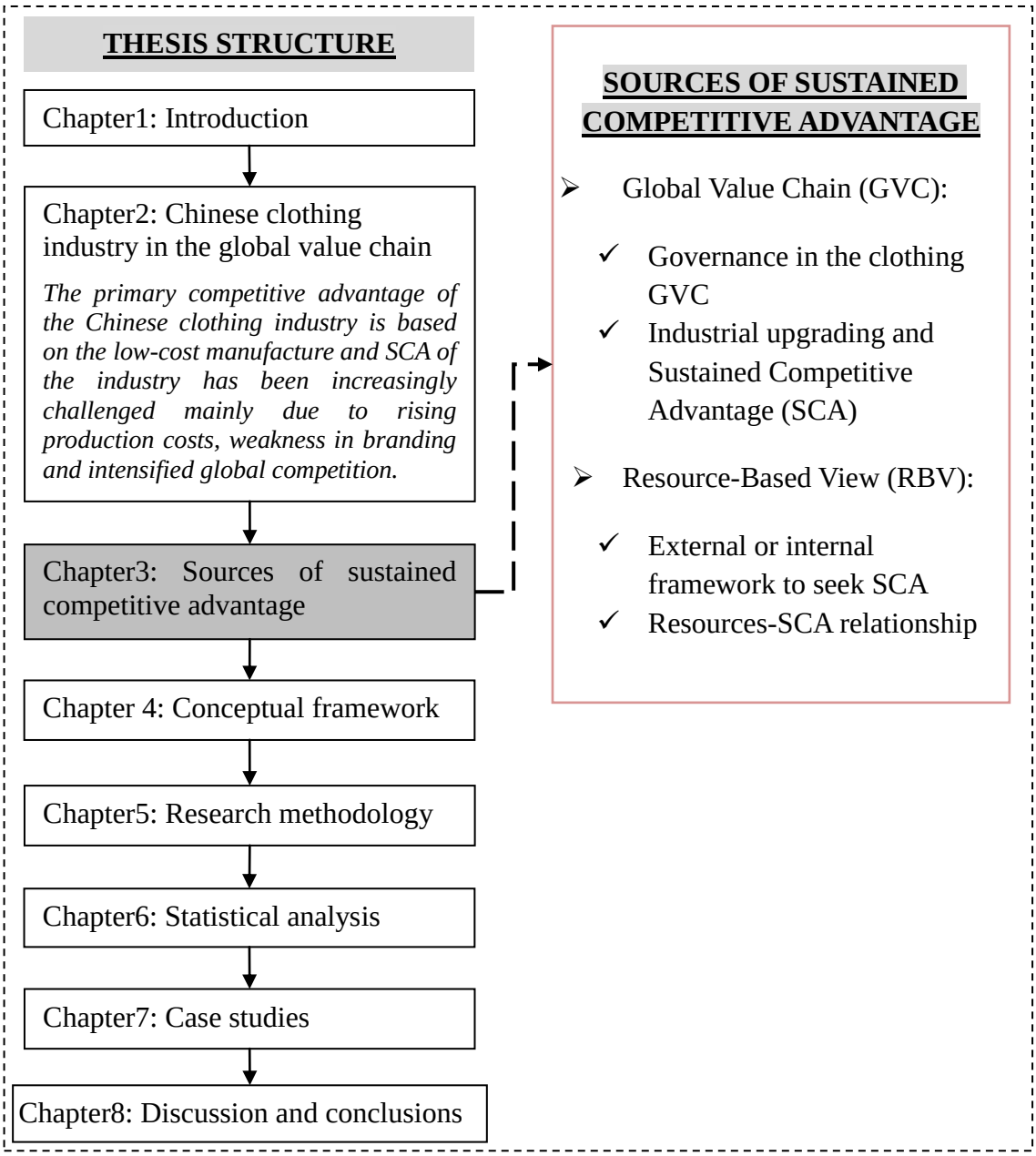

Figure 3-1: Thesis structure and focuses of Chapter 3

Source: The author.

The aim of this research is to explore and examine sources of Sustained Competitive Advantage (SCA) of the Chinese clothing industry. The preceding chapter has overviewed the Chinese clothing industry and it is revealed that the primary competitive advantage is based on the low-cost manufacturing segment. However, sustaining competitive advantage of the Chinese clothing industry is increasingly challenged mainly by its inherent weaknesses in brand, dramatically rising production costs and intensified global competition (Figure 3-1). This chapter provides an in-depth review of relevant theories and literature pertaining to SCA, aiming to establish the theoretical foundation for the research.

In strategic management, theories pertaining to SCA can be broadly classified into "external" and "internal" perspectives. Before the Resource-Based View (RBV) started to gain popularity in the 1990s, the dominant approach investigating the SCA issue was from "external" perspectives such as the PEST analysis framework and Michael Porter's Five Forces model. The "external" theories provide conceptual frameworks to analyse the external environment including national/international and industrial factors to answer questions as to where and how competitive advantage can be obtained and sustained. However, the external theories fail to explain variations in business performance and competitive advantage between companies which share similar external environment.

In this context, since the early 1990s, RBV has gradually become popular because its arguments and underpinnings provide an appropriate theoretical foundation to address the issue which external theories could not. RBV is an "internal" theory which looks inside the firm for the source of SCA. RBV argues that the heterogeneous and valuable firm-level resources are the source of competitive advantage and the firm has SCA before the valuable and rare resource bundle is duplicated by other firms (Details in Chapter 3.3). Therefore, this research adopts RBV as the theoretical foundation.

At the same time, this chapter also reviews Global Value Chains (GVCs), an "external" analysis framework (Details in Chapter 3.2). The GVC theory provides a broader view looking outside the firm and taking into consideration its external environmental factors that affect SCA. Therefore, the conceptual framework for this research (Details in Chapter 4.2) involves synthesis of the two theories, among which, the RBV theory underpins the choice of the resources contributing to SCA of the Chinese clothing industry and the GVC theory underpins analysis of the external context which affect the SCA.

3.2 Global value chains and the clothing industry

3.2.1 Theory background and origins

During the 1950s and throughout the 1960s, overseas direct investment by multinational enterprises was the dominant pattern of global business engagement. However, since the 1970s, the global economy has become increasingly integrated through international trade (Dicken 2007). Trade-based globalisation refers to cross-border transactions between legally independent firms while investment-driven globalisation mainly involves internal transactions among subsidiaries of transnational companies (Gereffi 2001). This new form of globalisation was not widely recognised until the mid-1990s when a number of economies became more integrated into the global economy mainly through export-oriented industrialisation. The most notable examples were the East Asian "Tigers" in the 1960s and 1970s, Latin America countries such as Brazil and Mexico, and China in the 1980s and 1990s. However international trade should not merely be analysed through arms-length market-based transactions but also through the governance systems that link firms together in a variety of sourcing and contracting arrangements (Gereffi 2001, Gereffi et al. 2001).

With the accelerated pace of global economic integration, an extensive literature attempted to explain the constructs and organisations of this phenomenon. The earliest can be traced back to the ***world-systems*** formulated by Hopkins and Wallerstein (1977). The original term "commodity chain" was defined by Hopkins and Wallerstein (1986: 159) as 'a network of labour and production processes whose end result is a finished commodity', which involves a series of activities or processes from product design, production and distribution to marketing (Gereffi 1999). When these inter-firm activities in an industry are operated and organised globally, a Global Commodity Chain (GCC) comes into being.

Since the mid-1990s, there has been a growing body of literature on the economic phenomenon from the GCC perspective. The GCC framework is developed by Gereffi and colleagues (Gereffi & Korzeniewicz 1995, Gereffi 1999). GCC is defined as 'sets of inter-organisational networks clustered around one commodity or product, linking households, enterprises, and states to one another within the world-economy' (Gereffi, Korzeniewicz, M. & Korzeniewicz, R. 1994:2). However, there is significant disjuncture between the GCC and the former world-systems. For example, in the world-systems view, 'world-systems theorists are most fundamentally interested in how ***commodity chains*** structure and reproduce a stratified and hierarchical world-system' particularly from a historical perspective rather than focus on value-added actitivities (Bair 2008: 347). However, the GCC is 'principally concerned with understanding how ***global industries*** are organised' along a series of sequential value-added activities for a

particular good or services (Bair 2005:155-156). Four dimensions of GCCs are identified, namely, input-output structures, geographic structure, governance structures and the institutional framework (Gereffi 1994, Gereffi & Korzeniewicz 1995).

The concept of Global Value Chains (GVCs) has appeared quite recently in the literature (Gereffi, Humprey & Sturgeon 2005). Discussions about the relationships between GCCs and GVCs can be found in the relevant literature (e.g., Bair 2005, Ponte & Gibbon 2005). However, there is little significant distinction behind the two different terms (Bair 2008)[22]. For example, both concern value-added activities such as product design, production, distributrion and marketing; both focus on the study of inter-firm economic development issues across countries or regions.

One of the big differences between GCC and GVC is concerned about governance analysis. Governance is defined as authority and power relationships in GCCs in contrast with the coordination mechanism in GVCs (Gereffi, Humphrey & Sturgeon 2005). The GCCs framework is based on asymmetrical power relationships among the global firms in the chain network and the major themes involve analysis the inter-firm governance by the lead firms. The lead firms in the chains leverage and govern the other roles in the network, capturing high returns and gaining the power advantage via barriers to entry (Gereffi 1994, 1999, Kaplinsky 1998). However, the GVC paradigm places more stress on the coordination mechanism between the global buyers and producers along the chains (Sturgeon 2002, 2008, Humphrey & Schmitz 2003, Ponte & Gibbon 2005).

In addition, the power relationships in GVCs are not static. Some suppliers of formal assemblers and contractors gradually grow stronger both functionally and financially through functional upgrading. In this context, the inter-firm relationship is becoming more symmetrical and coordinative under the framework of GVCs.

This research studies the Chinese clothing industry from a dynamic perspective and the term "GVC" is adopted in line with the synthesised research framework (Chapter 4.2). The concept of GVCs is further illustrated in Figure 3-2. Taking the global clothing industry as an example, the figure summarises four fundamental elements of the GVC framework as follows:

- Global allocation of value-added activities (e.g., design, production, distribution

[22] From GCC to GVC: "In the early 2000s, an interdisciplinary group of scholars began a multi-year initiative with support from the Rockefeller Foundation to examine different approaches to the study of global production networks. The group proposed that a terminological shift from GCC to GVC was warranted because 'commodity' might be thought to denote very basic, undifferentiated products (e.g. plain white t-shirts as commodity garments) or agricultural staples. As a result, many scholars who had identified with the GCC framework began instead to define their approach as GVC analysis." (Bair 2008: 351)

and marketing)

- Governance of the value-added activities among the global players (e.g., clothing lead firms, apparel manufacturers, traders, retailers and marketers)
- The global players distributed across countries and regions (e.g., EU, Turkey, America, Mexico, Asia and China)
- Coordinative and organised inter-firm networks (e.g., component, product, export and marketing networks)

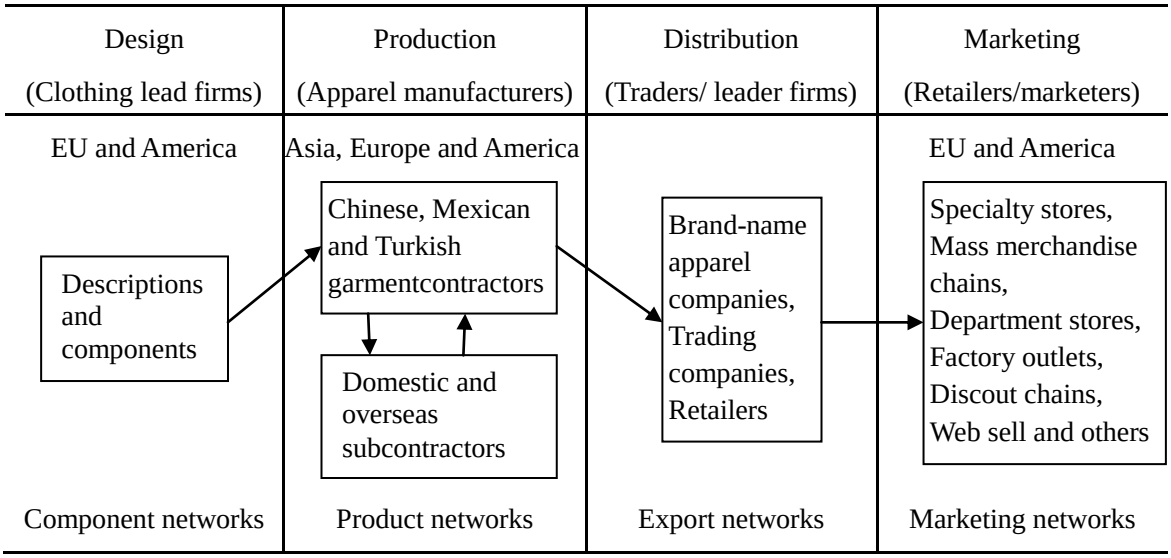

Figure 3-2: An example of the clothing global value chain

Source: The author.

3.2.2 Theory development and the apparel industry

GVC is widely applied in analysis of the global clothing industry. Empirical researchers have mainly analysed the apparel industry in East Asia (Appelbaum 2008, Gereffi 2011), India (Ramaswamy & Gereffi 2000), Turkey (Tokatli 2003, 2007a, 2007b, Tokatli & Kizilgun 2004, Tokatli & Eldener 2004, Neidik & Gereffi 2006), EU and USA (Winterton, J. & Winterton, R. 2002,Taplin & Winterton 1995, Taplin 1997, 2002, 2006, Taplin, Winterton, J. & Winterton, R. 2003, Taplin & Winterton 2004) and North America and Mexico (Gereffi 2000, 2001, Gereffi & Memedovic 2003, Bair & Peters 2006). The reasons for this research convergence are that these regions or economies are either the world's leading apparel exporters/manufacturers (e.g., Asia, Turkey, India and Mexico) or the world's major clothing importers/markets (e.g., EU and USA)

Existing literature concerning the apparel GVC framework mainly covers the following themes: global shifts in apparel production (Bair & Gereffi 2001, Gereffi, Humphrey & Sturgeon 2005), value chain governance and the asymmetric power relationship (Gereffi

1994, 1996, Gereffi et al. 2001, Gibbon & Ponte 2008), the changing patterns of consumption (Tokatli, Wrigley & Kizilgun 2008, Tokatli, Kizilgan & Cho 2011), labour issues (Bair & Gereffi 2003, Gereffi 2006, Taplin, Winterton, J. & Winterton, R. 2003), the trade regulatory regime, industrial upgrading and sustaining competitiveness in the developing economies (Bair & Gereffi 2002, Humphrey & Schmitz 2003, Tokatli 2007a, 2007b, Bair & Peters 2006, Gibbon 2008).

In the preceding chapter, some of the above themes have been discussed and therefore the following section focuses on two closely related topics, namely, governance in the clothing GVC (Gereffi 1999, Sturgeon 2002, Humphrey & Schmitz 2000, 2003, Gereffi, Humphrey & Sturgeon 2005) and industrial upgrading for SCA (Bair & Gereffi 2001, 2003, Bair 2005).

3.2.2.1 Governance in the global clothing industry

Governance in GCCs is defined as 'authority and power relationships' among the global players, which determine how production and consumption are globally organised and how added value is allocated and flows within a chain in the globe (Gereffi 1994: 97).

The GCC followers maintain that there is an asymmetric power relationship among the global firms in a GCC. According to Gereffi (1999), there are two types of commodity chains, namely, the buyer-driven commodity chain (BDCC) and the producer-driven commodity chain (PDCC). PDCC is dominant in technology and capital-intensive industries such as automobiles, aircrafts and heavy machinery. In PDCC, global giant manufacturers are the lead firms, who enjoy greatest profitability and who exert control other roles in the chain via raw material or component suppliers, and have forward linkages into distributors and retailers. BDCC is common in labour-intensive and consumer-goods industries such as clothing, toys and handicrafts. In BDCC, the lead firms are usually global giant retailers, branded marketers and non-factory manufacturers, who specialise in design, sales, marketing and financial services. Those lead firms in both PDCC and BDCC retain their leverage through the establishment of barriers to entry so as to generate different kinds of "rents" (returns from scarce assets). PDCC primarily relies on technology rents or organisational rents while BDCC relies on relational rents, trade-policy rents or brand name rents (Gereffi 1999).

The apparel industry is a typical BDCC (Gereffi 1999, Bair & Gereffi 2002). In the apparel industry, the pivotal roles are played by the lead firms, which are of three types: large retailers like Wal-Mart and JC Penney, branded marketers like Liz Claiborne and Nike, and branded no-factory manufacturers such as Levis Strauss and Sara Lee. These lead firms are predominantly located in industrialised countries, controlling and governing the clothing GCC (Dicken & Hassler 2000, Hassler 2003).

In contrast, the GVC scholars argue that there is more coordination and symmetric power among the global firms in a GVC. Gereffi, Humphrey and Sturgeon (2005: 82-84) identify five types of global value chain governance, namely, markets, modular, relational, captive and hierarchy, which range from high to low levels of explicit coordination and power asymmetry (Figure 3-3). Among them, "Markets" and "Hierarchy" relationships are the two extreme ends of the spectrum. "Markets" represent equal or fair coordinations between buyers and suppliers while "Hierachy" is characterised by total power asymmetry, with control emanating from headquarter to subsidiaries and affiliates or from managers to subordinators. The remainders comprise intermediate modes of value chain governance. For example, in "Modular" value chains, there are various coordinations between supplier and lead firm on a specific transaction. For example, the full-package supplier has to meet the leader firm's demand by following specifications in the contract but there are some other flexible details have to be discussed and coordinated between them. In "Relational" value chains, there is more complex interaction and coordination between sellers and buyers; mutual dependence and high levels of asset specificity are involved. Normally, the relationships are built up over time and managed through reputation, family or ethnic ties. In "Captive" value chains, small suppliers are dependent on much larger buyers and also face significant switching costs and thus are captive by the buyers.

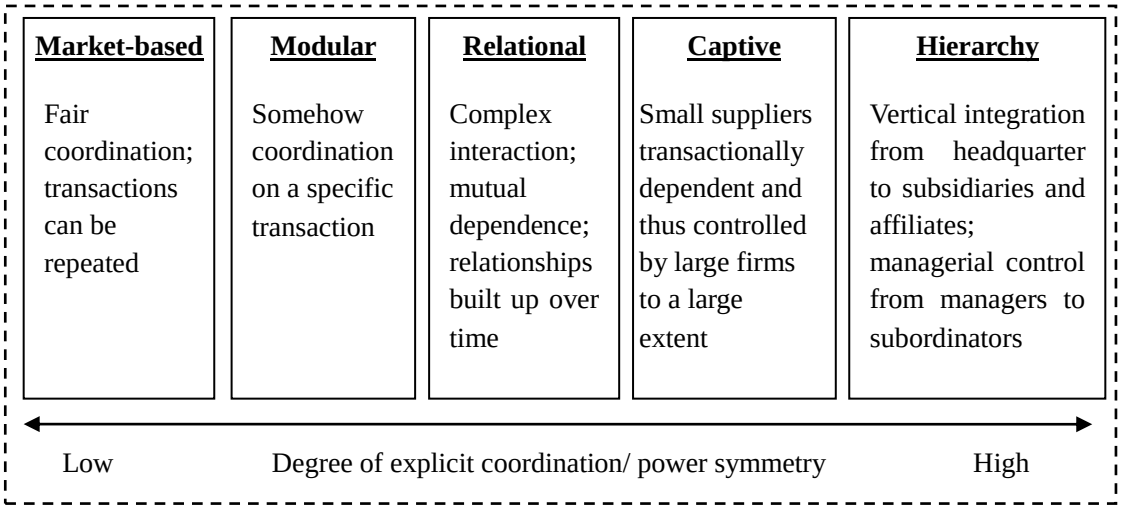

Figure 3-3: Five types of governance in global value chains

Source: Author's recreation (Gereffi, Humphrey & Sturgeon 2005)

The real business world of the clothing industry demonstrates clear evidence to suggest that the power relationships between buyers and sellers are moving from an earlier asymmetric set of relationships towards a more symmetric and more coordinative situation (Gereffi, Humphrey & Sturgeon 2005). That is, there is a trend away from the

original “Captive” type of relationship towards the more complex and coordinative “Relational” type interactions between buyers and suppliers. In the “Relational” GVC, firms in different parts of the world have to coordinate with each other and to integrate all internationally dispersed functional activities from design, production and distribution to retailing and marketing, which as a result often creates mutual dependence (Gereffi, Humphrey & Sturgeon 2005, Jia 2013).

Since the 1960s, with rising production costs, more and more large Western clothing enterprises have started to outsource their production processes to global low-cost clothing manufacturers in developing economies. In the late 1970s and through the 1980s, increasingly stronger retailers further fuelled the process of offshore sourcing. In this context, branded marketers or retailers such as Gap, ZARA, H&M and Ralph Lauren, do not produce apparel on their own, but concentrate on more profitable segments such as design, branded marketing and distribution (Appelbaum & Gereffi 1994). As a result, these buyers have grown more powerful, leveraging the suppliers to provide more flexible and complex products in the global clothing industry, identified as a “Captive” GVC.

However, with production fragmented across the globe and a growing demand for product variety and flexibility on the one hand, and with the suppliers’ growing expertise and production capabilities on the other hand, global apparel governance is pushed rapidly from a “Captive” to a more complex “Relational” value chain. This is particularly happening in the Pacific Rim region in the past decade. That is, the emergence of giant retailers coincides with the emergence of commensurately large factory contractors who serve them (Appelbaum 2008).

One such example is the giant apparel contractor, the Taiwanese multinational Nien Hsing Corporation, the world’s largest jeans maker and the world’s sixth-largest denim maker. A similar example is the Korean multinational Yupoong Inc., the world’s second largest cap manufacturer. Both have evolved by upgrading from Original Equipment Manufacturer (OEM) to Original Brand Manufacturer (OBM) and now both are coordinating with global multi-buyers of giant retailers, branded markets and non-factory manufacturers in broad areas such as product design, production, distribution and services.

3.2.2.2 Industrial upgrading and sustained competitive advantage

Under the GVC framework, there is a substantial literature which suggests that industrial upgrading is a practical and necessary strategy for sustaining competitive advantage of the clothing industry in developing economies (Gereffi 1999, Bair & Gereffi 2003, Humphrey & Schumitz 2000, 2002, Tokatli 2003, Bair 2005, Gibbon

2008, Gibbon & Ponte 2008). The existing literature contributing to the upgrading issue can logically be categorised into three relevant fields, namely, concept of upgrading, rationales of upgrading and ways of upgrading.

Concept of upgrading: Definitions and classifications

Gereffi (1999: 51-52) defines upgrading as 'a process of improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated capital and skill-intensive economic niches'. In the value chain system, ***upgrading*** is defined as 'improving a firm's position within the chain', which results in improved competitiveness and greater value added (Humphrey & Schmitz, 2002: 1020). Further, the authors summarise four types of upgrading: process upgrading, product upgrading, functional upgrading and inter-chain upgrading. Among the four types, product and/or process upgrading are the fundamental steps and prior conditions for functional upgrading. ***Product upgrading*** refers to a move into more sophisticated product lines with a higher premium prices. In apparel manufacturing, for example, upgrading from production of basic garments to fashion-basic garments, or upgrading from production of essentials to formal wear or outwear, are the cases under discussion. ***Process upgrading*** refers to adopting more efficient production processes by improving technology and/or by reorganiseing production systems, for example by the introduction of just-in-time practice and the use of computer-aided-design techniques. ***Inter-chain upgrading*** refers to shifting productive activities to another new industry. ***Functional or intra-chain upgrading*** fundamentally applies to development of the manufacturing industries in developing economies. It can be defined as sequential role shifts, where these shifts follow the trajectory of Original Equipment Assembly (OEA), OEM, ODM and OBM in turn (Humphrey & Schmitz 2001) (Figure 3-4).

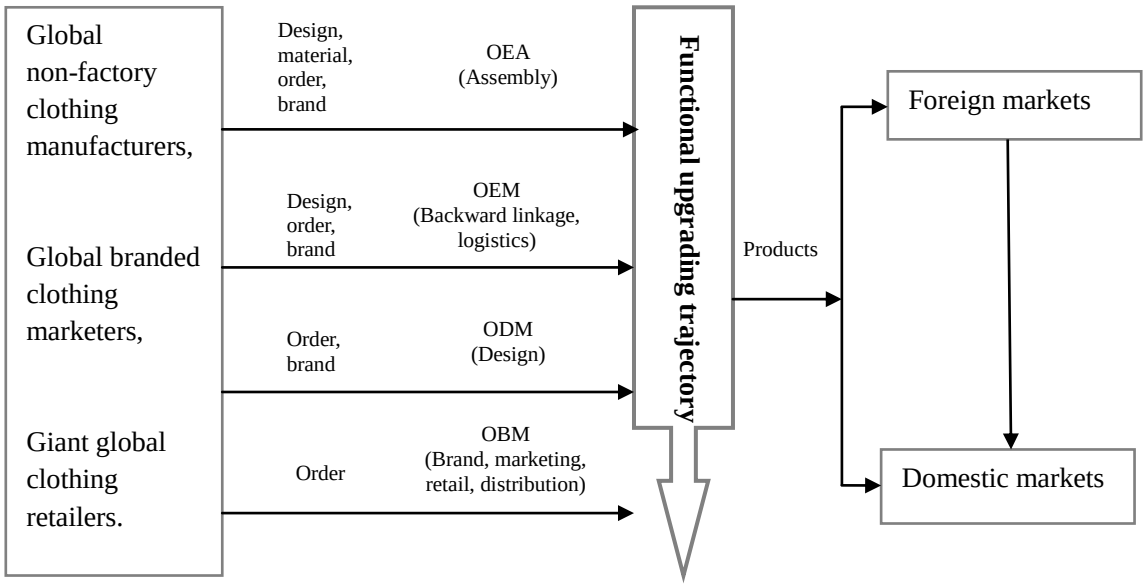

Figure 3-4: Trajectory of functional upgrading in the developing economies

Source: Author's creation based on Humphrey and Schmitz (2002).

Figure 3-4 depicts functional upgrading in the clothing industry. Assembly is the primary step by which most clothing firms from the developing countries integrate into the GVC (Gereffi 1989, 1999, Humphrey & Schmitz 2002, Bair 2005, Gibbon & Ponte 2008). At this stage, suppliers merely follow buyers' specifications and it is the buyers who provide product design, materials and components while the suppliers just focus on production. At the subsequent OEM stage, which is sometimes referred to as, "full package production", the suppliers take on more functions in addition to production, which include procurement of materials and components, arranging shipment and other backward linkages with the domestic firms. ODM is the third stage, in which the suppliers further move up the ladder handling the clothing design process. Further moving up the trajectory toward the OBM stage, the suppliers can acquire autonomy and obtain access into the GVC as designers, producers, marketers and retailers for their own products under their own brands.

Rationales of upgrading: Development strategy for SCA

Upgrading, particularly functional upgrading is the development strategy for SCA of the clothing industry in the developing economies (Bair & Gereffi 2003, Humphrey & Schmitz 2002, Gereffi 2006, Bair & Peters 2006, Tokatli & Eldener 2004, Gibbon & Ponte 2008).

In the clothing GVC, the most labour-intensive manufacturing segment is situated in

developing economies (Gereffi 1989, 1999). However with economic development, wages will rise along with growth of per capita income (Details in Chapters 2.2.1 and 2.3.5). In this sense, low-cost competition from other less-developed economies, as well as buyers' downward price pressure may further squeeze the manufacturers' profit margins. Therefore, upgrading to higher value-added segments such as branding and marketing is a practical way out of the manufacturing trap and also an unavoidable strategic choice for SCA by clothing companies in the developing economies (Gereffi 1999, Bair & Gereffi 2003, Tokatli & Eldener 2004, Tokatli & Kizligun 2004, Gibbon 2008). Of course, along with the process of functional upgrading in the clothing industry, some industrial capital may shift to more value-added capital- or technology-intensive industries on the one hand (Tokatli 2007b), whilst on the other hand some clothing firms, especially low-efficiency and small-sized firms, may struggle for survival simply by remaining at the OEM stage. However, this research focuses on SCA of the whole clothing industry as a development trend rather than on individual enterprises.

Ways of upgrading: Major influential factors and upgrading paths

Scholars have discussed the topic of how to upgrade from various perspectives (Bair & Gereffi 2003, Tokatli & Kizilgun 2004, Gereffi, Humphrey & Sturgeon 2005, Bair & Peters 2006). The fundamental and necessary step for industrial upgrading of clothing manufacturers in developing economies is to ***participate in the clothing GVC*** because it provides opportunities for firms and economies on potentially ***dynamic learning*** curves (Bair & Gereffi 2003). The upgrading experience of NIEs in East Asia derives 'in large measure from its ability to establish close linkages with a diverse array of lead firms in buyer-driven chains' (Gereffi 1999:40). According to the author, the diverse lead firms provide a variety of learning opportunities for the apparel suppliers' to develop via upgrading. For example, the ***branded manufacturers*** primarily prefer the assembly arrangement so the relevant learning opportunity focuses on the production segment. In contrast, ***retailers and branded marketers*** prefer the OEM contract, so suppliers have to learn more business functions such as logistics and design in addition to apparel production, which enables the suppliers to continue upgrading from OEM to OBM.

However, functional upgrading, especially in the form of moving-up the ladder from OEM to OBM，has proved to be difficult for many firms. For example, no Mexican clothing firm until now has developed its own brands in the US market despite the advantages of the NAFTA arrangement and geographic proximity to the US market (Humphray & Schmitz 2001). Upgrading towards higher value-added activities such as design, marketing, branding and retailing in the clothing GVC is discouraged and even impeded by the lead firms in industrialised countries since this sort of upgrading encroaches on the lead firms' core competence (Humphray & Schmitz 2001).

Therefore, transformation into branded manufacturers and retailers is far from merely a natural process. Even though virtually every full-package manufacturer possesses the potential, only a small number of them are qualified and actually create their own brands successfully.

First of all, those manufacturing firms with a ***strategic intent*** of branding can acquire the learning opportunities to achieve successful upgrading (Humphrey & Schmitz 2002; Tokatli & Eldener 2004; Tokatli, Wrigley & Kizilgun 2008). Strategic intent is a long-term goal of an organisation and accordingly implementation of the strategic plan requires long-term efforts.

Secondly, active and effective ***management processes/ activities*** guide, stimulate and integrate all the efforts of the company towards the strategic goal (Keller 2003, Ray, Barney & Muhanna 2004, Bititci et al. 2010). The strategic intent is about "what" the company is going to do and the management processes tell "how" the company is going to achieve the goal. In the context of the clothing industry, for example, the company needs to begin by creating clear and unique brand positioning to support the upgrading strategy because brand positioning offers an image occupying a distinct and valued place in the target customers' minds, enabling the firm to differentiate itself from its competitors. Next, when the manufacturers have participated in the clothing GVC and have also started a branding strategy, then according to Humphray & Schmitz (2001), an exclusive concentration with a small number of lead firms (especially retailers or marketers rather than non-factory branded manufacturers) may put the supplier in a better position to successfully transform, in comparison to those preoccupied with satisfying the needs of a large number of firms, particularly those small non-factory branded manufacturers.

Thirdly, firm-level valuable and unique resources (e.g., customer relationship, corporate culture and distribution channel)[23] are the pivotal and fundamental prerequisites for functional upgrading towards becoming branded manufacturers (Aaker 1996, Humphray & Schmitz 2002, Tokatli & Kizilgun 2004).

Fourthly, even so there is no unique path for upgrading process and a more realistic and practical way is to maintain dual roles, that is, the role as a manufacturer both for others and for their own brands (Tokatli & Kizilgun 2004, Tokatli & Eldener 2004).

Finally, the factor of ***local industrial clusters*** (LIC) also played an important role in the industrial upgrading process (Discussed in Chapter 2.3.7). However, Rabellotti (1999) examined the Guadalajara shoe cluster economy in Mexico and the results suggest that

[23] Further analysis and discussion will be in the following literature review chapterconcerning resource-based view of the firm.

trade liberalisation disproportionately benefited the large exporting firms and shaped different inter-firm performance in the cluster.

> *…the extent to which export-oriented clusters in industrializing countries can achieve industrial upgrading objectives and positive developmental outcomes will depend on the way in which firms in these clusters become incorporated into global chains, and who has power in particular chains, and how that power is exercised*. (Bair & Gereffi 2001:1888)

Research on the Torreon apparel cluster in Mexico elaborates upon this statement further (Bair & Gereffi 2001). On the one hand, the North America Free Trade Agreement (NAFTA) facilitated upgrading in the Torreon apparel cluster. Consequently, the major US customers shifted their sourcing from East Asia to the Torreon cluster and these lead firms drove the clothing manufacturers in the Torreon cluster towards evolving from pre-NAFTA pure assembliers to a post-NAFTA mix consisting of assembliers and full-package manufacturers. On the other hand, just a limited number of tier 1 suppliers (only four among the top-ten manufacturers) upgraded as full-package manufacturers whilst majority of the others became half-package producers[24]. This result implies that the "internal" factor is more important than the "external" factor for the upgrading. Therefore, this implication provide an additional reason to examine effects of firm-level resources on sustained competitive advantage, which is a theoretical argument in the resource-based view of the firm (RBV).

There have been some successful upgrading practices in the global clothing industry (Gereffi 1999). As the archetypes for functional upgrading among developing economies, the clothing firms of the East Asian NIEs rapidly transited from being initial assemblers to becoming OEM contractors. At the OEM production stage, from the various types of buyers the OEM contractors not only learned about the standard of quality, flexibility and production capabilities, but they expanded their activities from mere production to more broader areas of downstream and upstream segments across the apparel value chain. Then under challenges from other low-cost suppliers from the Third World and appreciating currencies, some former OEM suppliers in the NIEs were pushed to upgrade to the OBM role. For example, Episode, one of the former OEM suppliers for Liz Claiborne, gradually sold its own brand clothing in its own stores across the globe. Giordano, another famous Hong Kong clothing brand, underwent a similar development route.

In Europe, some Slovakian and Turkish clothing manufacturers moved up the higher value-added chains and became branded manufacturers (Smith 2003). For example,

[24] One major difference from the full-package producers, half-package producers do not buy the fabric by themselves (Bair & Gereffi 2001).

Turkish manufacturers, Orka Group, Damat-Tween, Jordan, Baharain, Ipekyol and Sarar, to name a few, succeeded in retailing their own brands abroad (Tokatli 2007a, 2007b).

Even though these cases are not sufficient for generalisation, they serve as early pioneers demonstrating the feasibility of upgrading development.

Having examined the GVC theory, particularly in terms of governance in the clothing GVC and upgrading strategy for SCA, the following section reviews RBV theory, a fundamental ground for this research framework.

3.3 Resource-based view and sustained competitive advantage

A growing literature has contributed to the underpinnings of RBV particularly since the 1990s. The theory's fundamental assumption is that the heterogeneous firm-level resource bundle is the source of competitive advantage. This section reviews literature on RBV and the review is structured into four subsections. ***Subsection 3.3.1*** introduces the background of the theory. ***Subsection 3.3.2*** elaborates upon the origins of the theory. ***Subsection 3.3.3*** traces back development of the theory. In this subsection, the concepts of resource, competitive advantage, and SCA are reviewed and discussed. Literature about the resource attributes, classification, expoitation, and the bundling effect is critically reviewed. ***Subsection 3.3.4*** summarises development and logic of the RBV theory. This is followed by a review of empirical tests of the theory and assessing the RBV theory in terms of its contributions and limitations which are important factors in affecting the design of this study.

3.3.1 Theory background

In the strategic management field, the issue of achieving and sustaining competitive advantage is at the forefront of the mainstream literature. Strategic researchers and business experts tend to address the issue mainly from two principal schools: the market-based view or the resource-based view (RBV). These two alternative theories view firms from different strategic angles. The former is "external" while the latter is "internal".

Until the mid 1980s, the major paradigm was market-based view (Grant 1991). Market-based view explores inter-industry competitive advantage by taking industry as the unit of analysis and all firms in the industry are taken as given. Popular analytical frameworks include PEST and the Five Forces Model.

The PEST framework analyses the external macro (i.e., national or international) factors, which influence and determine a company's decisions and operations for competitive advantage and SCA. The PEST factors consist of political factors such as foreign trade

regulations, taxation and employment policies, economic factors such as GDP, interest rate, labour costs and foreign direct investment, social-cultural factors such as attitudes to work and leisure, demographic changes and social mobility, and technological factors such as R&D, innovation, automation and adoption of new technology. Adding environmental and legal factors expands the framework to PESTEL.

Michael Porter's Five Forces Model is a technique to analyse external micro (i.e., industrial level) factors influencing organisational decisions and operations in seeking a competitive advantage and a sustained competitive advantage (Porter 1986). The Five Forces Model dominated the field among the others. It is argued that the industrial structures of five forces, that is, threat of new entrants, threat of substitute product or services, bargaining power of customers, bargaining power of suppliers and intensity of competitive rivalry, may determine the inter-industrial competitive advantage. In this context, competitive advantage may be realised through generic strategies of cost leadership, focus or differentiation (Porter 1986).

However, the assumption of identical performance among firms is not in accordance with the real business world. For example, historically, the clothing industry in the UK and the US has been characterised by prosperity followed by decline, but even nowadays both countries still have some world-class famous clothing companies. In other words, due to economic development in the economies, some industries as a whole may become "sunset" industries. However, inter-firm performance varies in real business practice. That is, whilst many companies in a "mature" or "declining" industry struggle to survive, some exemplar firms may prosper in the same industry (Tully & Berkeley 2004).

Moreover, inter-firm differences in performance are much greater due to the intra-industry factors than the inter-industry factors. Rumelt's (1991) empirical results indicate that the stable business-unit effects (i.e., the variance in business-unit returns) are six times more important than stable industry effects in explaining the dispersion of returns, let alone transient industry effects.

Then, how to explain the performance difference among firms in the same industry with identical external environment? The market-based view theory fails to provide a satisfactory explanation behind the economic phenomena, especially under today's dynamic and intensified competitive environment. In business practices, the traditional strategies of differentiation and specific market niches, which are based on market-based view, may not be sufficient or appropriate for a company to achieve SCA since its competitors can easily surpass it through cloning and simulation (Quinn, Doorley & Paquette 1990). Therefore, a more appropriate theory is needed to replace market-based view and hence the context for the development of RBV.

3.3.2 Theory origins

In contrast with market-based view, RBV provides an appropriate framework to analyse and interpret inter-firm performance differences from within a firm. The origin of RBV can be traced back to Penrose's (1959) seminal book, *The Theory of the Growth of the Firm*. In this book, Penrose identifies two key contributors to the growth of the firm, namely, productive resources and managerial activities. The two factors link performance with the firm's internal source rather than the external market which the dominant literature focuses at that time.

However, it was not until 1984 that the resource-based view was introduced into mainstream strategic management literature (Rumelt 1984, Wernerfelt 1984). The two authors attribute competitive advantage and inter-firm performance mainly to the firm's heterogeneous resource bundle rather than to the external environment or product market power. However, the concept of RBV did not receive much attention or prominent influence in academic research until several years later when subsequent papers were published in the same field. Therefore, RBV is an accumulative contribution of many scholars (e.g., Penrose 1959, Andrews 1971, Wernerfelt 1984, Rumelt 1984, Barney 1986, 1989, 1991, Dierickx & Cool 1989, Peteraf 1993, Prahalad & Hamel 1990. Nelson 1991, Teece & Pisano 1994, Teece, Pisano & Shuen 1997, Lippman & Rumelt 2003, Peteraf & Barney 2003, Wiklund & Shepherd 2003, 2009, Ray, Barney & Muhanna 2004, Armstrong & Shimizu 2007, Newbert 2007, 2008, Lockett, Thompson & Morgenstern 2009, Barney 2012).

Over the last three decades, the resource-based view has gradually gained more popularity over the market-based view and it has become one of the dominant research fields in strategic management (Barney, Ketchen & Wright 2011). The theory of RBV is developed mostly during the 1990s and 2000s and increasing empirical research appears in the latest decade. Therefore, this thesis reviews the literature accordingly. That is, most of the theoretical literature reviewed in this chapter is from the 1990s and 2000s while the empirical literature, which is reviewed in Chapter 4, is mainly from the latest decade.

In view of the theory background and also through analysis of the research context, RBV is an appropriate theory to be applied in this research concerned with sustaining competitive advantage of the Chinese clothing industry. However, adopting the internal theoretic ground and focusing on firm-specific factors does not mean that external factors are not important but rather, the external dynamic environment is also considered as an influential factor. The following section focuses on development of the RBV theory.

3.3.3 Theory development

3.3.3.1 Resources concept and classification

RBV holds that heterogeneous resource endowment is the key source of (sustained) competitive advantage of the firm. The relevant concepts, e.g., "resources" and "sustained competitive advantage", need to be clarified first.

Concept of resources

The concept "resources" is still 'an amorphous heap' (Barney 1995), which has not been clearly defined (Table 3-1). In Wernerfelt's original work (Wernerfelt, 1984: 172), resources are broadly defined as 'anything which could be thought of as a strength or weakness of a given firm' and resources are semi-permanent assets to the firm at a given time, e.g., brand names, customer loyalty, in-house knowledge of technology, trade contacts, efficient procedure and capital. Barney (1991) further specifies resources as all assets, capabilities, organisational processes, firm attributes, information, knowledge, etc., which can improve effectiveness and efficiency. Grant (1991) further defines capabilities as organisational processes or a number of interacting managerial routines among different segments including the R&D segment, manufacturing department, executive teams and integrated segments.

Ambiguity as to the key distinction between assets and capabilities arises and needs to be clarified. According to Amit & Schoemaker (1993), assets are stocks of available factors that are ***owned*** or ***controlled*** by the firm and that can be converted into products or services while capabilities are capacities which enable the company to ***deploy*** resources or perform some tasks or activities. Companies' capabilities are developed over time through complex interactions among the firm's resources and on the basis of a wide range of information. Therefore, resources are firm-specific and information-based while capabilities are often characterised by human capital-linked and resource-complex interaction; are in the forms of tangible or intangible processes, highly reliable services or product innovations, manufacturing flexibility, responsiveness to market trends, and short product development cycles. In short, the notion of resources is what the firm "has" while the notion of capacities is what the firm "does".

Further, Teece, Pisano & Shuen (1997) define organisational processes or managerial routines as distinctive activities which are performed based on firm-specific assets and integrated environmental conditions. That is, these processes include external integration and internal coordination of the various assets.

Table 3-1: Key RBV terminology and the relations among them

References	Key terms	Definitions	Relationships
Wernerfelt (1984)	Resource	--Resource (***B***): Anything which could be thought of as a strength or weakness of a given firm … tangible and intangible, semi-permanent assets to the firm… e.g. brand names, in-house knowledge of technology, machinery, capital, efficient procedures, etc.	Resource(B*)= Asset(B)
Barney (1991)	Resource	Resource (***B***): All assets, capabilities, organisational processes, firm attributes, information, knowledge, etc., controlled and exploited by a firm to strategically improve effectiveness and efficiency.	Resource(B)= Asset(N) +capability(N*), etc.
Grant (1991)	Resource, capability, organisational process or routine	--Resources (***N***) are inputs into the production process. It is non-productive and the source of capabilities. It includes items of capital equipment, skills of individual employees, patents, brand names …	Resource(B) =Capability(N) +asset(N)
		--Capability (***N***) is the capacity for the term of resources to perform some task or activity. It is, in essence, a routine, or a number of interacting routines.	Capability(N) =Organisational process or routine(N)
		--Organisational routines are regular and predictable patterns of activity which are made up of a sequence of coordinated actions by individuals.	Resource(N) =Asset(N)
Amit & Schoemaker (1993)	Resource, capability	--Resources (***N***): stocks of available factors that are owned or controlled by the firm… converted into final products or services.	Resource(N)= Asset(N);
		--Capability (***N***): a firm's capacity to deploy *resources*, usually in combination, using organisational processes to affect a desired end.	Resource(B)= Asset(N)+ capability(N)
Teece, Pisano & Shuen (1997)	Organisational competence or routine, Resource	--Organisational routine/competence (***N***): Distinctive activities performed based on firm-specific assets and integrated external conditions.	Capability(N) = Organisational routine/ competence(N)
		--Resource (***N***): Firm-specific assets that are difficult or costly imitate such as tacit knowledge and trade secrets.	Resource (N)= Asset(N)

Source: The author.

Note *: The letter B denotes the broad definition and the letter N denotes the narrow definition.

Table 3-1 summarises the key RBV terms and their relationships with references. All the above definitions — resources, assets, capabilities and organisational processes/ routines/ competences are listed on the basis of four dimensions, namely, ownership, attribute, function and the existing form. The ambiguity of the terms used in the literature lies in the implied scope of the concepts. Each term has broad (B) and narrow notions (N) but few papers in the existing literature distinguish the two scopes by explicitly clarifying while using them, which may leave readers confused. The terms of organisation routine, organisation process, organisation competence and capability are generally used in a narrow sense while the term resource is used in both narrow and broad interpretations.

In summary, the term "resources" refers to static assets in a narrow scope, which is owned or controlled by a firm and strategically applied for economic effectiveness and efficiency; when the term "resources" is used as a broad notion, it refers to assets and capabilities. For the sake of clarity, in the rest of this thesis, the term "resources" refer to its broad concept, i.e., assets and capabilities, while the terms "capabilities", "organisational processes" or organisational routines" are used interchangeably.

Taxonomy of resources

The literature contains various classifications of the diverse resources. Table 3-2 summarises taxonomy of the resources with corresponding references.

The simple division is between ***tangible and intangible*** (Wernerfelt 1984). The author listed some resources such as brand names, in-house knowledge of technology, employment of skilled personnel, trade contacts, machinery, efficient procedures, capital, etc. Comparatively the intangible resources are more complex. Hall (1993) develops a taxonomy of the intangible resources: "having" resources (e.g., patents) and "doing" capabilities (e.g., know-how), legally protectable (e.g., contract and licenses) and not legally protectable (e.g., personal and organisational networks), people dependent (e.g., reputation) and people independent (e.g., databases), functional capabilities (e.g., advertising) and cultural capabilities[25] (e.g., ability of managing change). Obviously these classifications are based on various criteria and not exclusive to one another. However, this perception-based method of classification is usually utilised for description of static objects without the dynamic sense of processes.

[25] Functional capability relates to the ability to do specific things; it results from the knowledge, skill and experience of employees and others. Cultural capability incorporates the habits, attitudes, beliefs and values which permeate the individuals and groups comprising the organiseation. It applies to the organiseation as a whole (Hall 1993:610).

Table 3-2: Taxonomy of resources

Taxonomy of resources	Examples of resources	References
Resources (B):		
Tangible resources:	e.g., skilful workers, machinery, capital, etc.	Wernerfelt 1984, Hall 1993
Intangible resources:		
--"Having" capabilities vs. "doing" capabilities	e.g., patents vs. know-how	
--Legally protectable vs. not legally protectable	e.g., contract & licenses vs. personal and organisational networks	
--People dependent vs. people independent	e.g., reputation vs. databases	
--Functional capabilities vs. cultural capabilities	e.g., advertising, learning capability.	
Resources (N) & capabilities:		
Productive resources:	e.g., skilled staff, plant & equipment, location, access to raw material, and physical technology.	Penrose 1959, Barney 1991
--Human resources		
--Physical resources		
Managerial capabilities	e.g., details below in "Capabilities"	
Capabilities:		
Function capabilities	e.g., product development, production, marketing, distribution, financial control and operation management etc.	Grant 1991, Teece, Pisano & Shuen 1997
Integrative capabilities	e.g., Human resource management	
--External integration	e.g., supplier relationship, customer relationship, competitor relationship.	
--Internal coordination		
Dynamic capabilities	e.g. organisational culture, organisational learning, leadership, innovation etc.	

Source: The author.

Note: Resources (B) refers to the firm specific resources from a broad scope and resources (N) from a narrow scope.

Penrose (1959) mentions two categories of resources: ***productive resources and managerial capabilities***. The author divides the productive resources into physical resources and human resources. The physical resources consist of tangible things (e.g.,

plant, equipment, land and natural resources, raw materials, semi-finished goods, waste products and by products, and even unsold stocks of finished goods) while human resources include unskilled and skilled labour, clerical, administrative, financial, legal, technical and managerial staff. Penrose did not describe managerial capabilities in detail. Penrose's classification has some in common with Barney's (1991). Barney sorts the firm resources into three categories: ***physical resources*** (e.g., machines, manufacturing facilities, and buildings firms use in their operations), ***human resources*** (e.g., all the experience, knowledge, judgment, risk taking propensity, and wisdom of individuals associated with a firm) and ***organisational resources*** (e.g., history, relationships, trust and organisational culture). Despite of the different criteria used by Penrose and Barney, Barney's three-class category is quite similar to Penrose's two-class category where organisational resources in Barney's classification closely resemble managerial capabilities in Penrose (1959)[26]. However, "organisational resources" or "managerial capabilities" are still a general notion.

Grant (1991) suggested two classes of the firms' capabilities: ***functional capability*** and ***integrative capability***. The functional capabilities are present in product development, market research, financial control and operation management; the integrative capabilities consist of internal coordination and external integration. Integration and alliance of the external activities are increasingly important especially in terms of linking design tailoring for customers' needs and in lean production. The internal coordination involves relationships of people to people and of people to the other resources. The relationships lead to the capabilities in entrepreneurial orientation, administrative decision making, human resource management, collective learning and manufacturing capacity. Any specific organisational activity, say, developing a new product, involves both functional capabilities and integrative capabilities (Grant 1991).

Dynamic capability is defined as the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environment (Teece, Pisano & Shuen 1997). Given environmental dynamics, dynamic capabilities thus reflect and emphasise an organisation's ability to achieve new and innovative forms of competitive advantage (Teece, Pisano & Shuen 1997).

However, there is no absolute distinguishing criterion between functional or integrative capabilities and dynamic capabilities. A specific firm capability, for instance, customer-communication, may belong to dynamic capability when emphasising dynamics of communication with customers, and may fall into integrative capability when emphasising integration of external with internal resources in a static state.

[26] Different terms in literature papers are used interchangeably, such as managerial capabilities (Penrose 1959), organisational processes (Porter 1986), organiseational resources (Barney 1991) and organisational routines (Nelson & Winter 1982). These terms are not be distinguished strictly in this research as all refer to firm capabilities.

However, some capabilities such as innovation, organisational learning and entrepreneurship are more likely to fall into dynamic capability (Teece, Pisano & Shuen 1997).

The literature on RBV sheds special light on the effects of organisational capabilities on SCA (Barney 1989, Barney, Fuerst & Mata 1995, Teece, Pisano & Shuen 1997, Wiklund & Shepherd 2003, Ray, Barney & Muhanna 2004, Barney 2012). Since organisational capabilities are tacit and also less likely to be acquired through the perfectly competitive market, firms can develop or accumulate their capabilities only by themselves. In addition, the internal accumulation process is not independent or isolated, but rather, it is a continuous interaction process with external dynamics through organisational learning mechanisms (Prahalad & Hamel 1990, Crossan & Berdrow 2003). This development process is characterised by complexity, high-level coherence and inherence, historical contexts and quite difficult for any other firms to imitate or duplicate. Therefore, organisational capabilities, here including functional, integrative and dynamic capabilities, are subject to VRIN resources and hence a source of SCA.

3.3.3.2 Resources accumulation and acquisition

In addition to the "what" issues regarding the firm's resources, RBV literature also pays attention to issues about "where" the resources come from and how they are obtained. Generally, the unique and scarce resources may develop either through internal accumulation over a long history (i.e., asset stocks) or external acquisition from the imperfectly competitive factor markets (i.e., asset flows) (Dierickx & Cool 1989).

There are two kinds of resource requirement for a firm to implement a strategy. One is ***active requirement,*** when the resources required for implementation of the strategy are not in resource stocks and thereby have to be acquired from the external market. To achieve competitive advantage from the acquired resources for implementation of a strategy, there are two premises. One is that competitive imperfections exist in the strategic factor markets and the other is accurate expectation of the potential returns from the acquired resources through implementation of the strategy (Barney 1986). The author coins a concept of "strategic factor markets", where firms buy and sell the resources necessary to implement their strategies. In a perfectly competitive market, normal returns accrue to the firm from implementing its market strategy. In contrast, above normal returns may be obtained only in an imperfectly competitive market, where firms may efficiently acquire the strategic resources at lower cost than their potential value (Morgan 1999). These competitive imperfections in the strategic factor markets may result from information asymmetry due to a unique history or other combined factors of financial strengths, entry barriers or casual ambiguity.

The other is ***proactive requirement***. Strategic management always calls for proactively examining and estimating the impact of environmental dynamics on a firm's strategy and strategic resources, which in turn results in a proactive requirement of resources (Barney & Zajac 1994). In other words, a firm has to proactively manage both tradable and non-tradable resources prior to implementation of its strategies. Given a perfectly competitive market, tradable assets can be sold and bought in the strategic factor markets, and therefore they are not firm specific assets and may not guarantee SCA. In contrast, asset stocks of the firm, such as customer loyalty and organisational culture, are ***accumulated*** over a long history and under complex social environment. These assets with the VRIN attributes are firm specific and non-tradable and thus are a potential source of SCA (Dierickx & Cool 1989). Moreover, firm-specific capabilities such as capabilities of R&D, innovation, collective learning, manufacturing experience and human resources management are non-tradable and generally have to be built by the firm itself.

However, non-tradable resources can also be accessed through alliance or merger and acquisition (M&A) (Wernerfelt 1984, Harrison, Hoskisson & Ireland 2001, Wiklund & Shepherd 2009)[27]. Because of a low level of transparency in an imperfect market, both the buyer and seller are in a difficult situation to accurately evaluate the transaction. In addition, the alliance or M&A strategy is to obtain the supplementary or complementary resources rather than to be product or market oriented.

In summary, acquisition and accumulation are the two main ways to access the resources necessary to implement organisational strategies, that is, market acquisition for tradable resources and self accumulation for the non-tradable ones. A condition for acquisition of resources from external markets is that markets are imperfectly competitive, which enables profitable bargains to be made. Also the resources acquired from external markets are often related with non-uniqueness. The unique resources often have to be developed within the organisation, which then ensures competitive advantage and superior performance. M&A is a very important alternative channel to get access to those non-marketable resources.

3.3.3.3 Resources exploitation and resource bundling

It is not only the strategy of resource identification but also that of resource deployment that explains firms' development and SCA (Perose 1959, Wernerfelt 1984, Lockett, Thompson & Morgenstern 2009). The RBV literature discusses resource configuration

[27] *Acquisitions* are transactions in which one firm buys a controlling interest in another firm and the acquired business becomes a subsidiary of the acquirer's portfolio. *Alliances*, from a strategic perspective, are partnerships between firms where their resources, capabilities, and core competencies are combined to pursue mutual interests (Wiklund and Shepherd, 2009).

and reconfiguration by using the term "resource bundle/bundling".

Resource bundling

Resource bundling refers to the way that various resources are effectively exploited through combination and integration to achieve the strategic ends of the firm (Powell 1992, 1995 Amit & Schoemaker 1993).

The earliest research on resource bundling can be traced back to Powell (1992). The author regards organisational alignment skills as a strategic resource leading to competitive advantage. The author then examines the effect of organisational alignments (i.e., integrative capacity of environment and internal resources) on financial performance. The empirical results suggest that the structural internal fit[28] has a strong partial-correlation with performance. Further, Powell (1995) argues that correlated and complementary resources of a firm are difficult for its competitors to acquire or imitate, and therefore they are a source of sustained competitive advantage.

Now it is a generally accepted idea that a specific or single resource is not sufficient to create SCA but combined or bundled resources have the potential (Ray, Barney & Muhanna 2004, Wiklund & Sheperd 2009). Given dynamic environment, a responsive and dynamic organisation which exploits bundling resources such as leadership, human resource management, corporate culture, design and systems enables to achieve sustained competitive advantage (Srivastava, Franklin & Martinette 2013).

This theoretical idea has been tested in a number of empirical studies. For example, Macduffie (1995) examines how integrative bundles of human resource practices are related to manufacturing performance[29]. The research results in a high level of correlation between the two variables, which indicates that human resource practices affect performance in an internally consistent "bundle" or system. Further empirical research suggests that under external dynamics, it is necessary for firms to use ***dynamic capabilities*** to achieve an appropriate bundle of the internal resources with organisational changes (Peteraf & Reed 2007). Among other capabilities, managerial capabilities mainly work for organisational alignment and facilitate effective ***bundling*** of the firm's resource portfolios (Sirmon, Gove & Hitt 2008). Furlan, Vinelli and Pont (2011) examine the existence of complementarities between Just-in-time (JIT) and total quality management (TQM) and the research results indicate that the human resource

[28] The fit refers to the internal integration of organiseational assets and capabilities involving organiseational skills in terms of creativity, interpersonal skills, tolerance of ambiguity, and the ability to engage in multiple leadership styles, and also strategic differentiation in terms of production cost, innovation, production differentiation (Powell 1992).

[29] Resource bundle here refers to interrelated and internal consistency of the resources and the author claims that "more is better" with respect to the impact on performance because of the overlapping and mutually reinforcing effect of multiple practices (Macduffie 1995).

management bundle is an enhancer of the complementarities between Just-In-Time and Total-Quality-Management.

Strategic researchers go further than just understanding the bundling effect of the existing resources. Dierickxs and Cool (1989) agree on the importance of the interconnectedness of asset stocks and the authors proceed to argue that accumulation of a new asset should be complement to the original asset stock. For example, when a new product has met the customers' needs, the relevant extensive services also should be ready to match the new product. Similarly, resources acquired through acquisition or alliance should be combined into a new resource bundle. Whether or not the newly acquired resource bundle can accrue to performance largely depends on the effectiveness of the resource combination and match (Wiklund & Shepherd 2009). Both of the two papers study the significance of the effective combination of the new acquired resources with the existing resources, which can be captured by the more precise term, "resource reconfiguration".

In summary, SCA of a company is determined by its internal resource bundle. However, the external industry environment also influences the effect of the internal resource bundle (Barney 1995), described by Collis and Montgomery (1995: 123) as, 'a resource that is valuable in a particular industry or at a particular time might fail to have the same value in a different industry or chronological context'. Therefore, analysis of how the internal resources are bundled should include not only coordination of the existing resources but resource recoordination, i.e., changes of resource bundles due to different industries and chronological contexts.

3.3.3.4 Resource effect on sustained competitive advantage

RBV holds that heterogeneous and valuable resources are the source of competitive advantage of the firm. This argument is from the strategic management perspective and what lies behind this relationship is the belief that it is the economic value of the firm's resources that is important. This section discusses effects of resources first from the economic perspective and then from the strategic management perspective.

Resource values: From the economic perspective

From the economic perspective, heterogeneous resources can create Ricardian rent and/or Schumpeteriun rent.

The concept of ***Ricardian rent or Economic rent*** is involved at the center of this debate about the economic values of the firm resources (Rumelt 1984, 1987, Peteraf 1993, Amit & Schoemaker 1993, Winter 1995, Lippman & Rumelt 2003).

The term ***rent*** originated from Classical Economics and is defined as the 'portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of the soil' (Ricardo 1821:11). According to Ricardo, rent is due to differences in quality and scarcity in quantity as well as external influence, 'when in the process of society (i.e., external influence), land of the second degree of fertility (i.e., land quality) is taken into cultivation, rent immediately commences on that of the first quality (i.e., implying land scarcity), and the amount of that rent will depend on the difference in the quality of these two portions of land' (Ricardo 1821:11). Following this reasoning, then when the third-best land is cultivated rent commences to the second-best land, and so on. Therefore rent is always generated on superior land and the least favorable or "marginal" land pays little or no rent.

Based on Ricardo (1821), Peteraf's (1993) illustrates the ***rent-generation mechanism*** in the condition of resource heterogeneity. Resource heterogeneity in an industry may reflect limited supply of superior resources which means firms with the superior resources face somewhat inelastic supply curves, in that they cannot expand supply accordingly to price changes, a situation which is similar to that in the monopolistic product market structure, where monopoly rent is generated from a deliberate control of supply. In this context, firms with the superior resources may have lower average costs and therefore at industrial equilibrium, those low cost firms earns rents from the scarce resources with price exceeding average cost (P>AC) while high-cost firms breakeven (P=AC).

Obviously, there is no concept of ***opportunity cost*** in this original ***Ricardian rent*** while opportunity cost is incorporated into ***Economic rent*** in Neoclassical Economics. The Economic rent refers to 'the portion of a payment (i.e., resource revenue) in excess of the minimum required to transfer the resource from one use to another' (Lippman and Rumelt 2003). In this context, the value of a firm's heterogeneous resources refers to economic profits or surplus which derives from returns by deploying valuable and scarce resources in excess of the value in the second-best use (Rumelt 1987, Peteraf 1993, Amit & Schoemaker 1993, Winter 1995). However, the notion of ***Economic rent*** in Neoclassical Economics has no operational meaning because 'it relies on a fairly arbitrary division of all activities and decision into this use and alternative uses' and therefore this Neoclassical micro-foundation is criticised as 'indeterminacy in the concept of cost induced by the existence of economic rents' (Limpper & Rumelt 2003: 925).

So far, discussion about resource value has been in a static setting. In practice, however, decisions about business strategies are always made in dynamic environment. In this context, ***Schumpeterian rents*** highlight the importance of dynamic capability for rent creation and ***sustained competitive advantage*** in environmental dynamics (Teece,

Pisano & Shuen 1997, Peteraf & Bergen 2003). Schumpeter (1934) dismisses price and other competitive factors of firms as being of secondary importance since these are useful only in a relative stable industry and market. However, in the long run, given competitive dynamics, revolutionary innovation is among the most important factors for the firm to obtain competitive advantage. Innovation enables the firm to enjoy the rents until imitation or substitution comes into existence. Then the firm has to create profits (rents) through new innovations. The new innovation becomes another source of rents. The firm continues to make innovations and go through the cyclical process of rent creation, disappearance, recreation, re-disappearance due to imitation and substitution from the external dynamic environments.

Given the background of analysis, it seems that 'Ricardian and Schumpeterian rents are mutually exclusive and competitive' (Parayitam & Guru-Gharana 2010:88). However, when one takes into consideration effects of the background upon strategies and resources, it makes sense to combine the two analytical frameworks (i.e., RBV and dynamic capability approach) into one for this research.

In summary, from the economic perspective, resource value involves both returns and costs (e.g., opportunity cost for the alternative use and physical costs for market acquisition and the inputs), and takes various forms of superior performance (e.g., economic rents or profits). The resource attributes of scarcity and heterogeneity are the fundamental conditions needed to achieve competitive advantage and superior performance in a static equilibrium while Schumpeterian rents stress the contribution of innovation for sustained competitive advantage in dynamic environment. Both views have contributions and limitations as well. Ricardian rents, for example, lack consideration of the external dynamics and Schumpeterian rents neglect contributions from other resources (e.g. organisational culture and human resource management) and their combinations. Thus, a combination of both analytical tools appears to enhance adaptablility and applicability.

Resource effects: from the strategic management perspective

From a strategic management perspective, firm specific resources contribute to competitive advantage and/or sustained competitive advantage.

The Strategic Management literature attempts to define the term "***competitive advantage***" from various angles but there is no universally accepted definition. These various notions contain at least two aspects. The first aspect is about measures of competitive advantage and it is generally accepted in the literature that competitive advantage is based on a relative concept in the sense of better performance than a benchmark which relates to all other rivals in the same industry. It is in the form of

superior economic performance (e.g., profit indicators) or some other non-economic performance (e.g., efficiency and/or effectiveness of business processes) (Detailed discussion in Chapter 4.3.2). The other aspect is about sources of competitive advantage. A variety of interpretations and arguments relating to this aspect are noted and discussed below.

As discussed earlier (in preceding Chapter 3.3.1), before the mid 1980s, most literature explored sources of firms' competitive advantage based on an external environment analysis, such as the PEST framework at the macro level, Five Forces Model or Life Cycle theory at the micro level. However, the external market-based concept treats firms as "black boxes", which cannot provide explanations as to why some firms perform better than others in the same industry and under identical external environment and conditions.

RBV approaches the concept of competitive advantage from the perspective of firm-level resources. In this context, competitive advantage derives from a bundle of internal ***heterogeneous*** resources of the firm (Wernerfelt 1984, Rumelt 1984). This uniqueness of the resources is embedded where a firm implements 'a value creating strategy not simultaneously being implemented by any current or potential competitors' (Barney 1991:102). However, not all heterogeneous resources may be used favorably in firm strategies. Some of them may not be applied to a specific strategy and some may result in dysfunction (Peteraf 1993). Only the ***valuable*** resources may contribute to the competitive advantage of the firm. Valuable resources mean that the resources facilitate the firm to achieve improved strategic efficiency and effectiveness, which in turn leads to higher returns over its costs by reducing costs and/or responding to environmental opportunities and threats (Barney 1986, 1991, Peteraf & Barney 2003). In other words, heterogeneous and valuable resources generate competitive advantage and competitive advantage takes the form of performance efficiency and effectiveness, e.g., outperforming its rivals in terms of cost, quality, delivery, speed, innovation and adaptability to the dynamic environment (Carpinetti, Galdamez & Gerolamo 2008, Talaja 2012).

Although the two terms of competitive advantage and superior performance are often used interchangeably in many literature papers (Siqueira & Cosh 2008), the two concepts are not equal in connotation (Ray, Barney & Muhanna 2004). In fact competitive advantage is a conceptual expression, and an internal necessary condition for the firm to build its possible superior performance but not necessarily to create superior performance in the end. In other words, superior performance is a "mirror" or manifestation of competitive advantage. As a necessary but not sufficient condition, competitive advantage can be transformed into superior performance in the forms of monopolistic rents in the protected market, or Ricardian rents from the heterogeneous

firm resources, or Schumpeterian rents against dynamic environment subject to effective exploitation of the firm's resources (Powell 1992, 2001). There are many measured indicators of superior performance and detailed discussion refers to Chapter 4.3.

In summary, based on an understanding of the above literature, this study defines competitive advantage as a relatively superior situation than a benchmark which relates to some or all other rivals in an industry, in the forms of better value created (i.e., superior performance).

Sustained competitive advantage traditionally refers to retaining a competitive advantage for ***a longer period***. However, it is hard to determine the period criteria of sustainability, say, five years, or ten years, or longer.

Strategic theorists interpret sustainability in quite different ways from the traditional measurement by calendar time. In the market-based view, when a firm enjoys a competitive advantage position over its rivals in a niche product market, the edge can be sustained by building up ***entry barriers*** over its rivals or potential competitors through economies of scale, accumulated experience, buyer switching costs or differentiated products or services (Porter 1980, 1986). In this context, competitive advantage can be sustained until the entry barriers are broken down by other competitors in the market.

The mainstream literature on the resource-based theory adopts similar criteria to SCA. Wernerfelt (1984) argues that a firm possesses a competitive advantage such as the first mover and it could be sustained by establishing ***a resource position barrier*** such as customer loyalty and technology criteria. Since unexpected or uncertain events may happen to disturb the established equilibrium, Rumelt (1984) coins the concept, ***isolating mechanism,*** which makes competitive positions, e.g. the first-mover advantage, stable and defensible[30]. The isolating mechanisms are embedded in causal ambiguity, switching and search costs, patents, trademarks and other legal restrictions on entry. Dierickx & Cool (1989) argue that an asset stock comes out of the accumulation processes and the characteristics of casual ambiguity of the processes make ***imitation*** costly or next to impossible. Barney (1991, 1997) simply argues that the valuable, rare, inimitable and non-tradable (***VRIN***) resources are the source of SCA. That is, when the valuable, rare, inimitable, non-substitutable and non-tradable resources are exploited to their full potential through organisational capabilities, the firm realises sustained competitive advantage. In other words, the firm sustains its competitive advantage before the resource position barrier is broken through by its competitors.

[30] A resource position barrier is the mechanism which makes a resource-related advantage defensible again another resource holder (Wernerfelt 1984).

Peteraf (1993) then summarises conditions for sustained competitive advantage, namely, ***pre-limit and post-limit to competition*** (Figure 3-5).

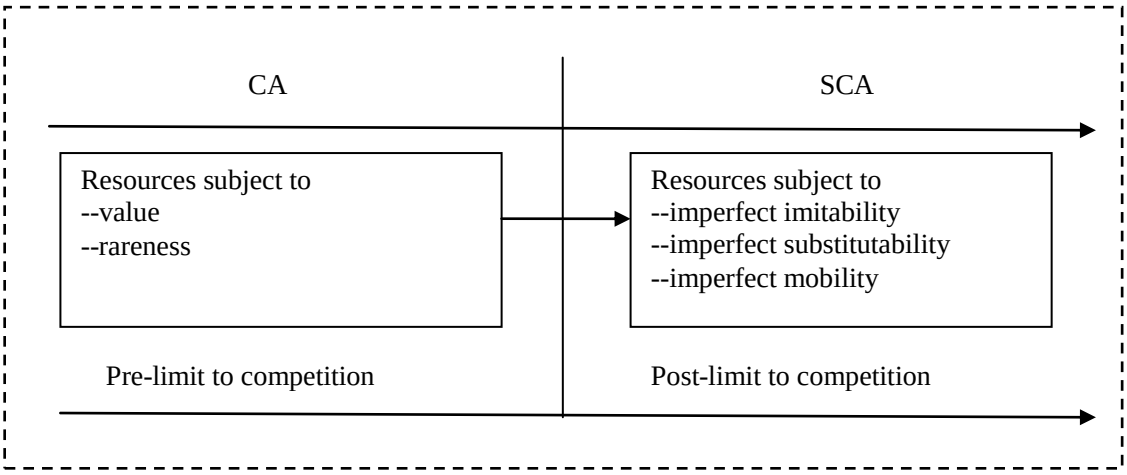

Figure 3-5: Conditions for SCA based on RBV

Source: Author's recreation based on Peteraf (1993)

Pre-limit to competition refers to limited competition for a valuable and heterogeneous resource position prior to any firm's establishing that position. Pre-limits to competition are a condition for achieving competitive advantage as it ensures that rents are not offset by costs.

Post-limit to competition refers to preserving the valuable and heterogeneous resources that may produce rents. Imperfect imitability, imperfect substitutability and imperfect mobility are factors to limit post competition. Empirical literature suggests that those intangible and socially complex resources such as learning mechanisms, managerial process, organisational culture and reputation are more likely to be immune from imitation and enable firms to achieve SCA (Wiklund & Shepherd 2003, Ray, Barney & Muhanna 2004). Imperfect substitutability of the resources is necessary for SCA because substitution of identical strategies or of similar resources may deprive the similar competitive advantage, leading the firm to lose its superior resource position of uniqueness (Barney 1991). Imperfect mobility may sustain the firm-specific advantage by excluding the other users of the specific resources.

3.3.3.5 Dynamic capabilities and sustained competitive advantage

The argument of sustaining competitive advantage by means of a protection mechanism is criticised as a static view because it has not taken account of the influential factors in dynamic environment. More recently, studies have focused on the dynamic capability approach to address the issue of sustainability under dynamic environment (Teece,

Pisano & Shuen 1997). A successful firm will not be locked into old and dysfunctional organisational routines in a new environment. Given the external dynamics, however, the organisational processes are expected to seize external opportunities and sustain competitiveness through dynamic capabilities by adapting new organisational routines to match the changes (Collis 1991, Winter 2003, Teece 2000). In this context, a substantial literature has attempted to integrate dynamic capability approach into the RBV framework (Makadok 2001, Helfat & Peteraf 2003, Fos & Knudseii 2003, Foss & Ishikawa 2007, Helfat et al. 2007, Parayitam & Guru-Gharana 2010).

Dynamic capability is defined as a 'subset of the competences/ capabilities which allow the firm to create new products and processes, and respond to changing market circumstances' (Teece & Pisano 1994: 541). The word "subset" indicates that dynamic capabilities are still classified as firm-level resources and are hence amongst the organisational capabilities. This definition highlights two specific functions of dynamic capabilities: to create new products or processes and to respond to changing market circumstances. The latter function enables dynamic capabilities to be a source of SCA by renewing and updating resources rather than protecting the existing ones. Therefore, the issue of external changes has been taken into consideration in the definition, which is its major contribution and extension to RBV. This extension alters the RBV from a static approach to a dynamic one. In the dynamic environment, dynamic capabilities are far more significant in explaining SCA than mere static resources (Newbert 2008).

Based on the above understanding, Teece, Pisano and Shuen (1997: 516) further define dynamic capability as 'the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environment'. This definition, in addition to addressing something of what dynamic capability is (i.e., 'the firm's ability') and of what dynamic capability is for (i.e., 'to address rapidly changing environment'), provides more precise wording towards how dynamic capability works, i.e., 'to integrate, build and reconfigure internal and external competences'. Therefore, this study adopts this definition for dynamic capability.

3.3.4 Summary of resource-based theory

This section summarises the resource-based theory in terms of the theoretical logic and development (subsection 3.3.4.1), empirical tests (subsection 3.3.4.2), and contributions and limitations of the theory (subsection 3.3.4.3).

3.3.4.1 Theoretical logic and development

RBV theory explores and discusses how firm-specific resource bundles achieve and sustain competitive advantage. Figure 3-6 reflects the logic flow and development of the theory. The arrow displays the relationships between variables and reflects the logical

flow. The firm starts from the condition of owning or controlling a valuable and heterogeneous resource bundle, which is the source of competitive advantage. Transformation of the competitive advantage into superior performance requires effective utilisation of the resources through organisational capabilities. The firm cannot proceed to reach SCA unless the resources have VRIN attributes. Further, given environmental dynamics in a long run, dynamic capability enables to respond to the environmental dynamics and to facilitate SCA by updating and reconfiguring the existing resources. There are two external competitive contexts within which a firm operates. One is incumbents and potential competitors and the other is environmental dynamics. The former affects realisation of competitive advantage of the firm while the latter is the reason for the requirement that the dynamic capabilities are necessary to achieve SCA.

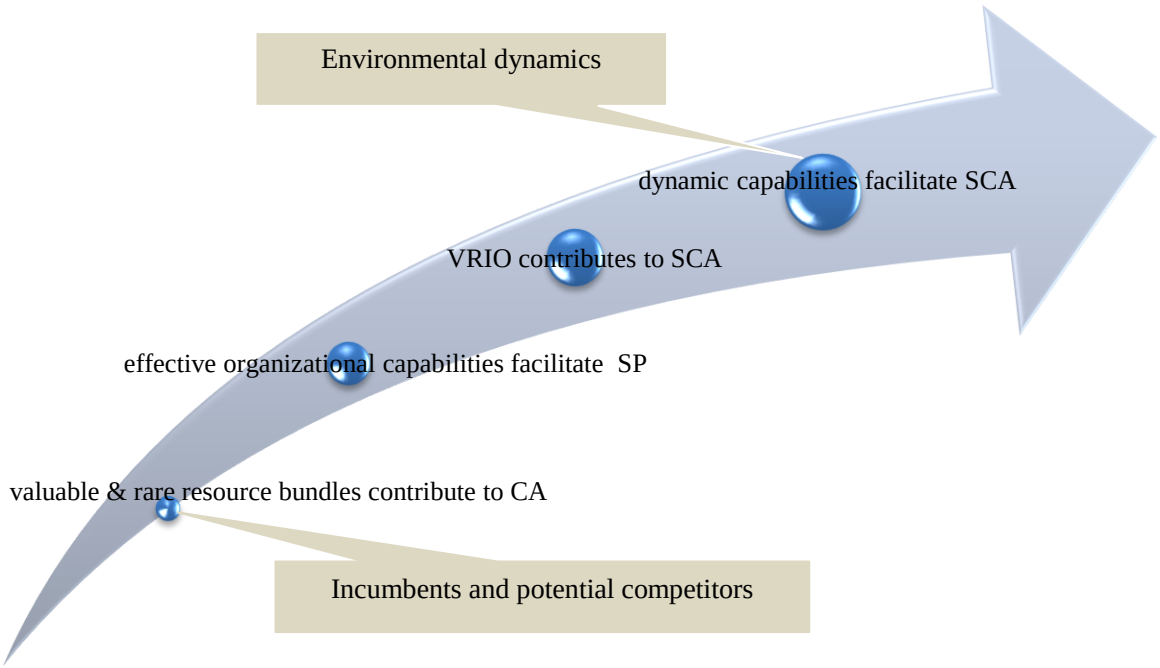

Figure 3-6: Theoretical logic and development of RBV

Source: The author

3.3.4.2 Empirical tests

RBV as a theoretical framework has gradually gained its popularity in the strategic management field. A growing literature has contributed to empirical testing of the RBV logic since the 2000s (Armstrong & Shimizu 2007). The empirical research essentially tests the relationships between firm resources (independent variable) and sustainable competitive advantage or competitive advantage (dependent variable). Barney and Ariken (2001) study 166 empirical papers and find that 98% of the tests are consistent

with the theory. However, based on Barney's conceptual logic (Barney 1991)[31], Newbert's (2007) meta-analysis of the empirical research papers finds that the RBV has received only modest overall support (53%) and that the varying support within the literature is related considerably to different variables and methodologies employed (Newbert 2007). For example, among the independent variables, the two most frequently used variables, i.e., special resource[32] and special capability, gain quite different results (e.g., Deephouse 2000, Hult & Ketchen 2001). That is, tests of special capability results in much higher support (71%) while tests of special resource receive much lower support (37%).

3.3.4.3 Contributions and limitations

Contributions of the theory

RBV has been widely acknowledged as a dominant paradigm examining competitive advantage and sustained competitive advantage by both researchers and practitioners in the strategic management field. Contributions from the up-to-date literature are summarised as follows.

Firstly, to address the strategic issues of competitive advantage or/and sustained competitive advantage, the previous dominant theories in the 1980s are within the external paradigm, which focused on external factors including both micro (i.e., industrial) and macro (i.e. national and international) environmental perspectives. In contrast, RBV is an internal theory and looks within the firm for influences of the internal resources on competitive advantage and sustained competitive advantage. Therefore, RBV opens a new and innovative view for both research and practice in strategic management. In this way, RBV complements and enriches strategic business management theories.

Secondly, RBV holds that heterogeneous and valuable resources lead to competitive advantage and that resources with the VRIN attributes are the source of sustained competitive advantage. In other words, companies in the same industry, either a "sunrise" or "sunset" industry, can realise sustained competitive advantage by effectively and efficiently employing the VRIN resources. This is particularly useful for companies in mature industries such as clothing manufacturing to sustain their competitive advantage. Mature industries or "sunset" industries are particularly related to labour-intensive products in the developing economies such as China.

Thirdly, the dynamic capability approach takes into consideration the influence of

[31] The conceptual logic refers to the relevance of the firm heterogeneous resources either to competitive advantage or to performance.

[32] Resource here refers to specific asset or the narrow concept of resource (Detailed discussion in Chapter 3.3).

external dynamics on firms' sustained competitive advantage and it is an evolution of RBV. Synthesis of RBV and dynamic capability approach provides a more pragmatic and rational analytical framework by combining both internal and external factors and both static and dynamic views.

Therefore, ***finally***, the combined framework involves broad interdisciplinary research. For example, it links to organisational economics (e.g., transaction cost economics and economic rents), organisational theory (e.g., strategic management) and organisational behavior (e.g., entrepreneurship).

Limitations and research gaps of the theory

Despite great contributions and commonalities across the original literature research, RBV as a theory is still in the development stage due to the existing disputes and research limitations. ***Firstly***, there are still some issues such as the tautology issue and classification of resources open to discussion (Priem & Butler 2001)[33]. ***Secondly***, the prevalent critique of RBV theory is about its static analytic framework, an original logic without incorporation of dynamic capability approach. However, external environment such as national or industrial economic dynamics may change the functions and values of firms' resources. Therefore, empirical research of a specific industry in a specific economy should take into consideration the research background and the external dynamics.

Three research limitations or gaps are identified as follows. ***The first gap*** concerns the empirical research model. Most existing empirical literature on RBV focuses on identifying resources and testing the causal relationship between resources and competitive advantage/ performance/ SCA (Newbert 2007). However, few holistic models can be referred to for the test of relationships between firm-level resources and SCA of an industry. Related to the first gap, ***the second gap*** is about the measures and measurement of the key concepts such as resources and SCA involved in the theory. For example, more often than not, existing empirical literature just chooses a specific resource or capability to represent the concept of resources. In addition to lack of consideration of the resource bundling effect, the empirical results also have limited power in terms of supporting the RBV theory. Moreover, financial performance indicators are traditionally adopted representing performance/SCA. However, these measures and measurements neglect the uniqueness of resources in individual firms which is fundamental in the RBV theory (Ray, Barney & Muhanna 2004). Also it is

[33] Priem & Butler (2001b) define tautology as a statement of relationship that is true by logic when concepts used in the relationship can be defined in the same terms. For example, the RBV statement 'if a resource is valuable and rare, it is a source of competitive advantage' is a tautology but true by logic. The reasoning behind this statement is that when 'valuable resources' are defined as those achieving increased efficiency and/or effectiveness, and 'competitive advantage' is also defined enabling increases in efficiency and/or effectiveness'.

practically difficult to get access to the financial performance data due to sensitive information involved (Detailed discussion in Chapter 4.3). ***Thirdly***, concerning the bundling effect of resources on sustained competitive advantage, there is an insufficient study of both theoretical and empirical aspects. For example, most existing literature discusses the existence of the effects. However, rare research focuses on such topics as which resource should bundle with which others and how the resource bundle affects SCA. Therefore, the research design takes these into account and the research findings make a limited contribution towards further understanding of these relationships (Details in Chapter 8.5).

3.4 Chapter summary

This chapter mainly reviews two theories, GVC and RBV. The above review of the literature in GVCs suggests that functional upgrading is a strategic option to achieve SCA of the clothing industry in developing economies. However, functional upgrading is not an automatic or necessary process even though the external environment is favorable. It is a fundamental and comprehensive change of resources for the clothing manufacturers, e.g., to develop their own brands. In other words, the core competences or advantages in the manufacturing segment have to be transformed into and expanded to other segments such as research & development (R&D), design, branding and marketing. Therefore, a wide range of firm-level resources are required to be developed and acquired for the companies to implement an upgrading strategy successfully.

The RBV theory has made significant contributions towards understanding the causes of SCA. In contrast to the market-based theory, the RBV theory maintains that firm-level resources are the source of SCA. However not all resources but only the resources with the VRIN attributes contribute to SCA. Further, in dynamic contexts, organisational capabilities, particularly dynamic capabilities facilitate the firms to update and reconfigure their resources for sustained competitive advantage.

However, in spite of the tremendous contributions, there is much space for development in both the empirical and theoretical aspects of RBV. Therefore, this research aims to contribute to RBV, particularly to the identified gaps of the theory.

Based on the theories reviewed and discussed in this chapter, the next chapter formulates the conceptual framework and selects measured variables for this study.

CHAPTER FOUR: CONCEPTUAL FRAMEWORK

4.1 Chapter introduction

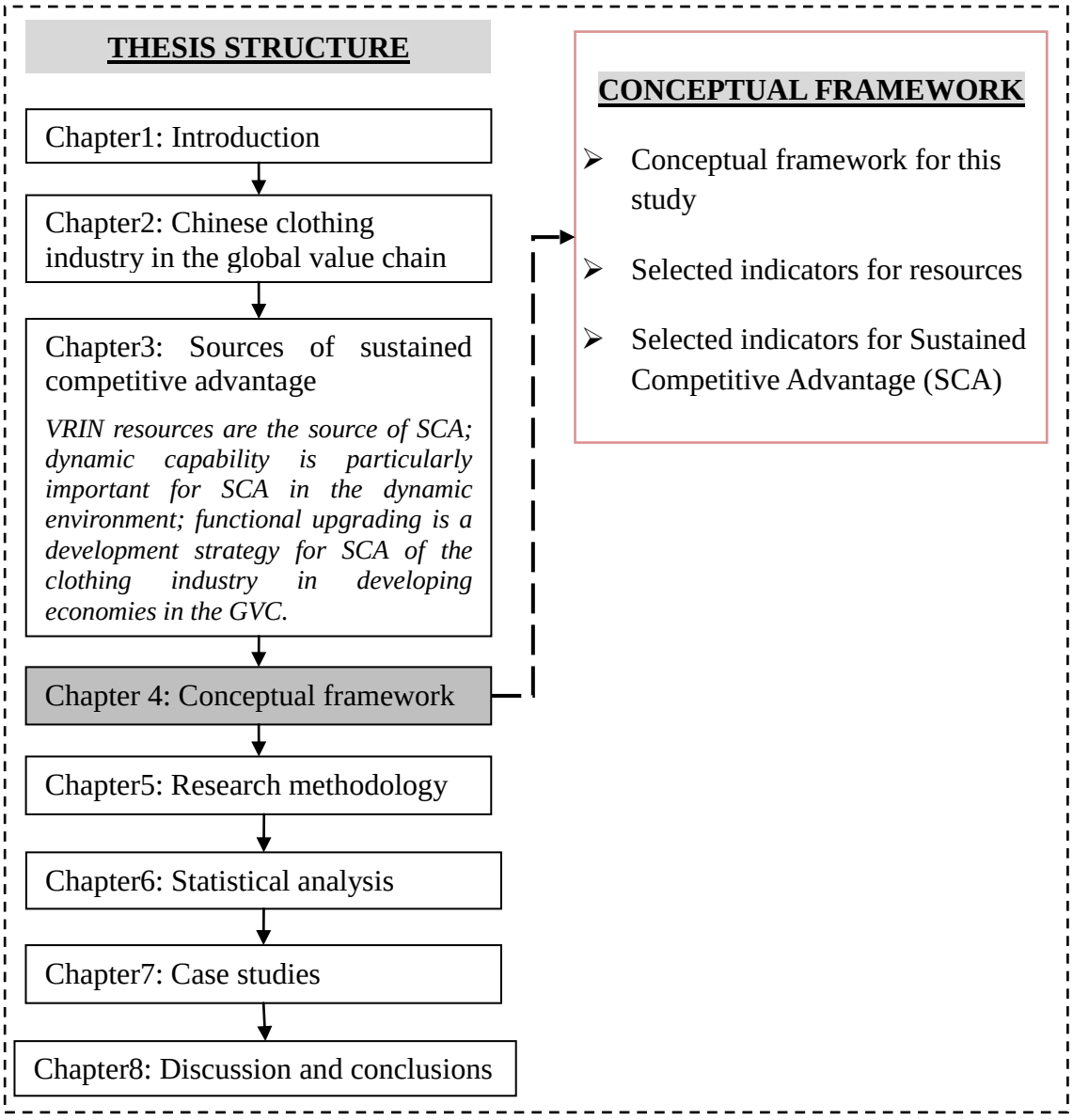

Figure 4-1: Thesis structure and focuses of Chapter 4 1

Source: The author.

The preceding chapter reviewed relevant literature which provides theoretical grounds as well as methodological reference for this study (Figure 4-1). By synthesising theories of RBV and GVC, this chapter first formulates a conceptual framework for the study (Figure 4-2). This is followed by selecting measured variables reflecting the concepts

(i.e., resources and SCA) involved in the framework. Both building up the conceptual framework and selecting the measured variables are based on relevant literature that is reviewed in the preceding chapter.

4.2 Conceptual framework for this study

The primary aim of this research is to explore and examine resources for SCA of the Chinese clothing industry. Given the external dynamics and its effects on SCA, a conceptual framework is developed by combining the external analytical framework (i.e., the clothing GVC) into the internal theory (i.e., RBV) (Figure 4-2). That is, VRIN resources contribute to SCA (Barney 1991) whilst dynamics in the Clothing GVC affact update and reconfiguration of the resources for SCA (Gereffi 1999, 2000, 2006). This is a synthesised research framework, combining both the external and internal theories.

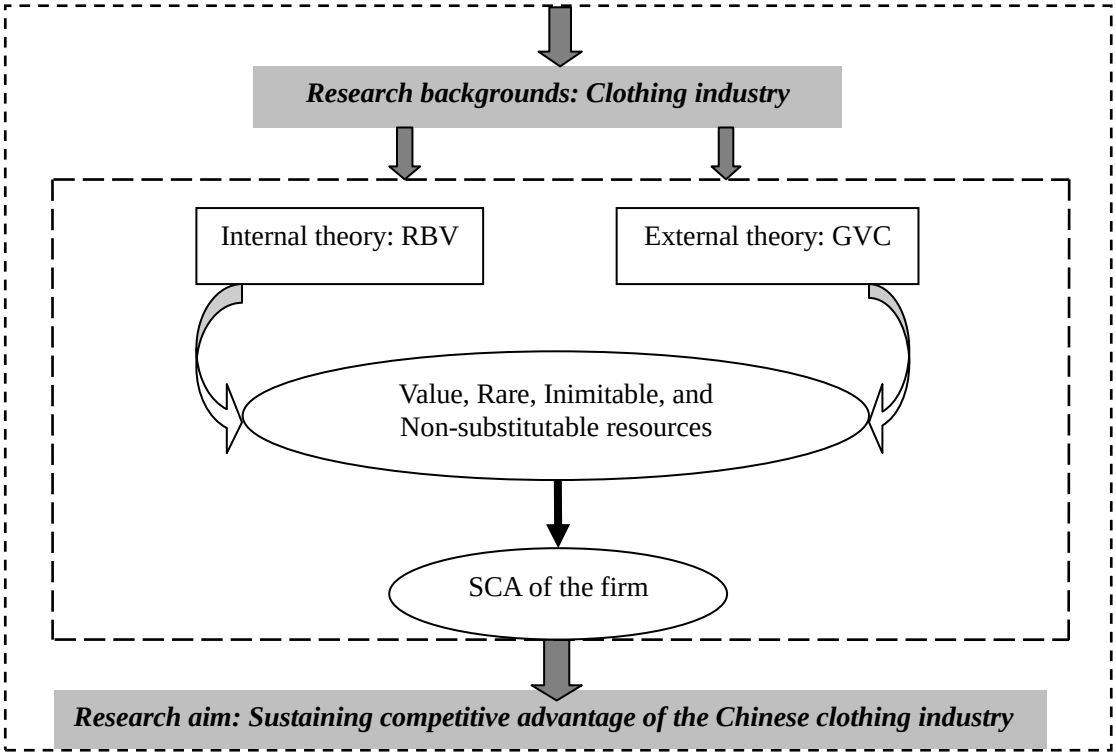

Figure 4-2: Conceptual framework for the research on SCA of the Chinese clothing industry

Source: The author.

This **synthesised framework** provides a feasible and more appropriate way for this research. From a theoretical perspective, few doubts that external factors influence a firm's SCA and also the internal theory, RBV, is criticised for lack of consideration of external factors. Therefore, this study combines RBV with dynamic capability approach,

which enables consideration impacts of environmental dynamics on SCA. In this context, the GVC theory provides framework to analyse the dynamic environment. From a practical perspective, effective adjustment to the firm's external dynamic environment by updating and reconfiguring resources of the firm is a key determinant for sustaining competitive advantage since both the internal resources and external competitive environment are essentials in a strategic decision process (Priem & Butler 2001).

Therefore, by adopting the synthesised framework this research provides a possible analytical tool to address the issue of sustained competitive advantage of the Chinese clothing industry from within the firms and also by taking account of the external influential factors, which is as Penrose's stated (1959: 35):

> *Of the three classes of explanation why there may be a limit to the growth of firms — managerial ability, product or factor markets, and uncertainty and risk — the first refers to conditions within the firm, the second to conditions outside the firm, and the third is a combination of internal attitudes and external conditions.*

4.3 Measured variables for the concepts

Two concepts in this research framework are required to be operationalised. With reference to literature, particularly the empirical studies, a pool of measured variables are selected for the operationalisation of the two concepts, namely, resources and SCA,

4.3.1 Measured variables for the concept of resources

The independent variable for this study is resources. Based on RBV literature, 12 measured variables are selected to represent the concept of resources (Table 4-1). These 12 specific resources are evenly selected from the four categories of resources, namely, productive resources, integrative capabilities, functional capabilities and dynamic capabilities (Table 3-2).

Productive Resources *(skillful worker, plant & equipment and information technology)*:

Skillful Worker and ***Plant & Equipment*** are in a list of productive resources (Penrose 1959, Barney 1991) (Table 3-2). In the labor-intensive clothing production, these two resources are fundamental for building up competitive advantage and for sustaining competitive advantage. ***Information Technology*** (IT) has been studied as a source to create SCA in RBV literature because of its nature of heterogeneity and immobility (Mata, Fuerest & Barney 1995). IT allows smooth coordination of organisational processes throughout value chains and logistics (Daneshvar & Ramesh 2010, Hazen & Byrd 2012). However, IT alone does not produce sustained performance advantages but

it does when IT is used to leverage tangible and complementary resources such as human resources and plant & equipment (Powell & Dent-Micallef 1997).

Table 4-1: Measured variables of resources with references

Measured variables	References
Productive Resouces:	
Skilful Worker (SW)	(Penrose 1959, Barney 1991)
Plant & Equipment (PE)	(Penrose 1959, Barney 1991)
Information Technology (IT)	(Powell & Dent-Micallef 1997, Daneshvar & Ramesh 2010, Hazen & Byrd 2012)
Integrative Capabilities:	
Customer Relationship (CR)	(Teece & Pisano 1994, Boyd, Bergh & Ketchen 2010, Pereira, Ferreira & Alves 2012)
Supplier Relationship (SR)	(Bonaccorsi & Lipparini 1994, Koufteros, Vonderembse & Doll 2002, Wu et al. 2011)
Human Resource Management (HRM)	(Amit & Belcourt 1999, Gowen III, McFadden & Tallon 2006, Progoulaki & Theotokas 2010)
Functional Capabilities:	
Quality Control (QC)	(Douglas & Judge 2001, Laframbise & Reyes 2005, Tuan & Yoshi 2010, Al-Qudah 2012, Munizu 2013)
Quick Response (QR)	(Gowen, McFadden & Tallon 2006, Lewis 2000, Krishnan, Kapuscinskj & Butz 2010)
Branding (Br)	(Aaker 1989, Hoeffler & Keller 2003, Keller 2009, Jones & Bonevac 2013)
Dynamic Capabilities:	
Organisational Learning(OL)	(Crossan & Berdrow 2003, De Geus 1988,Camison & Villar-Lopez 2011)
Entrepreneurship (En)	(Lumpkin & Dess 1996, Alvarez & Barney 2004, Ireland & Webb 2007, Simon 2010, Jimenez-Jimenez & Sanz-Valle 2011)
Innovation (In)	(Lengnick-Hall 1992, Damanpour, Walter & Avellaneda 2009, Terziovski 2010, Camison & Villar-Lopez 2011)

Source: The author.

Integrative Capabilities *(customer relationship, supply relationship and human resource management):*

SCA requires integrative capabilities of management relationships with outside partners such as customers and suppliers which are termed ***Customer Relationship*** and ***Supplier Relationship*** in this study (Teece & Pisano 1994, Barney 1991). Empirical studies suggest that stable and effective supplier relationship improves quality, reduces costs and contributes to lead-time advantage and thereby competitive advantage (Bonaccorsi & Lipparini 1994, Koufteros, Vonderembse & Doll 2002, Wu et al. 2011). Customer relationship management facilitates to establish good reputation and customer retention, which are derived from complicated interactions of internal and external capabilities (Boyd, Bergh & Ketchen 2010). These integrative capabilities (i.e., customer relationship and supplier relationship) often persist for a long time, which are firm-specific in nature. In addition, the integration processes often display high levels of coherence and ambiguity, making replication difficult, and therefore tacit knowledge deriving from the effective relationships management is a source of sustained competitive advantage (Pereira, Ferreira & Alves 2012).

Human Resource Management (HRM) is traditionally viewed as a collection of activities involving human capital acquisition, retention, training, motivation, coordination and deployment (Lado & Wilson 1994, Chadwick & Dabu 2009). However, this view lacks internal consistency or alignment with corporate strategy, which is emphasised in RBV. RBV literature views HRM as organisational processes or capabilities with the VRIN attribute and therefore it is a source of SCA (Amit & Belcourt 1999, Gowen, McFadden & Tallon 2006, Progoulaki & Theotokas 2010). HRM enhances a firm's economic performance by either increasing revenues or/and decreasing costs and therefore it is valuable. Also HRM processes are firm-specific because the processes are embedded in the automatic routines which create tacit attributes that are non-tradable or inimitable.

Functional Capabilities *(quality control, quick response and branding):*

Quality can be perceived through purchased inputs and embedded in product engineering skills, strict quality control and the quality and effectiveness of customer services (Tuan & Yoshi 2010). Therefore, ***Quality Control*** involves complex aspects and their interactions in terms of leadership & commitment, team works, training & education of staff, organisational culture, etc. (Barney 1991, Spitzer 1993, Powell 1995). Quality control is examined in substantial studies and the results suggest that it contributes to competitive advantage and SCA (e.g., Leed, Lemak & Mero 2000, Douglas & Judge 2001, Laframbise & Reyes 2005, Al-Qudah 2012, Munizu 2013).

Quick Response is primarily due to an 'emphasis on customer pull rather than organisation push' and can be practically achieved by 'improving the flow of material and information across business functions' (Lewis 2000: 963). Taking production for

example, quick response in production follows some general rules in manufacturing processes, human resource management and supplier inputs management, which results in improved productivity (Womack & Jones 1996). In addition to the coordination and management between various functional departments within an organisation, quick response also requires close working partnerships externally between manufacturer, supplier and retailer, which can be realised through the adoption of new ITs such as bar coding and through the establishment of new business strategies, new relationships or new procedures to speed the flow of information and merchandise (Ko, Kincade & Brown 2000, Krishnan, Kapuscinskj & Butz 2010, Choi & Sethi 2010). Therefore, quick response improves effectiveness and efficiency leading to competitive advantage.

A strong brand can bring possible benefits to an organisation, including economic values (e.g., higher profit margins in comparison with the competitors, market coverage and market share), emotional values (e.g., perceived quality, brand recognition and greater customer loyalty) (Vukasovic 2009, Jones & Bonevac 2013) and adaptability to market dynamics (e.g., less vulnerability to dynamic markets, more elastic customer response to price decreases and inelastic customer response to price increase) (Hoeffler & Keller 2003). Therefore, ***Branding*** is an important source for SCA for the business (Aaker 1989).

How much a firm can benefit from its brand equity depends on its own brand management capabilities such as brand positioning, brand marketing and abilities to sustain brand equity (Keller 2003, 2009) (Details in Chapter 8.4.2). For example, the major types of marketing communication to build brand equity include advertising, sales promotion, public relations and publicity, direct marketing, interactive marketing, word-of-mouth marketing and personal selling. Those marketing communication in turn results in consumers' knowledge about the brand, forming customer-based brand equity of perceived quality, brand loyalty, brand associations and brand awareness (Aaker 1991).

Dynamic Capabilities *(organisational learning, entrepreneurship and innovation):*

When a learning process is undertaken by an organisation it is termed ***Organisational Learning*** and organisational learning could be referred to either a result or process or both. From the resulting perspective, Organisational learning is defined as 'information (knowledge, understanding, know-how, techniques or practices) of any kind and by whatever means' acquired (Argyris & Schon 1996:3). Organisational learning is also viewed as systematic and continuous processes which generate knowledge or/and information and the processes operate through the three different levels, namely, individual level, group level and organisational level (Crossan, Lane and White 1999). For example, knowledge and information are generated through individual's ***intuiting***

and ***interpreting***, proceeding to ***integrating*** among groups and final process of ***institutionalising***.Through the processes, knowledge and information from individuals and groups are incorporated into the organisation and transformed into organisational capabilities and routines.

Moreover, organisational learning is characterised by interactive processes or adaptable routines between an organisation and its environment 'by which knowledge about action outcome relationships between the organisation and the environment is developed' (Duncan & Weiss 1979: 84, Dixon 1992, Crossan & Berdrow 2003). For example, an empirical research of 30 successful and long-lived companies (over 75 years) found that their abilities of organisational learning enabled those companies 'to live in harmony with the business environment, to switch from a survival mode when times were turbulent to a self-development mode when the pace of change was slow' (DeGeus 1988: 70). In this context, organisational learning enables more flexible and adaptable response to new challenges and therefore it contributes to sustained competitive advantage against the environmental dynamics (DeGeus 1988, Crossan & Berdrow 2003, Camison & Villar-Lopez 2011, Jimenez-Jimenez & Sanz-Valle 2011, Ussahawanitchakit 2012).

Entrepreneurship scholars provide different definitions from various perspectives (Kobia 2010). However, most of them agree that entrepreneurship involves 'the innovative combination of resources in order to introduce new goods or services, ways of organising, markets, processes or raw materials' (Abreu & Grinevich 2013:409). However, in addition to innovation, also there are other dimensions about the attributes of entrepreneurship. According to Lumpkin and Dess (1996), entrepreneurship is characterised by five elements, i.e., competitive aggressiveness, proactiveness, innovativeness, risk taking and autonomy.

Covin and colleagues argue that entrepreneurship is a source of SCA due to its continuous efforts in 'sustained regeneration, organisational rejuvenation, strategic renewal, and domain redefinition' (Covin & Miles 1999:50, Covin & Slevin 1991). Entrepreneurial orientation is a crucial dynamic capability for an organisation to achieve SCA in times of environmental turbulence because it 'seizes opportunities and enables the reconfiguration of resources, skills and competences, tempering imagination where necessary … responsive to change' (Simon 2010: 20). In line with innovativeness in the above concept, the presence of innovative entreprenurship is most agreed element for obtaining sustained competitive advantage (Covin & Miles 1999, Ireland & Webb 2007, Jimenez-Jimenez & Sanz-Valle 2011).

Literature defines ***Innovation*** as adoption of a new idea or behavior either an outcome or a process or both (knight 1967, Wolfe 1994, Damanpour 1991, Jimenez-Jimenez &

Sanz-Valle 2011). Literature distinguishs two types, namely, technical innovations such as new products, new services or new processes and non-technical innovations such as new organisational forms and procedures (Damanpour, Walter & Avellaneda 2009, Damanpour & Gopalakrishnan 2001).

From resource-base view, innovation is characterised as a dynamic capability and a key source of SCA (Sakchutchawan et al. 2011). Particularly, those innovations that fit with other aspects of the configuration of a firm are more likely to lead to sustained competitive advantage and those more adaptable and reflecting market realities and the timing characteristics of the relevant industry are more likely to lead to innovation (Lengnick-Hall 1992). Empirical researchs suggest innovations promote SCA (Jimenez-Jimenez & Sanz-Valle 2011, Camison &Willar-Lopez 2011).

4.3.2 Measured variables for the concept of Sustained Competitive Advantage (SCA)

The dependent variable for this study is Sustained Competitive Advantage (SCA). Although a growing literature has contributed to empirical testing of the RBV logic since the 2000s, most existing quantitative tests of this theory have focused on identifying and operationalising the explanatory variable, i.e., resources, while the dependent variable, i.e., SCA, has rarely been explored. Further, SCA is traditionally measured by financial performance indicators in the empirical studies, which is not only inconsistent with the theory but alsos proves to be practically difficult in access to the data (Ray, Barney & Muhanna 2004, Armstrong & Shimizu 2007)

Ray, Barney and Muhanna (2004) argue that an aggregated firm performance as a dependent variable may lead to misleading conclusions since the overall performance may not reflect the structure and levels of the firm advantages. Instead, the authors propose the effectiveness of multiple business processes as an alternative measure of SCA, which offers a more appropriate way to test resource-based logic. In addition, Armstrong and Schimizu (2007) review and evaluate empirical RBV studies between 1991 and 2005. Regarding measuring sustainability of competitive advantage, the authors find that 47 out of 125 empirical studies (38%) adopt longitudinal data while the remaining 78 studies (62%) apply a cross-sectional setting. However, it is argued that a time-series approach may better test “sustainability” of competitive advantage, through which the dynamic relationships over time can be examined because the resources developed or acquired in one period will affect the strategic advantages of firms in the subsequent periods due to time-lags (Barney & wright 1998, Armstrong & Schimizu 2007).

To develop effective measures of SCA, the rest of this section firstly refers to the

concept of SCA (subsection 4.3.2.1) and examines measures of SCA in relevant literature (subsection 4.3.2.2). This is followed by developing measured variables of SCA (subsection 4.3.2.3).

4.3.2.1 Concept of SCA

Based on RBV, a competitive advantage is defined as the benefits a firm gains 'when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors' and the competitive advantage is sustained before it dies away due to the duplication of the value creating strategy by other firms (Barney, 1991:109) (Details in Chapter 3.3.3). Sustained competitive advantage of a firm is reflected in the form of better performance compared to a benchmark as some or all other rivals (Wernerfelt 1984, Barney 1991, Peteraf 1993, Teece, Pisano & Shuen 1997). Business performance is embedded in the effectiveness and efficiency in terms of better quality, reduction of costs, exploitation of market opportunities, and/or neutralisation of competitive threats (Barney 1991).

This definition and interpretation of SCA is consistent with Business Performance Management System (BPMS). According to BPMS, business performance is defined as efficiency and effectiveness of actions and business performance measurement system as the set of metrics used to quantify both the efficiency and effectiveness of actions (Neely, Gregory & Platts 1996, Bititci, Carrie & McDevitt 1997, Bititci et al. 2010, 2011). For instance, in a situation of providing services to customers, effectiveness refers to the extent to which customer requirements are met and therefore may be better measured using ***non-financial indicators***, while efficiency refers to how economically the firm's resources are utilised when providing a given level of customer satisfaction and is therefore appropriately measured using ***financial indicators*** (Bititci et al. 2011). Therefore, BPMS provides a large picture to refer to for measure of SCA.

4.3.2.2 Measures of SCA

This subsection first examines main dimensions of an effective BPMS design, which provides implications and principles for development measures and measurement of SCA for this study. This is followed by examining both financial and non-financial performance measures and measurement of SCA.

BPMS is a topic of long and increasing attention to both academics and practitioners but is complicated by its multi-dimensional nature. Through meta-analysis of the relevant literature, Garengo, Biazzo and Bititici (2005) summarise the main dimensions of an effective BPMS design (Appendix 4-1). The nine dimensions of business performance measurement are summarised as strategic alignment, strategic development, focus on stakeholders, balance, dynamic adaptability, process orientation, depth & breadth,

casual relationships, and clarity & simplicity (Garengo, Biazzo & Bititici 2005: 37). The authors then use the dimensions as a checklist to examine the contemporary BPMS models developed from the mid-1980s: performance measurement matrix (Keegan, Eiler & Jones 1989), performance pyramid system (Lynch & Cross 1991), result and determinants framework (Moon & Fitzgerald 1996), balanced scorecard (Kaplan & Norton 1992, 1996), integrated performance measurement system (Bititci, Carrie & McDevitt 1997), performance prism (Neely et al. 1996), organisational performance measurement (Chennell et al. 2000), integrated performance measurement for small firms (Laitinen 2002). The results provide implications and principles for developing measures of SCA for this study as follows.

- All the BPMS models are characterised with one of the dimensions, "balance", which implies that "balance" is the most important dimension in measuring business performance. Balance is reflected by using both financial and non-financial measures and/or by having both internal and external objectives. The Balanced Scorecard is the most popular model and typically reflects this aspect. It transformed the conventional measure of financial performance by promoting balanced metrics of performance between financial and non-financial, and between internal and external. The model informs managers of the basic principle of BPMS with the aligned and long-term strategic objectives from four perspectives: financial, internal, customer, and innovation & learning (Kaplan & Norton 1992, 1996).
- Dimension of "process orientation" is increasingly present in the latest models, implying that process performance measure is at least a complement, if not a substitute, in business performance measurements. For example, in the earlier two models (i.e., Performance Pyramid System and Balanced Scorecard), process performance is partly presented but it is emphasised in all the latest four models. For example, in Integrated Performance Measurement Model (Bititci, Carrie & McDevitt 1997), processes measure is one of the four levels (corporate, business, ***processes*** and activities); Performance Prism Model (Lynch & Cross, 1991) consists of three "prisms", namely, stakeholders' satisfaction, ***processes*** and capabilities; process performance is also one of the three principles (alignment, practicability and ***process*** thinking) in the Organisation Performance Measurement model (Chennell et al. 2000); Integrated Performance Measurement for small firms (Laitinen 2002) also includes both dimensions of internal production ***process*** and external companies' position.

Financial performance measure

Traditionally, financial performance measures have been widely adopted in the empirical literature (e.g. Powell 1992, Powell & Dent-Micallef 1997, Bharadwaj 2000, Zhu 2004, Zhang 2007, Wiklund & Shepherd 2009). However, financial performance

measures alone may not give an appropriate measure of SCA for the following reasons. ***Firstly***, this measure implies the assumption that superior performance generates SCA. However, Powell (2001) argues that competitive advantage leads to improved performance but not necessarily the reverse. ***Secondly***, RBV holds that it is heterogeneous resources that contribute to SCA. Using financial performance to measure SCA is based on the mean contribution from general resources, which statistically neutralizes resource heterogeneity which neglects the theoretical ground about the individual firm differences in resources (Hansen, Perry & Reese 2004). ***Thirdly***, simply examining the relationship between a specific resource and its overall financial performance can lead to misleading conclusions on some occasions (Ray, Barney & Muhanna 2004). For example, when firms have competitive advantages in some resources and competitive disadvantages in others, examining the relationship between these different resources and the firm's overall financial performance can lead to biased conclusions.

Nonetheless, the above analysis is not sufficient to abandon the financial performance measure of SCA due to its merits of comparability, objectivity, feasibility and popularity. Rather it is understood that the financial performance measure alone may not be appropriate. In this circumstance, this study does not adopt financial performance as the only measure, and instead, it will be aligned with a non-financial measure of SCA i.e., process performance measure.

Process performance measure

Process performance measures effectiveness of business processes. It avoids the possible misleading conclusions that the financial performance measure may result in and it provides an alternative and more appropriate way to measure a firm's SCA (Barney 1999, Ray, Barney & Muhanna 2004). At least two rationales support this argument. One is that the process performance measure conforms to the underpinnings of RBV and thus enables researchers to avoid those drawbacks associated with the financial performance measure, which has been discussed earlier. The other reason is that multiple business processes themselves are a source of SCA and therefore process performance is the direct measure of SCA (Barney 1991).

There are three main types of business processes, namely, managerial processes, operational processes and supportive processes. Among them it is suggested that operational and supportive processes deliver performance while managerial processes sustain performance in the future (Bititci et al. 2011). Operational processes are processes that constitute the core business, e.g., getting order, manufacturing product, marketing and sales service. Supportive processes provide support to the core processes, e.g., personnel support, technical support and facilities. Managerial processes are the

processes that govern operation of a system, e.g., setting direction, managing strategy, building organisational competence, managing performance and managing change. Therefore, operationalising process performance needs to take into consideration of balance among the different classifications.

4.3.2.3 Measured variables of SCA

With reference to the literature, this study develops 10 measured variables representing SCA. Five among them are the financial performance indicators, namely, sales profit, labour productivity, sales growth, sales profit growth and market share increase. The remaining 5 are process performance indicators, namely, quick response, order acquisition, cost control, external communication and internal cohesion (Table 4-2).

Table 4-2: Measured variables of SCA with references

Measured variables	Reference
Sales Profit (SP)	(Zhu 2004, Powell 1992, Zhang 2007)
Labour Productivity (LP)	(Koch & McGrath1996, Wu 2010)
Sales Growth (SG)	(Powell 1992, Wiklund & Shepherd 2009)
Sales Profit Growth (SPG)	(Powell & Dent-Micallef 1997)
Market Share Increase (MSI)	(Makadok 1999)
Strategic Adaptability (SA)	(Wu 2010)
Cost Control (CC)	(Zhu 2004)
Order Acquisition (OA)	(Bititica et al. 2011)
External Communication (EC)	(Lee,C., Lee,K. & Pennin 2001, Bititica et al. 2011)
Internal Cohesion (IC)	(Lee,C., Lee,K. & Pennin 2001, Bititica et al. 2011)

Source: The author.

Indicators of Process Performance

There is no widely accepted criterion to refer to for the selection of indicators of process performance. Selection of the 5 indicators in this study is based on two considerations. One is business process in terms of its attribute and classification and the other is research context, i.e., the Chinese clothing industry. In the preceding Subsection 4.3.2.2, it is understood that business processes are composed of operational process, supportive process and managerial process (Bititci et al. 2011). Operational process is represented

by ***Order Acquisition*** and ***External Communication***; supportive process represented by ***Internal Cohesion*** and ***Cost Control***; managerial process represented by ***Strategic Adaptability***. Also from the research background, it is clear that current competitive advantage of the Chinese clothing industry has been increasingly challenged by rising costs (hence indicator of ***Cost Control***), intensified competition (hence indicator of ***Order Acquisition***) and increasing external dynamics over the latest years (hence indicator of ***Strategic Adaptability***) (Details in Chapter 2.3). Dynamic environment of the clothing industry requires for integration of both internal and external resources and for adjustment to the external market changes (hence indicators of ***External Communication*** and ***Internal Cohesion***).

Therefore, Process Performance in this study is operationalised as 5 indicators (Table4-2), namely, Order Acquisition (Bititci et al. 2011), External Communication (C. Lee, K. Lee & Pennin 2001, Bititci et al. 2011), Internal Cohesion (Lee, C., Lee, K. & Pennin 2001, Bititci et al. 2011), Strategic Adaptability (Wu 2010) and Cost Control (Zhu 2004).

Literature references for the selection of these indicators show in Table 4-2. For example, Wu (2010) verifies the application of RBV under environment volatility. ***Strategic Adapatability*** is included in the four measures[34]. Zhu (2004) assesses the business value of e-commerce capability and Information Technology (IT) infrastructure at the firm level by adopting financial performance indicators including ***Cost Control*** and other[35]. Effectiveness of ***External Communication*** with customers, suppliers and other parties is a measure of SCA. For example, Ray, Barney and Muhanna (2004) use effectiveness of customer service as an indicator of Process Performance[36]. Bititci et al. (2011) argue that business process sustains competitive advantage and in their empirical analysis, ***Internal Cohesion*** and ***External Communication*** are included in the measures of business processes[37].

Indicators of Financial Performance

Labour productivity is used to measure firm-level financial performance and it is measured as sales per employee (e.g. Koch & McGrath 1996). The authors use longitudinal data to test the causality relationship between human resource management (independent variable) and labour productivity (dependent variable).

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[34] The remaining three measures are production efficiency, product quality and innovation speed (Wu 2010).

[35] Four indicators are return on assets, sales per employee, cost reduction and inventory turnover (Zhu 2004).

[36] Three objective measures are developed for the ***process performance***, namely, customer retention rate, quality of customer service and complaints ratio (Ray, Barney & Muhanna 2004).

[37] The authors employ specific terms accordingly as employee satisfaction and customer satistisfaction & morale (Bititci 2011).

Sales growth is commonly used as an indicator of financial performance (e.g. Wiklund & Shepherd 2009). The authors study effect of resource combinations on the performance of alliance and acquisition by using objective data from financial statements. The sales growth is calculated from the database containing several years' annual financial statements.

However, due to data non-availability as many privately owned and unlisted companies treat their financial data as confidential and are not willing to provide them, subjective performance data are widely used and often preferred to financial statement data in the business research literature (e.g., Powell 1992, Powell & Dent-Micallef 1997). Powell & Dent-Micallef (1997) investigate linkages between Information Technology (IT) and firm performance by using subjective indicators of both financial performance (e.g., ***Sales Profit***) and process performance (e.g., ***Sales Profit Growth***). In their study, the process performance of IT includes 5 statements about the effects of IT processes on the firms' productivity, competitive position, sales growth, sales profit growth and overall performance. Respondents are asked to indicate the extent to which they agreed or disagreed with each of the statements by using a 5-point Likert scale ranging from 5 (5 = strongly agree) to 1 (1= strongly disagree).

Examining the 10 measured indicators of SCA against the main measurement dimensions based on Garengo, Biazzo & Bititci (2005:37) suggests that all the dimensions are met (Appendix 4-2) [38].

4.4 Chapter summary

In summary, this chapter formulates the conceptual framework. In the synthesised framework, RBV is adopted as the fundamental theory, of which the fundamental argument is that firm-level VRIN resources contribute to SCA. Given dynamic environment, GVC is also incorporated into the research framework for analysis of the external dynamics which influence resource updating and reconfigurating.

With reference to the relevant literature, a pool of measured variables for both concepts of resources and SCA are developed. Among them, 12 indictors represent resources (Table 4-1) and the remaining 10 indictors represent SCA (Table 4-2). These 22 indicators will be used to extract constructs measuring concepts of resources and SCA respectively in Chapter 6. Keeping this in view, the next chapter discusses and designs research methods for this study.

[38] Garengo, Biazzo and Bititci (2005: 37) summarise eight main measurement dimensions, which are main characteristics of the contemporary BPMS models (Appendix 4-1). According to relevance principle, five out of the eight measurement dimensions are selected as criteria to check the measure variables of SCA for this study while the other four dimensions are dropped due to irrelevance to this study. The dimension of longitudinal or cross-section settings discussed in the RBV literature is incorporated here into the dimension of dynamics.

CHAPTER FIVE: RESEARCH METHODOLOGY

5.1 Chapter introduction

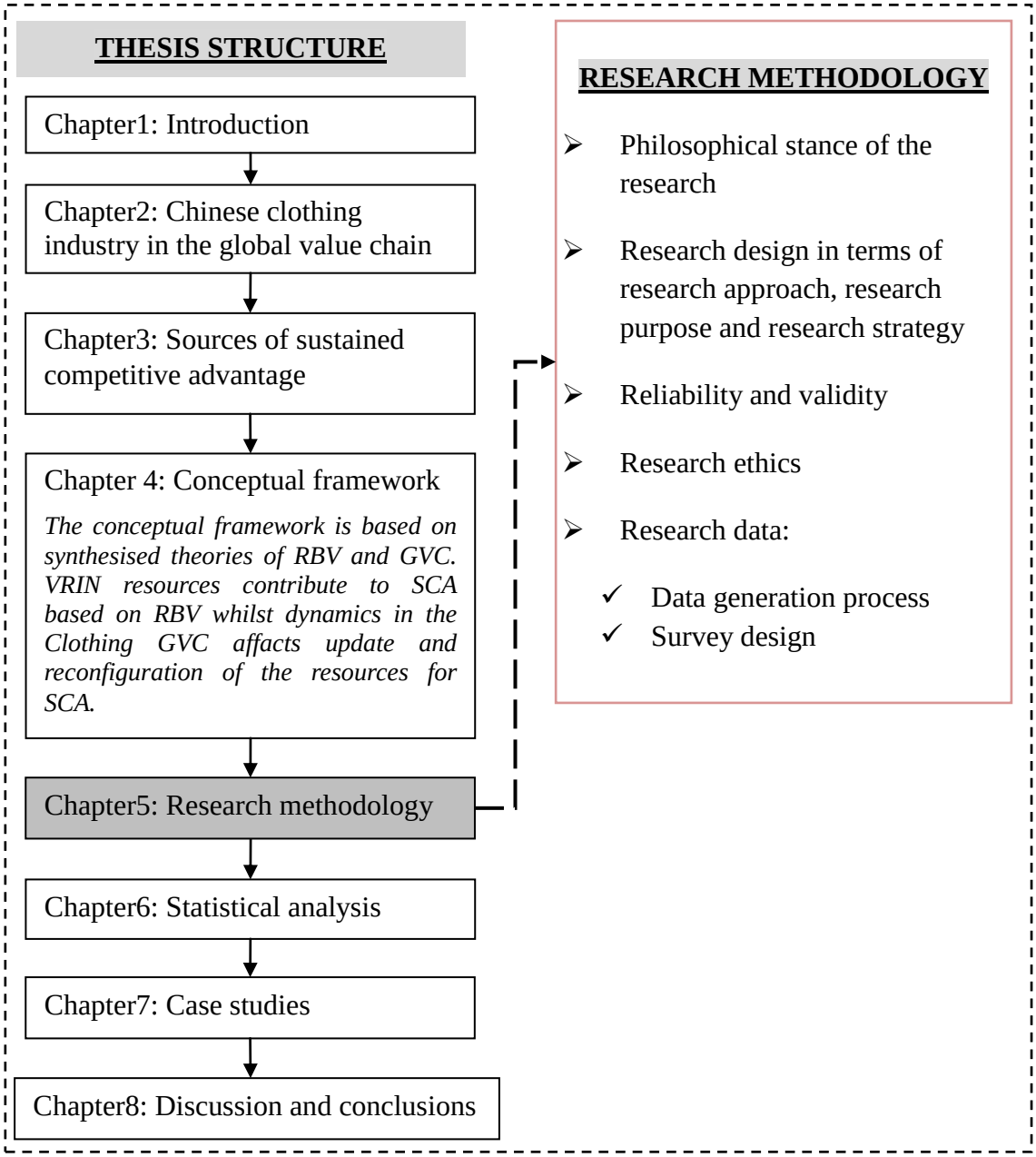

Figure 5-1: Thesis structure and focuses of Chapter 5

Source: The author.

In the preceding chapter, the conceptual framework has been formulated and this chapter elaborates on the methodology underpinning this research (Figure 5-1).

Research methodology ‘helps to ensure project aims are achieved and facilitates the process of answering the research questions and meeting the deliverables’ (Phillips & Pugh 2000: 1092). However, there is no general agreement or principle concerning which method is better or more appropriate. A number of considerations influence the choice of research methods. These include the researcher’s underlying philosophical position in terms of epistemology, ontology and axiology. There is also the need to maintain consistency with the theoretical underpinnings of the research and to take account of practical considerations associated with the research design and the research strategy (Figure 5-2).

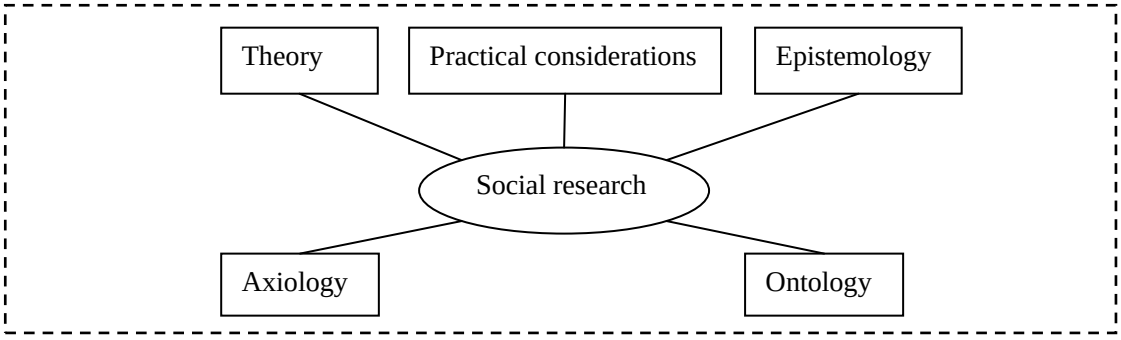

Figure 5-2: Influences on social research

Source: (Bryman 2004:21)

In the light of these influences, this chapter starts to discuss the philosophical issues in terms of epistemology, ontology and axiology. This is followed by examining the other considerations for designing the research methods (e.g., reiteration of the research aim and objectives and reviewing the research methods adopted in the domain literature for reference). Based on these considerations, research design in terms of research approaches (deduction and induction), research purposes (exploratory, descriptive and explanatory), research strategies (interview, survey and case study) and others is discussed. Finally, data generation and survey design for this study are introduced.

5.2 Philosophical considerations for research design

> *The research philosophy you adopt contains important assumptions about the way in which you view the world. These assumptions will underpin your research strategy and the methods you choose as part of that strategy.* (Saunders, Lewis & Thornhill 2007:101)

Social researchers need to understand research philosophy in terms of epistemology (i.e., approach to the development of knowledge), ontology (i.e., nature of entities) and axiology (i.e., researcher’s value orientation).

5.2.1 Epistemological considerations

Epistemology is concerned with the question 'what is (or should be) regarded as acceptable knowledge in a discipline' (Bryman 2004:11). Positivism, realism and interpretivism are the major epistemological positions (Bryman 2004, Saunders, Lewis & Thornhill 2007)[39].

Positivism has its roots in the natural sciences. ***Positivism*** assumes that social identities are observable, objective and independent of the researcher and that the research results can be generalised to develop laws or principles in a similar way to physical and natural scientific studies (Remenyi et al. 1998:11). In accordance with this philosophical position, research should be undertaken as far as possible away from the researcher's involvement. Therefore, the research often collects 'facts that provide the basis for subsequent hypothesis testing' (Saunders, Lewis & Thornhill 2007:103) and therefore generates quantitative data and follows a deductive approach to investigate the social phenomena (Collis & Hussey 2009: 56). In this way, the research, including data collection and the process of analysis, excludes the researcher's values or personal feelings.

In contrast, ***interpretivism*** criticises positivism by arguing that the social world is too complex to be generalised into theories. Moreover, social science is subjective and is influenced by the researcher's values, perceptions and interpretations. Therefore, interpretivism advocates research that aims at the understanding of 'differences between humans in our roles as social actors' (Saunders, Lewis & Thornhill 2007:106). Therefore, qualitative data are often collected and an inductive approach undertaken, in which findings are interpreted based on the researcher's understanding of the social phenomena, particularly in business and management fields such as marketing and human resource management (Collis & Hussey 2009: 57).

Realism, as a branch of epistemology, is similar to ***positivism*** in terms of its scientific approach to the development of knowledge. That is, social phenomena are treated as external realities that are separate and distinct from researchers' descriptions and these realities can be studied and explained. Two forms of realism, i.e., critical realism and direct realism, have different views on the development of knowledge. ***Critical realism*** claims that there are two steps. The first step is 'the thing itself and the sensation it conveys' and the second step is 'the mental processing that goes on sometime after that sensation meets our senses' (Saunders, Lewis & Thornhill 2007:105). Therefore, the

[39] There are different classifications to the research paradigms. Cavana, Delahaye & Sekaran (2001:8) broadly define three: positivist, interpretivist and critical research. Saunders, Lewis and Thornhill (2007) examine three philosophical views: positivism, interpretivism and realism. Guba and Lincoln (1994: 105) analyse four competing paradigms: positivism, postpositivism, critical theory and constructivism.

social phenomena are understandable if the researcher can capture the social structures that underlie the phenomena. This underpins a better approach to conducting multiple-level research, which involves different social actors. However, ***direct realism*** insists that the first step is enough and that reality can be understood if an appropriate method is used. This view is criticised as superficial since it 'fails to recognise that there are enduring structures and generative mechanisms underlying and producing observable phenomena and events' (Bhaskar 1989:2). Despite the differences, both direct and critical realism are important in business and management research (Saunders, Lewis & Thornhill 2007).

5.2.2 Ontological considerations

Social ontology concerns the nature of social reality; objectivism and subjectivism are the two main positions (Bryman 2004, Saunders, Lewis & Thornhill 2007). ***Objectivism*** in the social sciences argues that social entities exist independently from the social actors. In contrast, ***subjectivism*** holds that social existence is socially constructed and that it is not only created 'through social interaction' with social actors but also 'in a constant state of revision' (Bryman 2004: 30). Due to differences in their understanding of social ontology, different social researchers may view, study and interpret the same social reality in varying ways. Hence, this leads to different approaches to the design of research and collection of data. For example, objectivists may prefer applying statistical analysis and subjectivists may prefer case studies.

5.2.3 Axiological considerations

Axiology in any social study refers to researchers' values and judgments. Different values of the researchers have an influence on the conduct of the social research process, including topic selection, research ethics, choice of data collection strategies and the drawing of conclusions (Saunders, Lewis & Thornhill 2007).

5.2.4 Summary of philosophical influences

Different research designs and corresponding research methods reflect different philosophical stances of researchers, which are basic belief systems based on epistemology, ontology and axiology. In other words, philosophical considerations underlie research design and choice of research methods (Table 5-1).

Social researchers who work within a ***positivist*** paradigm design their research accordingly. They are likely to prefer the quantitative method. They begin with a model or theory from which they derive one or more hypotheses and then they test the hypotheses. This is a deductive research approach. During data gathering and analysis, the researcher stands independently from the research subject so as not to influence

what is being studied. In contrast, ***interpretivism*** researchers prefer qualitative data, which is gathered through interviews and the analysis of the data results in generation of theories. In this context, the interpretivist researchers often analyse and interpret respondents' viewpoints, attitudes, emotions and feelings, aiming to uncover a socially constructed meaning of reality. This is an inductive research approach of reasoning (Table 5-1).

Table 5-1: Philosophical beliefs and corresponding research designs

Epistemology		**Positivism**	**Realism**	**Interpretivism**
Ontology		Objective	Objective/ subjective	Subjective
Research design	*Research approach*	Deductive process	Deductive process	Inductive process
	Research strategy	e.g., Experiment, survey, etc	e.g., Survey, interviews, etc	e.g., interviews, Case study, etc
	Data nature	Quantitative	Quantitative/qualitative	Qualitative
	Data analysis	Context free, Testing theories, Free of social roles, Allow results to be generalised from the sample to the population	Testing theories, Researchers play roles to some extent, Allow results to be generalised from the sample to the population	Context bound, Generating theories, Allow findings to be generalised from one setting to another similar setting

Source: The author.

However, there is no clear-cut line between the positivist and interpretivist research paradigms and it is a continuum with positivism at one end and interpretivism at the other (Saunders, Lewis & Thornhill 2007). There are some research positions such as ***realism*** is somewhere in the middle of the continuum and therefore it contains combined stances of the two extreme paradigms. For example, both quantitative and qualitative data and both survey and interview strategies are involved. Researchers and other social roles (e.g., research respondents or participants) involved may put their own interpretation on the social phenomena although the social phenomena are viewed as existing independently of the social roles.

In view of the above understanding, this research design has a fundamental stance with ***positivism*** which reflects objectivism in ontology and deduction in the research

approach and which is suggestive of the survey as research strategy to collect quantitative data and to test theories (Table 5-1). The research results are allowed to be generalised from the sample to the population. However, this study also involves combined research methods, which can generally be referred to as ***pragmatism*** in research paradigm (Details in Chapter 5.4). In pragmatic research, 'it is perfectly possible to work with variations in your epistemology, ontology and axiology' (Saunders, Lewis & Thornhill 2007:110). Also from a pragmatic perspective, 'the most important determinant of the research philosophy adopted is the research questions - one approach may be 'better' than the other for answering particular questions' (Saunders, Lewis & Thornhill 2007:110). This point of view is reflected in this research. For example, both survey and case study strategies are adopted in this study because they enable to address the different research questions. That is, the survey is used to address what resources contribute to SCA (i.e., research question 3) while case studies are used to illustrate and interpret how the resources-SCA relationships work in the real contexts (i.e., research question 4).

5.3 Other considerations for research design

5.3.1 Reiterating research questions

An appropriate research design should enable the researcher to address the research aim and the corresponding questions effectively (Saunders, Lewis & Thornhill 2007). Therefore, this subsection reiterates the research questions. The primary aim of this study is to explore and examine resources for sustained competitive advantage of the Chinese clothing industry. To this end, a series of research questions are defined as follows:

Q1: What are the main problems concerning sustained competitive advantage (SCA) of the Chinese clothing industry?

Q2: What are the main firm-level resources leading to SCA from the perspective of the resource-based view of the firm?

Q3: Which of the potential resources are significant in leading to SCA of the Chinese clothing industry?

Q4: How and why do the identified resources contribute to SCA of the Chinese clothing companies?

Since the first two questions have been answered from study of the research background and from review of the literature respectively, next focuses move on to Q3 and Q4. To answer Q3, quantitative data about firm-level resource of the Chinese clothing

companies are required to test which of the identified resources have a significant effect on SCA. To answer Q4, evidence and contextual information (i.e., qualitative data) for illustration of the statistical results are required. Therefore, these requirements were taken into account in the research design.

5.3.2 Referring to literature

In addition to philosophical considerations and research questions, relevant empirical literature are also useful for seeking appropriate research methods and research design for this study. Therefore, in this subsection literature in terms of data and research strategy are briefly reviewed to provide the reference.

Data

Empirical studies of the RBV theory traditionally use both primary and secondary data sources. For primary data, interviews and questionnaire surveys or a combination of the two are the most commonly used strategies for the data collection. For secondary data, public available sources include annual reports of companies, government statistics, data bases of international and national organisations such as OECD (Organisation of Economic Cooperation and Developmen), WTO (World Trade Organisation), WBL (World Brand Lab) and ILO (Internaitonal Labour Organisation) and particulary industrial associations such as China National Garment Assoication.

As for the data nature, both objective and subjective data are employed in the empirical literature (Makakok 1999, Ray, Barney & Muhanna 2004). Objective data are usually collected from public accessible sources to measure firm performance such as financial indices of profitability, productivity, sales, sales increase and market shares. Empirical literature also uses subjective data such as increased quality (e.g., Lee, C., Lee, K. & Pennings 2001), production efficiency (e.g., Pisano & Wheelwright 1995, Hill & Jones 2007) and competitive advantage and SCA (e.g., Powell 1992, 1995). The subjective and self-reported data are preferred in this research area because of both sensitivity and conceptual reasons. Conceptually, RBV is about the heterogeneous resource and its superior performance and therefore statistical methods have to take account of the different performance of individual firms resulting from the unique and valuable resource bundles (Hansen, Perry & Reese 2004). Also, sensitivity of the data makes it different to get access to objective information and therefore it is practical to adopt this alternative way. The subjective data are often generated from questionnaires based on people's points of view on the variables, using scales such as 5- or 7-point Likert scale, ranging from strongly disagree to strongly agree.

Research strategy

Literature concerning SCA of the clothing industry suggests that the most widely used empirical research methods are ***interviews*** and ***case studies*** (e.g., Taplin 2002, Bair & Gereffi 2001, 2003, Tokatli 2007a, 2007b, 2008). There are also some, though not many, quantifying studies, published in the last decade, involving quantitative data obtained through questionnaire survey (e.g., Taplin, Winterton, J. & Winterton, R. 2003), most of which are related to the RBV theory (e.g., (Hansen, Perry & Reese 2004, Bhatt & Grover 2005, Simon 2010).

Different research methods are mainly determined by the corresponding research aims and objectives.

A case study of Hungarian privatised clothing firms, which attempt to reposition to a higher value-added niche and thereby avoid the intense competition of a cost-based competitive strategy, explores the issue of work re-organisation by changing the workplace culture and refining the measurement of worker effort (Taplin 2002). The paper focuses on how changes are implemented and on the problems that emerge. To this end, semi-structured ***interviews*** with owners, managers, and union officials are conducted to generate the ***qualitative data***. In contrast, Taplin, Winterton, J. & Winterton, R. (2003) studying the issue of labour turnover in the British clothing industry used a ***questionnaire*** to create ***quantitative data*** for testing hypotheses.

Tokatli, Nebahat and colleagues study the upgrading of the Turkish clothing industry through extensive ***case studies*** and the authors prefer the publicly available ***quantitative data*** (Tokatli 2003, Tokatli & Eldener 2004, Tokatli & Kizilgun 2004, Tokatli 2007a, 2007b, 2008). For example, Tokatli (2008) uses Zara as a case to study global sourcing of the global clothing industry. These researches use secondary data from ***publicly available data*** sources, including Journal papers and articles in newspapers and magazines such as *The Observer, Financial Times, Newsweek, New Yorker, The Economist, Sunday Business and Spiegel Magazine*, to name a few.

Likewise, an empirical study of the Mexican clothing industry focuses on the industrial upgrading, linking institutional contexts of local industrial clusters (LICs) with GVCs and NAFTA (Bair & Gereffi 2001, 2003). Both secondary materials and primary data and both qualitative and quantitative data are adopted in this study. Also, case studies and interviews are the dominant primary data collection methods while official statistics, local newspapers, industry documents, and journal papers are the main secondary data sources.

Among these empirical studies, Taplin and colleagues are particularly interested in the topic of industrial restructuring in developed countries such as the UK and the US (e.g., Taplin & Winterton 1995, Taplin 1996, 1997, Taplin 2003, Taplin, Winterton, J. &

Winterton, R. 2003) as well as in transitional economies such as Hungary (Taplin 2002). As for data source, both secondary (e.g., Taplin & Winterton, 1995, Taplin 1996, 2003, Taplin, Winterton, J. & Winterton, R. 2003) and primary data, obtained through interviews (e.g., Taplin 2002) and surveys (e.g., Taplin, Winterton, J. & Winterton, R. 2003) are employed. The primary data are of both quantitative (e.g., Taplin, Winterton, J. & Winterton, R. 2003) and qualitative nature (e.g., Taplin 2002).

5.4 Research design

Based on the positivist's philosophical stance, this research design adopts a pragmatic research paradigm (Discussed in Section 5.2.4). This section discusses and elaborates the research design in terms of research approach, research purpose, research strategy, reliability and validity, and research ethics (Table 5-2).

Table 5-2: Research design for study of SCA of the Chinese clothing industry

APPROACH	PURPOSE	STRATEGY
n/a	Describe: Status quo of SCA in the Chinese clothing industry	Archive study
n/a	Explore: Measures and measurement of resources and SCA	Literature review Statistics (EFA)
Deductive	Confirm: Hypothesised resources-SCA relationships	Survey Statistics (SEM)
n/a	Explain: How and why the resources-SCA work in the real context	Case studies Interviews

Source: the author.

5.4.1 Research approach

Deductive and inductive reasoning are two major research logics. Choice between the different approaches is largely determined by different philosophical stances. The deductive approach is used extensively in positivist research while the inductive approach is common within interpretivism (Saunders, Lewis & Thornhill 2007). Deduction involves a series of sequential steps moving from theory or hypothesis to testing (Robson 2002). The belief behind the deductive steps is that a theory can be subjected to a rigorous test and that the test results could provide interpretation of the social world. Advocators of the inductive approach criticise the idea of a simple test of

cause-effect relationships between particular variables without knowledge of the rich context related to the variables. Instead, inductive research is particularly concerned with the context in which event/phenomenon takes place and induction involves a series of sequential steps moving from phenomenon to theory or proposal. Therefore, inductive researchers are more likely to collect qualitative data through interviews or case studies to gain an understanding of the meanings that humans attach to phenomenon. Adoption of inductive research also implies that there is very limitated knowledge or research to the phenomenon.

However, there is not a rigid division between the deductive and inductive approaches in social research. The combined approach is common since, ‘not only is it perfectly possible to combine approaches within the same piece of research, but in our experience it is often advantageous to do so’ (Saunders, Lewis & Thornhill 2007:88). That is, the combined methodology maintains the advantages and avoids the disadvantage of both methods. Therefore, it maintains methodological rigor, as well as enhancing reliability and validity and thereby strengthens the researchers' findings.

In view of the above understanding, this study adopted deductive approach, which enables to address the main research purpose, that is, to explore and test significant resources contributing to sustaining competitive advantage of the Chinese clothing industry (Table 5-2).

5.4.2 Research purpose

The reasons for research are for the purposes of exploration, description, confirmation or explanation. However, since a research project may involve more than one research question, the same research project may serve two or more research purposes (Saunders et al. 2007:133).

This study has a variety of research purposes to address the different research questions that have been raised (Table 5-2). For example, description of the research background aimed to reveal problems with SCA of the Chinese clothing industry (i.e., research question 1); exploration of resources for SCA was used via a literature review (i.e., research question 2); confirmation was used in testing the hypotheses (i.e., research question 3); explaination was also used for illustration of the statistical results through case studies (i.e., research question 4).

5.4.3 Research strategy

Survey, case study and experiment are the main strategies applied in business and management research. Each of these research strategies has its both its advantages and disadvantages.

Survey research is one of the popular research stratiegies. Survey research is deterministic since survey data are used to clarify relationships between variables. Survey research leads to generalisation from a sample to a population (Babbie 1990). Survey methodology is based on experimental or quasi-experimental settings. These 'highly structured settings' enable researchers to 'manipulate variables thought to be important' and to generalise tendencies and common patterns or processes (Bentz & Shapiro 1998:122-123). However, survey research neglects complex and subtle features of individuals and fails to take account of the dynamic context involved. Also, it is parsimonious since survey researchers construct various models and select one best suited to their aim (Babbie1990).

The Case study is widely used in business and management research. It involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence (Yin 1984). The real life context in business and management often involve people so interviews with people concerning their points of view are most commonly used techniques for data collection. With contextual analyses of the data collected, researchers can gain insight into the complicated business reality, both in depth and breadth. In addition, the insight and understandings of a specific case may also provide implications for other organisations or social phenomena which share certain characteristics with the specific case. Despite all of its merits, the case study method also has its inherent deficiencies relating to knowledge generalisation (Yin 1984, Bryman 1989).

Observation, experiment and ethnography are other alternative but not dominant research strategies in social science. ***Observation*** may take place in a laboratory setting or in a natural setting. A natural setting may be preferred in the interpretive research paradigm since the context contains more trustworthy information. The ***experiment*** has its roots in natural science and laboratory-based research, and it measures on a small number of the variables under control of other variables. ***Ethnography*** emanates from the field of anthropology and is firmly rooted in the inductive approach.

However, no research strategy is inherently superior or inferior to any other. Choice of a research strategy or strategies will be determined by the research questions and objectives, the extent of existing knowledge, the amount of time and other resources available to researchers, as well as the researcher's own philosophical underpinnings (Saunders, Lewis & Thornhill 2007:135). In addition, different strategies are not mutually exclusive and combining more than one strategy in a single research programme may be appropriate and can be more effective (Saunders, Lewis & Thornhill 2007).

Based on the above considerations, this study adopts combined strategies exploring key

resources which contribute to SCA of the Chinese clothing industry (Table 5-2). For this research purpose, literature review enables to identify those resources which might potentially contribute to SCA and then using a deductive approach, the resources-SCA relationships are tested and confirmed. Therefore, relevant strategies for achieving the above research purposes included literature review, survey and statistical analysis. Moreover, case studies are used to provide evidence for interpretation of statistical results rathar than to induce any theory. In case studies, interviews are the main strategy for primary data collection while secondary data from publicly accessible sources are also used for analysis.

5.4.4 Reliability and validity

Reliability and validity are two considerations concerning the quality control of a research project. Reliability refers to the extent to which a measurement procedure yields the same results on repeated trial while validity is the degree to which a measure accurately represents what it is supposed to (Carmines & Zeller 1979, Kirk & Miller 1986, Litwin 2003, Hair et al. 2010). In other words, reliability is about consistency in repeated measurement of the same phenomenon and validity is about correctness and accuracy.

Related to reliability, any research measurement contains a certain amount of ***chance error***. Therefore repeated measurements of the same phenomenon will never exactly equal one another and 'unreliability is always present to at least a limited extent' (Carmines & Zeller 1979: 12). There are two basic categories of errors in survey research which cause problems of non-reliability and non-validity, namely, ***random error*** and ***non-random error***. If sampling is strictly random, the sampling error which is related to measures and measurement of constructs and therefore can be reliably estimated. Three commonly used forms of assessment are test-retest, alternate-form and internal consistency (Litwin 2003). This study assesses the internal consistency (Details in Chapter 6.4.4). The non-random error cannot be estimated but researchers should not overlook it and should seek to avoid it as far as possible. Sources of non-random error are related to the sampling process and include sampling-frame defects, non-response, inaccurate or incomplete response and defective data collection or management (Schofield 1996).

This study attempts to avoid these non-sampling errors by taking care of all stages from design of the survey instrument (e.g., clear wording and structure) to the data collection process (e.g., sampling criteria clearly specified and strictly implemented) and further to the data analysis technique and process (Details in Chapters 6&7). For example, those copies of replies which are inconsistent with the sampling criteria are deleted; a well-structured, clearly-termed self-completion questionnaire is used, through which

quantitative data are collected to ensure of the research objectivity as far as possible. During data collection, assertion of confidentiality and anonymity to participants via a Participant Consent Form encourages honest and unbiased data and thus helps to ensure the quality of the data. Quantitative data collected is then analysed with SPSS and AMOS software and the results are displayed in figures and tables, all of which enables to avoid arbitrary interpretation and subjective distortion from the researcher or misrepresentation in reporting the research results.

There are three main types of validity, namely, criterion validity, content validity and construct validity (Carmines & Zeller 1979, Litwin 2003). ***Content validity*** is a subjective measure of how appropriate items or scales seem to a set of reviewers who have some knowledge of the subject matter (Litwin 2003). As discussed in the preceding paragraph, informants and respondents are chosen based on strict criteria which ensure they have knowledge in the research subject. In addition, they are aware that the survey is anonymous and no personal risks are involved and therefore they feel free to provide honest and true information. All of these provide a good foundation to build a rigorous assessment of content validity. ***Criterion validity*** is defined as a measurement of how well one instrument in comparison with another instrument (Litwin 2003). This is not applicable for this study because there is no generally accepted model or measure of the concepts involved in this research. Construct validity concerns 'the extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts (or constructs) that are being measured' (Carmines & Zeller 1979: 23). ***Construct validity*** is the most valuable way to the measurement of abstract theoretical concepts as it is in this study ((Carmines & Zeller 1979, Litwin 2003). Constructs are validated in this study by assessing convergent validity and discriment validity (Details in Chapter 6.4.4).

The case studies in this research are used to help interpret and illustrate the statistical results rather than to generate knowledge or theories. In this context, internal validity mainly depends on objectivity, authenticity and accuracy of the evidence, which are achieved largely through a trust-building process before and during interviews in this study. Reliability concerns repeatability of case studies, that is, every research step can be repeated with similar results. To this end, an interview protocol was designed and used (Appendix 5-6) to guide conduct of all interviews. This was followed by careful implementation of individual interviews, e.g., keeping digital recordings while taking notes during interviews so as to capture the original interview discourse. In addition, these recordings are translated from Chinese into English version with double checks. In this way, interpretation errors are kept to a minimum.

5.4.5 Research ethics

Ethical behaviour is as important in social research as in any other field of human activity. To recognise and anticipate ethical issues is helpful for tackling possible challenges and risks resulting from research activities. Research activities through all the research stages, including choice of a research topic, design of the research methods and research settings, conduct of the research and the final report, are expected to be conducted in a moral and responsible way (Saunders, Lewis & Thornhill 2007:178). Research ethics mainly concerns relationships between researchers (e.g., researchers' obligations) and participants (e.g., participants' rights). Informed and Consent forms are a commonly-used vehicle for ensuring that participants are fully aware of the nature of their involvement.

This research follows ethical conduct through all research stages, in line with research ethics principles (Cavana, Delahaye & Sekaran 2001). Prior to the planned data collection procedure, two ethics projects (Appendix 5-1) were created in which possible ethical risks involved in this study were evaluated to ensure that no harm could come to participants or researchers. This was submitted online, sought and approval by Coventry University ethics committee. The checklist in the ethics project provides a guidance concerning ethics for the research.

During data collection, a Participant Information Sheet was provided to the respondents, in which the research project and its purposes were briefly stated and from which participants were clearly aware of their free choice. In addition, assertion of confidentiality and anonymity to participants via the Participant Consent Form encourages honest and unbiased data and thus ensures the quality of the data. A Statement of Anonymity is also a procedure to avoid common method bias by reducing respondents' evaluation apprehension (Podsakoff et al. 2003).

5.5 Research data

5.5.1 Data generation procedure

Both primary and secondary data were used in this study. The secondary data were collected via various public available sources including companies' official websites and governmental and organisational databases, which mainly generate factual data; newspapers and magazines, which mainly generate opinion data; and academic journal papers and books, which mainly generate theoretical data. The primary data were collected through interviews and a questionnaire survey in the Chinese clothing industry during a four-month period from early November 2011 to late February 2012. The data generation procedure was conducted in three phases (Table 5-3). However, these phases

were not totally separate from each other in terms of delivery time. For example, the end of Phase one overlapped with the beginning of Phase two in December 2011 and similarly the end of Phase two overlapped with the beginning of Phase three in February 2012.

Table 5-3: Primary data generation process

Phase	Objectives	Respondents/case	Time and duration
Phase 1: General interview	Enquiry based on open questions about status quo of the Chinese clothing industry in term of sustained competitive advantage (SCA).	6 interviews with clothing expert and scholars.	November and December 2011, Each interview lasted about one hour.
Phase 2: Survey	Obtaining primary data for the follow-up test so as to confirm which resources are significantly related to SCA of the Chinese clothing industry.	Pilot survey; final result of total 219 respondents.	December 2011 through March 2012, Each respondent took about 15 minutes responding to the questionnaire.
Phase 3: Case-study interview	Enquiry based on structured topics which gathered evidence for the case studies to illustrate and interprete the statistical results.	6 interviews/occasions with CEO, senior manager, owners of the case companies.	Main data collected in February 2012, Additional data collected in January and April 2013.

Source: the author.

The first phase was general interviews with clothing scholars and experts by focusing on status quo of the Chinese clothing industry in terms of sustained competitive advantage (Table 5-3). Selection of the interviewees was recommended by a professor from the School of Textile and Clothing at Shaoxing University in China. The six interviewees were either clothing scholars from the top universities in the textile and clothing subject or clothing experts from provincial/ national garment associations in China (Appendix 5-7). Interviews began with a brief introduction of the research objectives. This was followed by open topics concerning the present situation of the Chinese clothing industry in terms of competitive advantage, the current dynamic environment, problems and strategies of sustaining the competitive advantage under the dynamics. Each interview lasted about one hour. With the interviewees' agreement, both a digital recording and written notes were taken. Interviews from this phase provide ideas and references for the follow-up interviews for the case-studies.

The second phase was a questionnaire survey. Contact information of respondents was

obtained from both Zhejiang Garment Association and Zhejiang Provincial Administration for Industry and Commerce. The survey was conducted during a 4-month period from December 2011 through March 2012. ***A pilot survey*** was conducted within the first month to check feasibility and the possibility of accessing the data. Based on the pilot, the questionnaire was refined in terms of wording, terminology, structure and order of questions, etc.

The formal survey lasted about 3 months from mid-January to mid-March 2012. A hundred and fifty six copies of reply were collected through interview-administered delivery by the researcher and 52 research assistants. The research assistants were identified from the final-year students in the subject of business management at Shaoxing University and were then chosen based on the location of their home towns in the main clothing LICs (Details in Section 6.2). Prior to fieldwork commencing, and for the purposes of quality assurance, the research assistants were divided into two groups with each being trained by the researcher in terms of the data-collection process and the structure and logic of the questionnaire and its items. This process was designed to ensure both the validity, and quality of data collected, (e.g., checking that questionnaires were fully answered, asking for contact emails or phone numbers for further clarification of answers) as well as compliance with ethical standards. Original questionnaire replies were required to be handed in to the researcher within one week of completion without exposure to any other third party. In addition, the research assistants were supported by the researcher during the interview process with respondents to ensure that any enquiries could be promptly answered.

Questionnaires were also distributed via email. To maximize responses to the email-administered survey, repeated emailing and phone contact were followed, but still the response rate was low. 78 out of 300 email contacts replied so the response rate was about 26%. However, 15 of the 78 responses were identified as invalid either because they were not completed by appropriate people (i.e. senior to top managers, owner or CEOs from the designated companies) or the responses were internally inconsistent. For instance, in Part one of the questionnaire, concerning the item of "Years of operation with own brand name", the tick was "n/a", which mean "not applicable or no own brand", but in Part three concerning the statement "This company has strong capabilities in brand development and brand management", "7" was selected, which meant "most agreed". Therefore, only 63 of the 78 email responses were retained as valid. All 156 interview-administered responses were retained as valid. As a result, total sample size was 219 and these observations were defined as valid because the responses met the criteria of completeness, coherence, and completed by an appropriate respondent.

The third phase was in-depth interviews with CEOs, senior managers or owners for three case studies (Appendix 5-7). Based on recommendations from the first-phase

interviewers and also taking account of the research objectives, cost, time and feasibility, three clothing companies, namely, Youngor, Tedelon and Kaiqi, were selected as the cases for study. Interviews were based on semi-structured questions (Appendix 5-6). The interviews were mainly conducted during February 2012 and two additional interviews (to the same interviewee as before) were conducted for clarification of the original information or for seeking further information (Appendix 5-7). With interviewees' agreement, digital records were taken in addition to written notes during the interviews, which ensured that the original information was captured as accurately as possible for later transcription and analysis.

5.5.2 Survey design

A questionnaire survey was adopted in this study to generate primary data in order to test hypothesised relationships related to research question 3, that is, which of the identified resources are significantly related to SCA of the Chinese clothing industry. This section focuses on survey design in terms of instrument design and sampling methods.

5.5.2.1 Instrument design

Questionnaire development

A three-part survey questionnaire (Appendix 5-2) was designed, initially based on the literature review in terms of the conceptual framework (Figure 4-2) and measured variables for the concepts (i.e., resources and SCA) involved in the framework (Details in Chapter 4.3). It was then revised twice prior to the formal survey. The first modification was mainly to the contents of Part three, following recommendations from a panel of domain experts and scholars. During the first-phase interviews with these experts and scholars, the open questions mainly focused on firm-level resources which contribute to sustained competitive advantage. In addition, these experts and scholars were also invited to provide comments on the designed questionnaire in terms of terminology and wording, structure, layout, etc. According to their comments, the original version of Part three was over simple. Therefore, more detailed information was added in this part including firm strategies and firm performance items since these items reflect dependent variable measures. In designing the performance items in Part three, the specific context of the clothing industry have been taken into account (Details in Chapter 4.3.2). As a result, Part three of the revised questionnaire consists of three subsections (Appendix 5-3), namely, 12 statements about firm resources, 12 statements about firm strategies and 8 statements about firm performance. Some of the interviewees suggested that more variables, such as distribution channels and corporate culture should be included. However, this suggestion was not taken up because the term "Branding" broadly covers most aspects of the the suggested items.

The revised questionnaire was used in a pilot survey to assess the appropriateness of the research instrument in terms of expressions used, construct, timing, ordering of questions and the questionnaire layout, length, readability, etc. The pilot questionnaire was delivered through both interviews and emails. According to respondents' recommendations and to my reflection on the responses, the questionnaire was further polished, for example, adding a cover page, improving layout and readability, adding flexibility (e.g., tick or color the choice) to the instructions, etc. The final version (Appendix 5-4) was then ready for the subsequent formal data collection.

Questionnaire language and wording

This research, particularly throughout the primary data generation process, involves language translation between Chinese and English. A fundamental principle for translation of 'functional equivalence' both in language and culture rather than merely 'literally identical', was followed (Litwin 1995: 58). In addition, avoiding jargon or ambiguity and instead specific questions are suggested techniques for controlling common-method biases (Podsakoff et al. 2003), which were also followed in both survey and case study.

The survey questionnaire was initially developed in English. The English version was first examined by the supervisory team and then the translated Chinese version was delivered to the Chinese respondents for data collection. Before conducting the survey, the Chinese version of the questionnaire was examined by both clothing and English Language scholars. The English Language scholar checked translation in terms of functional equivalence and the clothing scholar checked terminology and expressions. Special attention was paid to terminology translation in the questionnaire. For instance, the questionnaire items concerning export patterns such as OEA, OEM, ODM and OBM were interpreted into Chinese equivalences by consulting with the clothing scholar (in Part 1 of Questionnaire) and terms like "branding" and "entrepreneurship" (items 9 and 12 respectively in Subsection 1 of Part 3) have broad connotations, which were translated into Chinese using more specific expressions and statements (Appendix 5-5).

Questionnaire structure

The questionnaire consists of a cover page and three-part main body. Each part has a title summarising the main message of the part. For example, Part one is "General information about you and your company"; Part two is "Key firm-level resources required for sustained competitive advantage of the Chinese clothing industry"; Part three is "Status quo of the sustained competitiveness of your clothing firm" (Appendix 5-4).

A 7-point Likert scale is adopted for the items. Likert Scale is one of the most widely used techniques of scaling response in survey questionnaire of the social science research. Respondents are required to choose a number from figure "7" (indicating "most agree" to a corresponding item) to figure "1" (indicating "least agree" to a corresponding item) (Appendix 5-4).

Though pilot test, it was estimated that respondents would take about 10-15 minutes to fill in the questionnaire.

5.5.2.2 Survey sampling

It is generally presumed that research follow randomly sampling criteria that would be considered rigorous and representative. However, in addition to the criterion of rigor, choice of a sampling method may also be substantially affected by other factors, e.g., accessibility, cost and time. In this context, researchers have to balance considerations among these factors.

This study aims to address the issue of sustaining competitiveness of the Chinese clothing industry. Therefore, the intended research ***population*** for this study is all Chinese clothing firms. However, taking account of representativeness, feasibility, cost and time, this research is based on a sample of clothing companies that are situated in Zhejiang province.

There are at least three considerations in choosing this sampling criterion. (1) Zhejiang province, geographically belonging to the Yangtze River Delta region, is one of the most developed regions in China, where there are many specialised local industrial clusters (LICs) in clothing. It is the major source of Chinese clothing exporters and manufacturers, e.g., about 13% of the national clothing revenue by retail sales (details in Chapter 3.2). Private clothing firms are the most robust and fastest growing group in terms of firm size and number in these LICs. Hence this region provides a rich source of data for the study and to some extent is in a position to be representative of the research population, i.e., the Chinese clothing industry. (2) This place is where the researcher is based. The proximity advantage makes it easier to get access to the research data with least cost because the researcher can leverage an already-established network with the sample firms there. (3) Since the sample firms are situated in one region, they share relatively similar external environment. Given the fact that these sample firms performed quite differently in such similar external environment, this design enables the research to focus on internal factors to explore the source for sustaining competitive advantage of the Chinese clothing industry.

Moreover, not all clothing companies in Zhejiang province were in the sampling units.

Only those above the designated size with annual revenue equal to or exceeding 5 million RMB from the principal business were included. This company-size criterion is in line with the statistical standard of the National Bureau of Statistics of China. According to Zhejiang Provincial Bureau of Statistics, about 3300 clothing companies in Zhejiang province were identified in this group in 2011. Therefore, the ***sampling units*** were from these 3300 clothing companies.

Initially, an attempt delivered the survey questionnaire to the ***sample firm***s by utilising a simple random sampling method through email. Based on the sampling criteria, contact information of the sample units and target respondents was obtained from Zhejiang Garment Industry Association and Zhejiang Administration for Industry & Commerce. However, the initial response rate from the 100 e-mail pilot was disappointing and there were no responses to the survey within one week after the first email delivery. There were only 2 responses one more week after the repeated email delivery. Given the time limitation of data collection, it seemed that this method was not feasible. This strict random sampling procedure was therefore abandoned.

The academic research context in the Chinese clothing industry is still dominated with personal networks. Under these circumstances, it was hard to implement the strict random sampling in practice, and therefore a compromise between research theory and research practice had to be made. That is, to take full advantage of a personal network, or Chinese Guanxi, was a practical and feasible way to collect primary data for this study. However, personal contacts are subject to "opportunity" and "convenience" sampling, and hence might result in bias or deviation from traditional random sampling guidelines which enable the achievement of scientific rigor. However, data collected through the not-strict random sampling method could be used for analysis and this is not uncommon in this research domain (e.g., Podsakoff et al. 2003, Watson 2004).

In view of the above considerations and based on the above sampling criteria, the intended ***sampling units*** were then organised into the ***sampling frame,*** that is, allocating the target respondents from the sampling units (clothing firms) located in the selected main cities of Zhejiang province such as Hangzhou, Ningbo, Wenzhou, Shaoxing, Yiwu, Zhuji, etc. Then with help from the research assistants (i.e., final-year undergraduates based in these cities), questionnaires were delivered mainly through interviews and some through emails. The senior and top clothing managers and owners were selected as ***respondents*** because they were believed to be well-informed about the strategic management issues and the clothing industry, especially strategic management of the Chinese clothing firms. In this way, the related response-bias could be minimized.

5.6 Chapter summary

In summary, the research methods adopted in this study are based on the writer's understanding of research philosophy in terms of epistemology, ontology and axiology. The research questions are the main determinant in the design of the research methods.

This study is fundamentally based on a positivist stance on research philosophy. However, to find answers to the defined research questions, this study adopts multiple research purposes and research strategies, which reflects a pragmatist research paradigm (Table 5-2). For example, this study examines and reveals the SCA problems of the Chinese clothing industry via l archive study; explores resources for SCA via literature review; confirms resources-SCA relationships via statistical anlysis; explains in detail the statistical results via case studies.

This chapter also elaborated the research design and data collection procedure. Questionnaire survey and interviews are the main methods for the data collection in the Chinese clothing industry. The survey data will be used for statistical analysis in the following Chapter 6 and the data from the interviews will be used in the case studies in the following Chapter 7. Next chapter focuses on statistical analysis by using data generated through the survey which was elaborated in this chapter.

CHAPTER SIX: STATISTICAL ANALYSIS

6.1 Chapter introduction

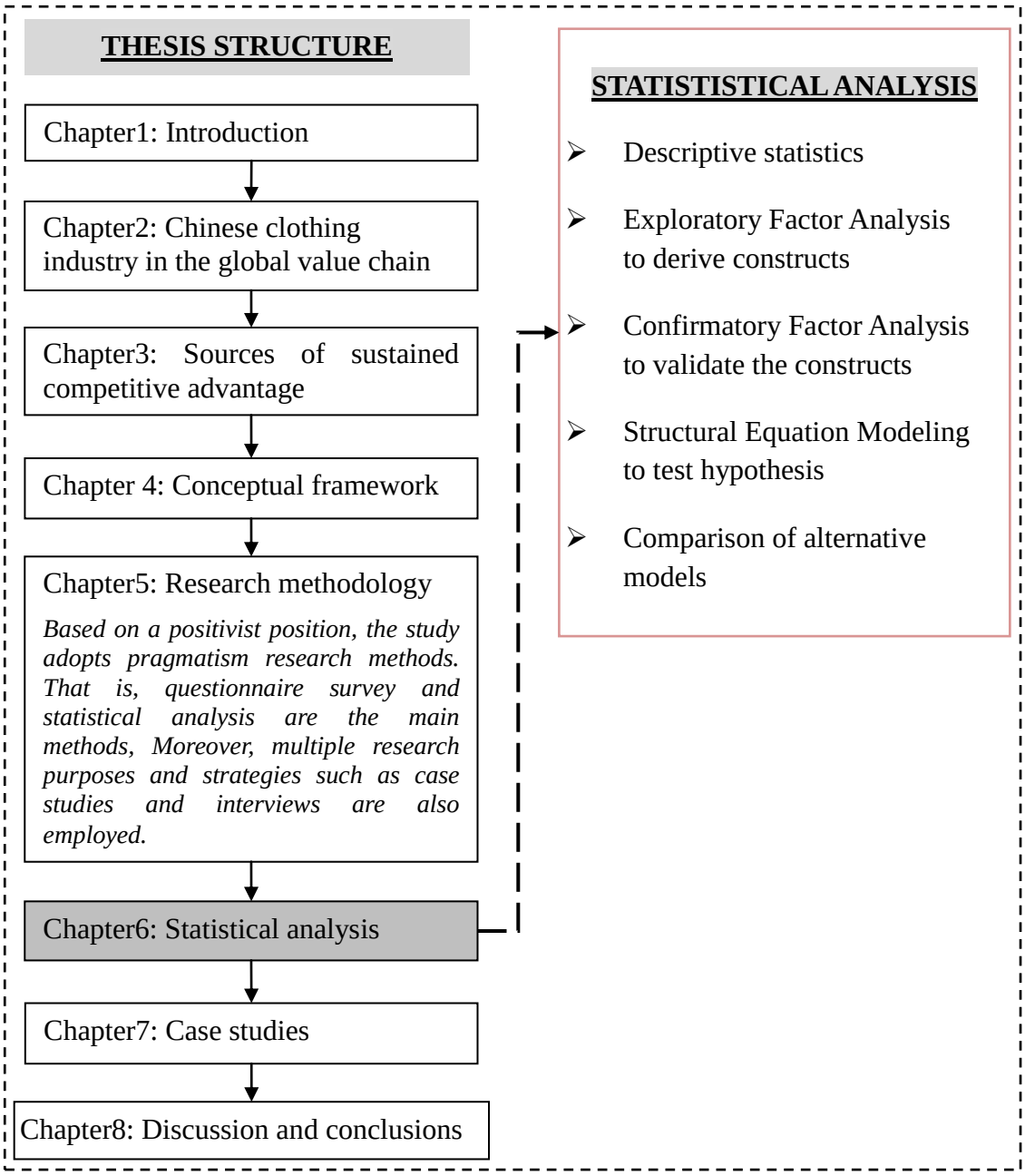

Figure 6-1: Thesis structure and focuses of Chapter 6

Source: The author.

This chapter focuses on data analysis. The data analysis follows a series of sequential steps from descriptive statistics to inferential statistics and this is illustrated in Figure

6-1. The descriptive analysis consistes of three subsections, namely, demographic data of respondents and the sample units (subsection 6.2.1), descriptive statistics of "resources" items (subsection 6.2.2) and descriptive statistics of "performance" items (subsection 6.2.3). In the descriptive analysis, the means, standard deviations and and frequencies of the data distributions are presented in tables with textual interpretations. Inferential statistics are the main body of this chapter and the inferential statistical analysis follows subsequent steps. It starts from deriving factors for measures of resources and Sustained Competitive Advantage (SCA) via Exploratory Factor Analysis (EFA). This is followed by a two-step approach of Structural Equation Modeling (SEM), namely, Confirmatory Factor Analysis (CFA) and test of the structural model. Finally, alternative models are compared so as to further verify the appropriateness of the hypothesised model for this study.

6.2 Descriptive statistics

Descriptive statistics of the sample were obtained by using SPSS software (Version 20). These statistics concern data obtained from the questionnaire survey on both resources and performance of the sample companies. Frequencies, means and standard deviations (s.d.) are presented to indicate the data distributions, central tendency and dispersion.

As a result of data collection, a total 219 copies of valid replies were obtained. Among them 156 copies (about 71%) were delivered via interviews and the rest, 63 copies (about 29%), via email. Among them, 180 responses were from 6 major clothing cities, i.e., clothing LICs (Discussed in Chapter 2.3.7), in Zhejiang province, namely, Hangzhou (30), Ningbo (30), Wenzhou (30), Shaoxing (30), Yiwu (30), and Zhuji (30). The remaining 39 responses were from other 7 cities, namely Huzhou (6), Jiaxing (6), Cixi (6), Jinghua (6), Lishui (5), Taizhou (5) and Haining (5) (Figure 6-2).

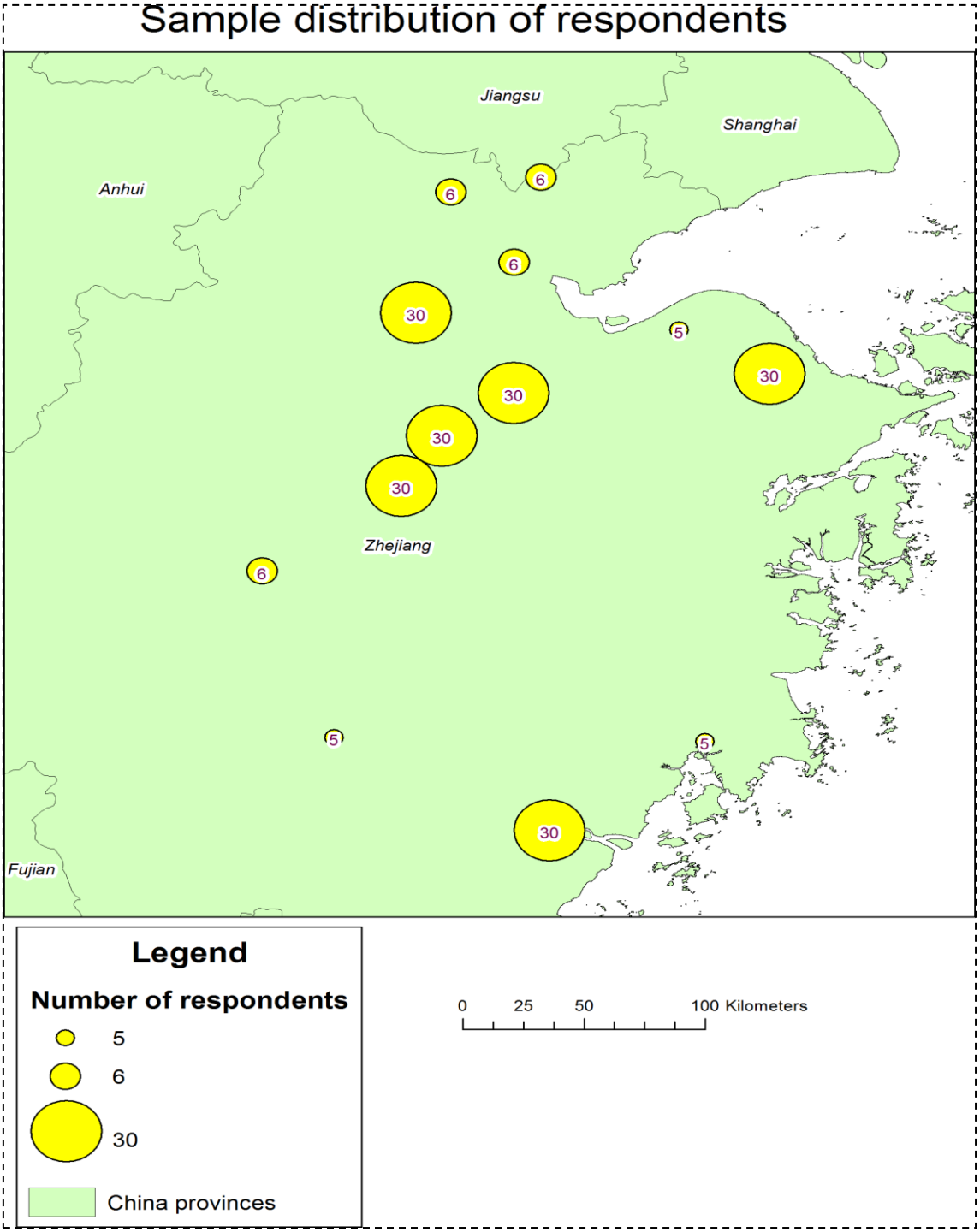

Figure 6-2: Sample distribution of the respondents

Note: The omitted sources of figures and tables in this chapter are either directly statistical output or edited statictical output by the author[40].

[40] The distribution map was generated through the software **Arc GIS 10.1** version. The data concerning geographic

6.2.1 Demographic data of respondents and the sample units

Respondents' demographics and the profile of the sample units are illustrated below. The demographic information indicates that the sample reflects the general characteristics of the Chinese clothing industry in terms of managers' qualifications, companies' history, size, profits, branding, exports and business development.

This study assumes that the qualifications of the respondents are sufficient for them to understand the research topic concerning sustained competitive advantage (SCA) of the Chinese clothing industry, which in turn leads to robustness of the data. Concerning the levels of educational attainment, the majority of respondents (59.8%) possesses higher education degrees, e.g., Bachelor (43.8%), Master (12.8%) and Doctor (3.2%) though a significant number (40.2%) do not have any degree but instead have various certificates from professional training or educational institutions (Table 6-1). In addition to the educational background, working experience is also a relevant aspect of the managers' qualification. In this sample, more than 60% of the respondents have been working in the clothing industry for more than 5 years and nearly 75% for more than 3 years.

Table 6-1: Educational background of the respondents

Educational background		**Working years in the clothing industry**	
Professional certificate	40.2%	≤2 years	10.5%
Bachelor	43.8%	2-3 years	14.6%
Master	12.8%	3-5 years	14.2%
Doctor	3.2%	＞5 years	60.7%
Total	100.0%	Total	100.0%

Note: The upper range value is always included in the range, e.g., "3" included in the range "2-3 years" and "5" included in the range "3-5 years". This rule applies to the whole thesis where tables contain range values.

Because of the relatively low entry barriers and low technology requirement, plus the intensified competitive situation, life spans of the firms, particularly of the small and medium-sized enterprises (SMEs), are not long. According to the domain experts, many of the clothing firms have less than a 5-year history from establishment to exit. However, since the sample is delimited to the designated size, many SMEs may not be included. Therefore, this sample may reflect relatively longer periods of existence, that is, only 6.8% of them have a history of 5 years or less and 35.2% of them between 5-10

location, i.e., longitude and latitude, were gained by referring to ***China gazeteer***.

years (10 years included) while the rest 58% have a history of more than 10 years (Table 6-2).

Table 6-2: Firms' history in the clothing industry

Year(s)	Frequency	Percent	Cumulative Percent
⩽5	15	6.8	6.8
5-10	77	35.2	42.0
10-20	96	43.8	85.8
20-50	29	13.2	99.0
>50	2	1.0	100.0
Total	219	100.0	100.0

According to the Chinese Statistics Yearbooks in 2010 and 2011, the average number of employed persons in the private clothing enterprises was about 150 to 200 and about 300-350 persons in the foreign-invested enterprises (FIEs) and the national average number was about 200-250. Table 6-3 reflects the corresponding structure of the sample. Over 51% of the firms fall into the small-size group with 100-200 employed persons; about 20% are of the medium size with about 200-300 employed persons; about 13% are of the medium-to-large size with about 300-500 employed persons. The remaining 16% fell into the large-size group with more than 500 employed persons.

Table 6-3: Employed persons in the clothing firms

Employed persons (Ge)	Frequency	Percent	Cumulative Percent
100-200	112	51.1	51.1
200-300	44	20.1	71.2
300-500	28	12.8	84.0
>500	35	16.0	100.0
Total	219	100.0	

Table 6-4 shows the gross sales profit margins of the clothing firms in this sample. About 46.6% of the sample firms achieve gross sales profit margins at the 5-10 percentage level (5% included); 39.3% of the firms achieve 10% and above; the remaining 14.2% are below 5% profit margins. According to an interviewer's viewpoint, the higher profit margins are related to the own-brand strategy.

From purely processing exports, the clothing firms can achieve below 5% profit margins while with own brand the profit margins are definitely higher, usually more than 10%. (Han 3rd November 2011)

Table 6-4: Gross sales profit margin of the clothing firms

Percentage	Frequency	Percent	Cumulative Percent
<=0	1	.5	.5
0-5	30	13.7	14.2
5-10	102	46.6	60.7
10-20	69	31.5	92.2
>20	17	7.8	100.0
Total	219	100.0	

In addition to profit margin, labour productivity is another indicator reflecting competitiveness of the sample companies. This also varies among these firms (Table 6-5). It was estimated that about 37.9% of companies achieved a productivity range of about 100, 000 RMB to 200,000 RMB average annual revenue per person and that about 42% of firms achieved productivity below this level with the remaining 20.1% achieving productivity above this level. In other words, only about one fifth of the sample firms achieved relatively higher labour productivity, therby gaining competitive advantage in comparison with the others.

Table 6-5: Labour productivity of the clothing firms (unit: 10,000 RMB)

Productivity range*	Frequency	Percent	Cumulative Percent
<=50	30	13.7	13.7
50-100	62	28.3	42.0
100-200	83	37.9	79.9
200-300	20	9.1	89.0
>300	24	11.0	100.0
Total	219	100.0	

Note*: Productivity is measured by annual output per person; 100,000 RMB is equal to about 15,949 USD and 200,000 RMB to about 31,898USD based on the middle exchange rate on 27th June 2014, i.e., RMB/USD=6.27.

Table 6-6 is about own brand-operation among the sample. On a static basis, the table shows that about 75% of the clothing firms have developed their own brands and this is much more optimistic than estimations from some earlier secondary sources (e.g., 20%)[41]. However, about 30.6% of firms just developed their own brands within the last 5 years, that is, after the year 2007, the year that the global economic recession started. This might suggest that the external market recession gave an impetus for many existing Chinese clothing firms to move away from their price-based and export-oriented processing and manufacturing competition strategy toward a more domestic-oriented and value-added branding strategy within the last 5 years. The data also suggest that few Chinese clothing firms (1.4%) developed their own brands 20 years ago and that in the period between 10 and 20 years ago own-brand companies increased to about 15.1% and then 5-10 years ago went up to 28.3%. These data indicate that a branding strategy has been increasingly adopted by a growing number of Chinese clothing companies.

Table 6-6: Years of operation with own clothing brand of the firms

Own brand Year(s)	Frequency	Percent	Cumulative Percent
n/a	54	24.7	24.7
0-5	67	30.6	55.3
5-10	62	28.3	83.6
10-20	33	15.1	98.6
>20	3	1.4	100.0
Total	219	100.0	

Further information about the own-brand companies is provided in Table 6-7. Among the 75.3% of firms which have developed their own brands (refer to Table 6-6), there are only 28.7% where own-brand represents more than 50% of their sales (Table 6-7). From the remaining 46.6% of the firms, own-brand products represent less than a half of the sales value. In summary, the total of own-brand sales is calculated to be approximately 33%[42] with the remaining 67% being non-own-brand sales.

[41] Concerning the proportion of the clothing companies with their own brands in China, there is no exact data source to refer to, neither from official statistics nor from other institutions.

[42] $33\% \approx (20.1\% \times 5\%) + (26.5\% \times 30\%) + (13.2\% \times 70\%) + (15.5\% \times 95\%)$

Table 6-7: Sales proportion with own clothing brand of the firms

Sales proportion	Frequency	Percent	Cumulative Percent
n/a	54	24.7	24.7
0-10	44	20.1	44.8
10-50	58	26.5	71.3
50-90	29	13.2	84.5
90-100	34	15.5	100.0
Total	219	100.0	

Concerning clothing exports (Table 6-8), 82.2% of the sample firms have entered into the export business. For nearly half of the firms in the sample, clothing exports make up over 50% of their sales, leaving just over a third of the firms (34.7%) where clothing exports are positive but comprise less than 50% of sales. The total exports proportion of the sample can be roughly calculated as about 39% of the total sales value.

Table 6-8: Exports sales revenue as a proportion of the total sales revenue

Exports proportion	Frequency	Percent	Cumulative Percent
No export	39	17.8	17.8
0-10	27	12.3	30.1
10-50	49	22.4	52.5
50-90	61	27.9	80.4
90-100	43	19.6	100.0
Total	219	100.0	

Table 6-9 concerns export patterns, e.g. OEA, OEM, ODM and OBM, of the clothing manufacturers. Excluding no exports (17.8%) and exports via non-manufacture firms (0.9%), 81.3% of the clothing firms entered into various patterns of manufacture exports. Among them, 11.0% of their exports business involves only OEA, and the remaining 70.3% have updated to OEM or further functions of ODM and/or OBM. Total OEM exports accounts for 44.9%; total ODM exports accounts for 26.5%; total OBM exports account for 22.8%.

However, it was reported that about 10% of the Chinese clothing exports were of the firms' own brand. Two plausible reasons may explain the difference of the reported

figure (i.e., 10%) with the figure of this research (i.e., 22.8%). One reason may refer to a Professor's remark: 'Among the three major clothing export regions in China, in comparison with Jiangsu province and Guangzhou province, Zhejiang province is more own brand oriented' (Liu, 2nd Novembe 2011). That is to say, the national average proportion of exports is about 10% but it may vary in terms of different geographic regions. In this survey region, Zhejiang province, it may be higher than the national average figure since this is a more own-brand-oriented region. The other reason is that since the sample was delimited to the designated size, some SMEs which only involve OEA exports without their own brand may not be included in the figure. As a result, the proportion of own-brand exports of this sample (i.e., 22.8%) may be higher than the total population level (10%).

Table 6-9: Export pattern(s) of the clothing firms

Export pattern	OEA	OEM	ODM	OBM	n/a
Percentage	11.0	44.9	26.5	22.8	18.7

Notes: (1) Initials used here represent terms of different export patterns for the clothing manufacturers: OEA=Original Equipment Assembly, OEM=Original Equipment Manufacturing, ODM=Original Design Manufacture, and OBM=Original Brand Manufacture. (2) Total sample is 219 but sum of percentage is not equal to 100 because some of the companies have combined patterns, e.g., OEM + OEA or OEM + OBM + ODM. (3) "n/a" includes those companies which have not involved export manufacturing, or exports, or manufacturing.

Table 6-10 indicates that manufacturing is still the dominant segment of the Chinese clothing industry since 88.6% of the clothing firms engage in ***manufacturing***, among which 42.9% engage solely in the function of manufacture and the remaining 45.7% engage in additional functions such as design and marketing in addition to manufacture. For example, about 43.3% of the firms have developed their own ***design*** to some extent and 26% of the firms have developed the ***marketing*** function. These two figures seem low in comparison with the proportion of firms that have developed their own brands (i.e., 75% in Table 6-6). Therefore, as a whole, upgrading to the high-value added segments such as design and marketing is still on the top of the Chinese clothing firms' agenda.

Table 6-10: Business function of the clothing firms

Business function	Manufacturing	Design	Marketing	Others*
Percentage	88.6	43.3	26	6.5

Notes: Total sample is 219 but sum of percentage is not equal to 100 because some of the companies engage combined business functions such as manufacturing and marketing; *Others include those

companies which involve business functions other than manufacturing, design and marketing, e.g. clothing trade as a middleman.

6.2.2 Descriptive statistics for resources

Table 6-11 displays the descriptive statistics for resources. All 12 variables have distributions to the left. The means range from 4.58 to 5.91, which exceed the average value (i.e., 3.5) of the 7-point Likert scale. This result indicates that the respondents mostly hold a positive attitude concerning the significance of these resources contributing to SCA of the firms. Particularly, the highest mean (5.91) with the lowest standard deviation (s.d. =1.084) indicates that Quality Control is the most agreed resource. The next three variables which have similar distribution attributes to Quality Control are Customer Relationship (m=5.79, s.d. =1.194), Quick Response (m=5.75, s.d =1.274) and Experienced Staff (m=5.74, s.d. =1.196). In other words, the results suggest that the respondents generally agreed that these three variables are also important in terms of contributing to SCA of the firms. In contrast, Branding has the lowest mean (m=4.58) but with the highest standard deviation (s.d. =1.541), which suggests that respondents' points of view vary concerning the significance of Branding contributing to SCA. For example, 27.4% of respondents hold a negative attitude (i.e., score 1, 2 or 3), 61.2% positive (i.e., score 5, 6 or 7) and 12.3% neutral (score 4).

Table 6-11: Descriptive statistics for resources

R&C	mean	s. d.	Distribution frequency in percentage						
			1	2	3	4	5	6	7
Skillful worker	5.74	1.196	.5	.5	3.7	10.5	22.4	29.7	32.9
Plant & equipment	5.13	1.328	1.4	3.2	5.9	16.4	32.0	26.0	15.1
Information technology	5.04	1.328	.5	1.4	10.0	26.0	22.8	22.4	16.9
Customer relationship	5.79	1.194	0	.5	4.1	12.8	16.4	31.5	34.7
Supplier relationship	5.71	1.124	0	.9	1.8	11.9	26.0	29.7	29.7
HRM	5.26	1.284	.5	.5	10.0	17.4	23.3	30.6	17.8
Quick response	5.75	1.272	1.4	.9	2.7	9.1	22.4	28.8	34.7
Quality control	5.91	1.084	0	.5	1.8	8.7	21.9	29.7	37.4
Branding	4.58	1.541	4.6	5.0	17.8	12.3	28.3	25.1	6.8
Organisational learning	5.17	1.240	0	1.4	8.7	19.6	27.4	27.4	15.5
Entrepreneurship	5.34	1.316	.9	1.8	5.9	15.5	26.5	27.9	21.5
Innovation	5.37	1.423	1.8	1.4	9.1	11.4	21.5	31.1	23.7

By comparing resources required for SCA of Chinese clothing industry with the status quo of the sample companies, the results are that all the mean values of the actual

resources in the sample companies are lower than the corresponding values of the required resources for the industry, which indicates that there is space for the actual resources to be improved so as to contribute to SCA more than they have actually done (Table 6-12). Particularly, the biggest differences between the corresponding means (DOM) exist in three resources, i.e., Branding (DOM=1.42), Information Technology (DOM=1.11), and Human Resource Management (DOM=0.94). This implies to the Chinese firms that more investment and efforts should be made in these three key factors. The result that the s. d. values for the industry are lower than the corresponding figures for the firms suggest that the respondents hold more unified views in terms of significance of the resources contributing to sustained competitive advantage of the Chinese clothing industry.

Table 6-12: Comparing descriptive statistics for resources between firm and industry

R&C	Firm statistics		Industry statistics		Differences	
	mean	s. d.	mean	s. d.	mean	s. d.
Skillful worker	5.74	1.196	6.47	.774	.67	.422
Plant & equipment	5.13	1.328	5.89	.937	.76	.391
Information technology	5.04	1.328	6.15	.924	1.11	.404
Customer relationship	5.79	1.194	6.62	.620	.83	.574
Supplier relationship	5.71	1.124	6.25	.786	.54	.338
Human resource management	5.26	1.284	6.20	.925	.94	.359
Quick response	5.75	1.272	6.13	.868	.38	.404
Quality control	5.91	1.084	6.62	.626	.71	.458
Branding	4.58	1.541	6.00	1.058	1.42	.483
Organisational learning	5.17	1.240	5.84	.997	.67	.243
Entrepreneurship	5.34	1.316	6.13	.831	.79	.485
Innovation	5.37	1.423	6.25	.917	.88	.506

6.2.3 Descriptive statistics for performance

Descriptive statistics for performance displays in the following Table 6-13.

Table 6-13: Descriptive statistics for performance

Performance	mean	s. d.	Distribution frequency in percentage						
			1	2	3	4	5	6	7
Strategy adaptability	5.30	1.289	.5	2.3	4.6	18.3	30.1	22.4	21.9
Order acquisition	5.35	1.302	.5	1.8	7.3	15.1	24.2	30.6	20.5
Cost control	5.20	1.209	.9	.5	5.9	21.5	26.9	30.6	13.7
External communication	5.47	1.201	.0	1.4	3.7	15.5	29.7	25.1	24.7
Internal cohesion	5.58	1.240	1.4	.5	4.1	9.6	27.9	30.6	26.0
Sales growth	5.09	1.574	3.2	3.7	11.0	12.8	21.5	28.3	19.6
Sale performance increase	4.78	1.567	3.2	4.6	11.4	24.2	22.8	16.0	17.8

The distributions for all seven performance indicators are skewed negatively and the means range from 4.78 to 5.58, which exceed the average value (i.e., 3.5) of the 7-point Likert scale (Table 6-13). This result indicates that the respondents generally hold positive attitudes about the firms' performance over recent years. The highest mean (m=5.58), with a standard deviation of 1.240 indicates that Internal Cohesion is the performance indicator in which the respondents display the greatest confidence. Interestingly, lower means with higher s.d. values are displayed by the two financial performance indicators, namely, Sales Growth (SG) (m=5.09, s.d.=1.574) and Sales Performance Increase (SPI) (m=4.78, s.d.=1.567). This suggests that respondents show greater discrepancy in their opinions concerning the importance of financial performance, as captured by the 2 terms SG and SPI than they do about the remaining 5 process performance indicators of External Communication, Internal Cohesion, Cost Control, Strategic Adaptability and Order Acquisition. In fact, these five process performance indicators exhibit similar distributions, with means ranging from 5.20 to 5.58 and standard deviations ranging from 1.201 to 1.240.

6.3 Exploratory factor analysis

To develop better measures for constructs, Churchill (1979) suggests an 8-step procedure (Figure 6-3). However, this is not a uni-directional procedure but rather there are some returns and repeats of some of the steps. The first two steps are mainly based on literature while the later steps may lead back to steps 2 or 1 based on statistical results. For example, steps 4 or 6 can lead back to steps 2 or 1 based on factor analysis for purification of measures. That is, in the case of too low an alpha coefficient(s), or unproductive structure of the items occurs, the appropriate strategy is to loop back and repeat the previous steps.

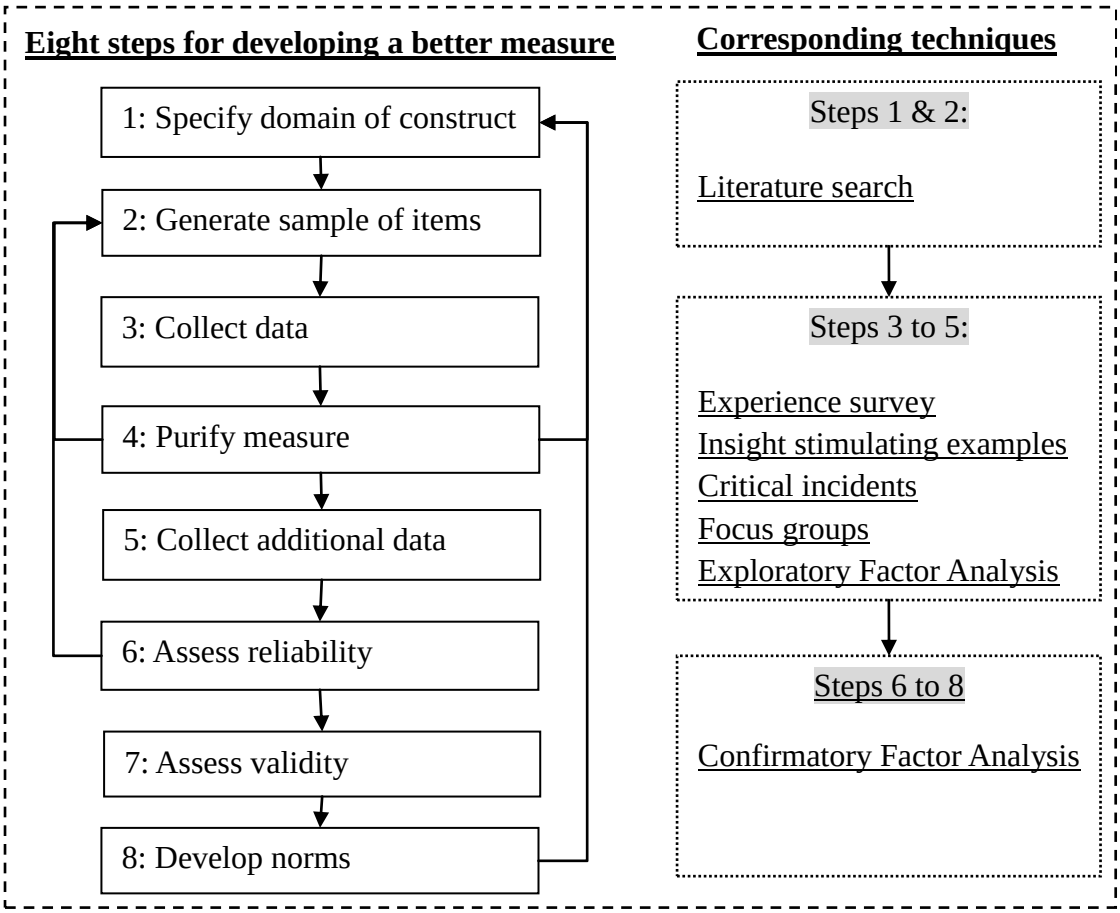

Figure 6-3: Procedure for developing better measure for constructs

Source: (Churchill 1979)

Churchill's eight-step procedure combines both theoretical foundations with empirical results and statistical methods of Exploratory Factor Analysis (EFA) and of Confirmatory Factor Analysis (CFA). EFA is used to extract factors or constructs and CFA is used to assess and validate the constructs extracted via EFA[43]. Thus this procedure enables to avoid arbitrary in developing measures of constructs.

Since there is no existing literature to refer to concerning holistic measures of resources or SCA in the resource-based view of the firm, this study follows Churchill's (1979) suggested steps to develop constructs and corresponding measures of the constructs. Steps 1 to 3 have been followed in the preceding research and this section follows Step 4. That is, EFA is adopted to extract constructs of two concepts, i.e., resources and SCA. The remaining steps, i.e., Steps 6-8, are followed in the subsequent Sections 6.4 & 6.5.

[43] Term 'factor' or 'component' is used in factor analysis while construct is termed in structural equation modeling. The three terms refer to the same thing so they are used interchangeably in this research.

6.3.1 Assessing the appropriateness of factor analysis

In addition to the conceptual requirements for the measured variables, it is also required to justify the application of factor analysis (Hair et al. 2007). Correlations, overall Measure of Sampling Adequacy (MSA) and individual MSA are examined in this respect.

Inter-item correlations indicate that each of all the 22 variables has at least one significant correlation and that 206 of the 231 correlations (89%) are statistically significant at the 0.001 level (Appendix 6-1a). In addition, there are a substantial number of correlations greater than .30 (about 72%). All of these results are an adequate basis for proceeding to examine the adequacy of factor analysis. The Bartlett test of sphericity tests the overall significance of the correlation matrix and its result suggests the presence of significant correlations among at least some of the variables, which is another index to indicate the appropriateness of factor analysis for these variables. Also, the overall MSA value is 0.906, which is much higher than the acceptable level (i.e., 0.50).

By examining individual MSA values, one factor "Plant & Equipment (PE)" (MSA value=.412 <.5) is identified as an unacceptable variable according to the guidelines (Hair et al. 2007: 104) (Appendix 6-1b: MSA 1). Therefore this variable is deleted and subsequent recalculation suggests that each of the remaining variables have individual MSA values greater than 0.5, ranging from .517 to .834, which indicate sufficient degrees of inter-correlation for factor analysis (Appendix 6-1b: MSA2). In the correlation matrix for the revised set of variables with the variable PE deleted (Appendix 6-1c), 193 of the 210 correlations (92%) are statistically significant. Of the remaining 17 insignificant correlations, 13 are related to two variables, Sales Profit and Labour Productivity, which may imply possible problems with the two variables. However, the Bartlett test shows that nonzero correlations exist at the .001 significance level; the overall MSA value is .909. All the above results suggest that these 21 variables can proceed to principal component analysis.

6.3.2 Deriving factors via principal component analysis

Principal Component Analysis (PCA) is applied to extract components[44] representing key dimensions of concepts. These extracted components reflect both common and unique variance of the variables. In contrast, Factor Anylsis, which is similar to PCA in terms of linear combinations of variables, focuses only on common variance of variables excluding unique variance (Varraso et al. 2012).

[44] Terms of component (in principal component analysis), factor (in factor analysis), or construct (in SEM) are used interchangeably in this study.

The results indicate that the cumulative variance of 4 components is over 65% of that of all variables, which is sufficiently representative and summarising the original information in the social science research (Appendix 6-2a). In addition, the fourth component extracted has a latent root or eigenvalue (i.e. 1.154) greater than 1, which is considered significant according to the latent root criterion for the number of factors to be extracted (Hair et al. 2010).

The unrotated factor matrix of loadings is first checked to examine the degree of association of each variable with its corresponding factors, to identify the significance of loadings in the factor matrix, and also to determine whether a rotated method is necessary (Appendix 6-2b). Factor 1 accounts for the greatest proportion of the variance of the variables with eigenvalue accounting for 41.6%; eigenvalue of Factor 2, 10.4%; eigenvalue of factor 3, 7.5% and eigenvalue of factor 4, 5.5%. The overall four factors extracted represent over 65% of the total variance related to the 21 variables in the factor matrix which is sufficiently representative in social science research. The communality column indicates how well each variable is explained by the four factors and all communalities, ranging from .52 to .83, exceeds the threshold level of .50, which is sufficiently high to proceed with the rotation of the factor matrix.

The varimax rotation method is applied and the results suggest that there is no change in comparison with the unrotated factor matrix of the same 21 variables in terms of overall factor eigenvalues and communalities extracted (Appendix 6-2c). All variables with loading over .5 are listed in the table based on the assumption that loadings $\pm$.50 or greater are considered practically significant at the .05 level (Hair et al. 2010:117). However, by examining this initial factor rotation matrix, three variables, i.e., Information Technology, Organisational Learning and Entrepreneurship, are identified as lacking any significant loading over .5 while two other variables, namely, Human Resource Management (HRM) and Market Share Increase (MSI), are found to have cross-loadings. However, the communalities of these three variables (communalities ranging from .57 to .59) meet the acceptable level of explanation (i.e., 0.5) and there are no significant loading problem with them. Therefore, there is no sufficient reason to delete these three variables at this early stage. Concerning the two cross-loading variables, an alternative rotation method (i.e., the oblique instead of orthogonal method) is employed but the cross-loadings persist. Therefore, it seems that deleting these two variables (i.e., HRM and MSI) may be a solution for the cross-loadings problem but it is not the best choice from a theoretical perspective.

Meanwhile, there is another potential problem to be noted. That is, the fourth factor consists of only one variable, Labour Productivity (LP). However, LP is one of the five variables measuring financial performance but here it is picked out as a single-item factor, which is hard to explain from a theoretical perspective. In addition, LP is a static

financial performance indicator. Recalling the preceding discussion about longitudinal versus cross-sectional data in Chapter 4.3.2, longitudinal data is suggested for testing SCA since resources developed in one period will result in changes of performance in subsequent periods rather than the same period due to time lags. Recalling the preceding discussion about longitudinal versus cross-sectional data in Chapter 4.3.2, longitudinal data is suggested for testing SCA since resources developed in one period will result in changes of performance in subsequent periods rather than the same period due to time lags. Based on comprehensive consideration of the above aspects, LP is deleted and the recalculation results are shown in Appendix 6-2d.

The cross-loadings problem happens again to two other variables, namely, Sales Growth (SG) and Market Share Increase (MSI). In addition, the fourth factor also implies a possible problem, which consists of superior performance, a static performance indicator, and 2 other Resource indicators, Br and IT. In addition, in the preceding inter-item correlation matrix, 13 of the 17 insignificant correlations are related to these two factors, i.e., SP and LP (Appendix 6-1c). Based on these considerations and the fact that LP has been deleted in the 1st re-specifying factor (Appendix 6-2d), it is decided now to delete the variable SP.

Concerning the cross-loading problem with the two variables, namely, Sales Growth (SG) and Market Share Increase (MSI), MSI is a financial performance indicator which cannot be independent from the other two financial performance indicators, namely SG and Sales Profit Increase (SPI). Moreover, from a measurement perspective, there are some overlaps in the three indicators. For example, sales profit increase may result either from cost decrease or from sales growth and the sales growth surely includes market share increase. Due to these considerations, MSI is first deleted.

After deletion of the two variables, SP and MSI, 18 variables remain. With the 18 indicators, extraction is rerun and the result in Scree Plot shows in Figure 6-4.

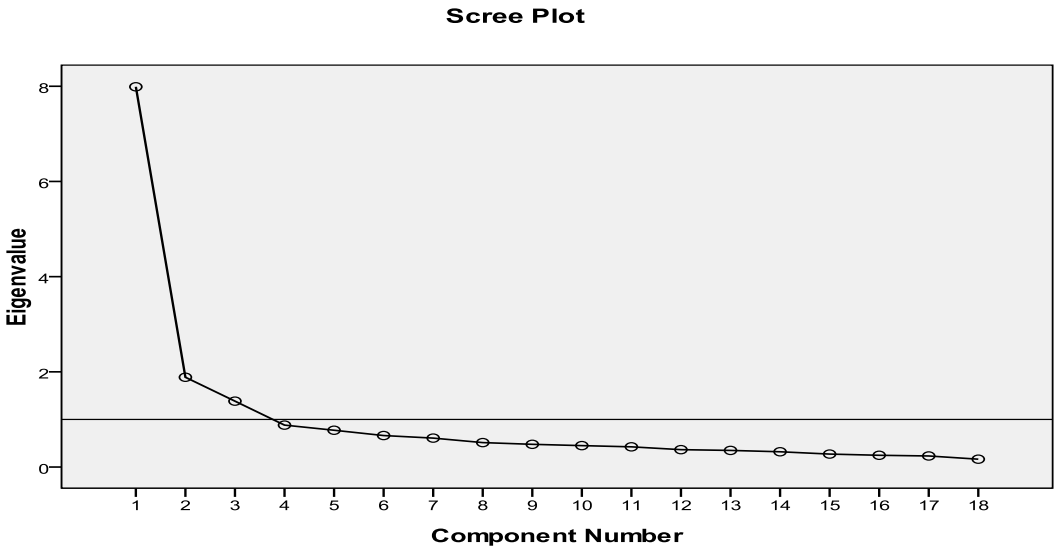

Figure 6-4: Scree test for factor number extracted

According to the latent root criterion of retaining factors with eigenvalues greater than 1.0, only 3 factors can be retained. However, the result of the scree plot test suggests that the fourth factor can be appropriately retained though its eigenvalue is .881, which is only slightly less than 1.0 (Figure 6-4). Therefore combining the two criteria, four factors are eventually retained. The rotated component matrix is calculated again and the results are displayed below in Table 6-14.

Table 6-14: Deriving factors via PCA- 2nd re-specifying factors (SP and MSI further deleted)

	4 factors derived				
18 indicators	**Performance**	**Fundamental Resource**	**Dynamic Capability**	**Upgrading Capability**	**Communality extracted**
Internal cohesion	.752				.634
Sales profit increase	.724				.790
Order acquisition	.703				.599
Cost control	.700				.561
Sales growth	.690				.763
External communication	.673				.634
Strategic adaptability	.670				.634

Customer relationship		.768			.719
Skillful worker		.739			.666
Quality control		.693			.724
Supplier relationship		.560			.634
Entrepreneurship			.713		.669
Organisation learning			.677		.681
Innovation			.650		.735
Quick response			.594		.697
Human resource management			.562		.644
Branding				.716	.679
Information technology				.683	.739
					Total
Eigenvalue	7.989	1.886	1.385	.881	12.141
Percentage of trace	44.381	10.478	7.692	4.894	67.446

Notes: Rotation Method- Varimax with Kaiser Normalisation; rotation converged in 9 iterations.

The total eigenvalues represent 67.45% of the variance of the 18 indicators, which is sufficiently representative of the total variance explained (Table 6-14). By examining the factor matrix, each indicator has at least one and only one significant factor loading. The communalities extracted for each indicator range from .57 to .79, which exhibit no substantial change (Appendix 6-2d).

Now the 4 factors derived via PCA are labeled as follows: Factor 1 “Performance” (reflected by the 7 variables, Internal Cohesion, Sales Profit Increase, Cost Control, Order Acquisition, Sales Growth, Strategic Adaptability and External Communication), Factor 2 “Fundamental Resource” (reflected by Customer Relationship, Skillful Worker, Quality Control and Supplier Relationship), Factor 3 “Dynamic Capability” (reflected by Entrepreneurship, Organisational Learning, Innovation and Quick Response) and Factor 4 “Upgrading Capability” (reflected by Branding and Information Technology).

In summary, through the above EFA procedure, the two concepts, resources and SCA, gain their measures via the factors extracted. Next section validates the results through Confirmatory Factor Analysis (CFA) and conceptual underpinnings for these 4 factors are also discussed in the following sections.

6.4 Structural equation modeling

6.4.1 Rationale for adopting structural equation modeling

Researchers can address research questions with a wide range of statistical tools. However, to the question as to which statistical technique is more appropriate and efficient in comparison with others, there seems no clear answer. An important principle is to select an appropriate technique which enables the researcher questions to be addressed (Hair et al. 2010). Also, the most commonly used practice is to refer to literature in the domain. The conventional techniques such as regression analysis are commonly used in this research domain (e.g., Powell & Dent-Micallef 1997, Ray, Barney & Muhanna 2004, Zhu 2004, Armstrong & Schimizu 2007, Wiklund & Shepherd 2009). However, this study adopts Structural Equation Modeling (SEM) which is more appropriate to address the research questions than the conventional techniques. The rationale is elaborated as follows.

6.4.1.1 Advantages of SEM

SEM is considered to be a more appropriate technique for this study on the basis of three judgments concerning the research questions and the nature of the data as follows (Hair et al. 2010). (1) What type of relationship is being examined (e.g., dependence or interdependence)? (2) How many relationships are being predicted (e.g., a single relationship with one dependent variable or with several dependent variables, or multiple relationships of dependent and independent variables)? (3) How are the variables, both dependent and independent, measured (metric or non-metric)?

The uniqueness and most unique attribute of SEM is that it can be applied to analyse dependence relationships involving unobserved or latent constructs, which this study deals with and which conventional techniques such as regression analysis, factor analysis, or path analysis are not capable of dealing with. Conventional factor analysis such as EFA is a statistical method for dimension deduction but not for analysis of causal relationships between constructs. Both path analysis and regression are conventional techniques for analysis of causal relationships between observed variables but not conceptual variables or constructs (Hair et al. 2010).

Firstly, this study involves constructs which cannot be observed directly. Therefore, these conceptual variables have to be measured through observed variables or indicators. Four constructs are involved in this study, namely, Fundamental Resource, Dynamic Capability, Upgrading Capability and Performance and these are developed based on the theoretical foundations and through statistical purification (i.e., EFA). These constructs are then represented by 18 observed variables. In this context, issues about the appropriateness of the constructs, quality of measurement, data errors and subsequent

measurement model fit have to be taken into considerations before the final analysis of the relationships between these constructs.

Secondly, to explain the dependence relationships among multiple variables as this study does, the commonly used models among researchers in this domain are multiple regression analysis (a single dependent relationship with metric data) and multivariate analysis of variance (a single dependent relationship with non-metric data). However, each of these traditional techniques can examine only a separate relationship at a time while SEM can examine a series of dependent and independent multiple relationships simultaneously, which is required in this study.

Thirdly, SEM allows evaluation of measurement quality by examining the measurement model fit via Confirmatory Factor Analysis (CFA). This is especially useful in social science where researchers often use constructs representing theoretical concepts that are not measured directly. Since most of these concepts are relatively complex, containing many meanings, the researchers often design multi-dimensional items to represent the abstract concepts.

Moreover, in comparison to conventional regression analysis, SEM can improve statistical estimation of the strength of the relationship between constructs because with SEM the researcher can estimate the true structural coefficient rather than the observed regression coefficient which is actually composed of the true structural coefficient and the reliability of the predictor variables (Hair et al. 2010; Tabachnick & Fidell 2007). Conventional regression analysis assumes that independent variables are measured without errors, which is almost impossible in most social and behavioral science research. This implies that the regression coefficients are always either overestimated when a positive relationship exists between an unmeasured and a measured independent variable, or underestimated in the case of a negative relationship. In SEM, measurement errors are taken into considerations and analysed in the measurement model and when relationships among constructs are examined without the measurement error and leaving only common variance.

In summary, SEM meets the requirements of this research, whereas it is not possible to meet these requirements using conventional techniques. Therefore SEM is more appropriate in comparison to those conventional statistical techniques.

6.4.1.2 Limitations of SEM

There are a number of advantages to apply the SEM technique and they are discussed in the above section. However, there is the other side of the coin, which is ‘a small price to pay for the flexibility that SEM offers’ (Tabachnick & Fidell 2007).

Theoretically, SEM is a confirmatory technique which may be applied to test hypotheses about the potential relationships among variables rather than to induce or predict theories. Therefore, without prior knowledge one cannot apply SEM to test the potential relationships among variables (Tabachnick & Fidell 2007). And also, one can use SEM only to confirm but it is 'rarely, if ever, used to validate theoretical predictions' and this function of confirmation often results in limitations since 'when the focus of a modeling exercise is post hoc fitting to data, such a strategy is bound to lead to disappointment because it ignores the actual process that generates the observed data…' (Kaplan 2000: 7).

Critics also express reservations about the post hoc model modification as 'better fit may suggest closer alignment with the data, but not necessarily with the theory' (Kaplan 2000:7). Moreover, if numerous modifications are carried out for finding the best-fitting model, the researcher has moved to exploratory analysis (e.g., EFA), which tends to entail risks of increasing Type Ⅰ error levels (Tabachnick & Fidell 2007).

In addition to the theoretical limitations, SEM also involves some practical limitations. For example, SEM is based on multivariate analysis and needs a comparatively large and sufficient sample size to achieve greater power and statistical significance for the statistical testing (Hair et al. 2010). Other estimation assumptions, such as multivariate normality, linearity, freedom from outliers and multicollinearity, are fundamental issues which cannot be neglected. Despite the critics, SEM has gained its popularity in a number of empirical applications, some of which are examined in the next sub-section.

6.4.1.3 Empirical applications and references

Structural Equation Modeling (SEM) has been developed from two main separate statistical origins (Kaplan 2000), namely, the use of factor analysis in psychometrics and simultaneous equation modeling in econometrics or even earlier in the genetic field.

Since the 1980s, SEM techniques have been applied extensively in the social sciences because of contributions and breakthroughs by Joreskog (1969, 1978) in the Maximum Likelihood estimation method, CFA and the software LISREL. SEM is widely used in the Educational Testing Service (ETS), such as in learning of disabled people (Nelson et al. 2004), education differences between universities (Wert, Linn & Joreskog 1974), emotional health (Pillow, Zautra & Sandler 1996), social psychology attitude (Small & Judd 1998), memory and intelligence (Hultsch, Hertzog & Dixon 1990).

Recently, SEM has been extensively applied in the field of business management. For example, Skerlavaj et al. (2007) empirically study the effects of organisational learning culture on organisational performance; Koufteros and Marcoulides (2006) study relationships between key product development practices and company performance;

Gunday et al. (2011) empirically test relationships of innovations and firm performance.

6.4.2 Adoption of a two-step analytical approach

The SEM programme can implement an overall data analysis simultaneously in a single analysis (i.e., one-step approach) or alternatively it can be conducted in a two-step approach. In the two-step approach, the first step is Confirmatory Factor Analysis (CFA), testing the measurement model to determine whether the model fits the data. If the initial measurement model is not acceptable or not satisfactory, model respecifications may follow until the model is acceptable. Based on an acceptable measurement model, the second stage is to analyse the structural model.

The two-step approach was developed by Anderson and Gerbing (1988). The authors argue that the measurement model (i.e., CFA) as the first step may be used as the basis for testing structural relationships (i.e., SEM) at the second step. In addition to the theoretical underpinnings, statistical assessment of the measurement model's fit to the data is also fundamental and critical for building up confidence in the overall analysis (Hair et al. 2010).

> *A valid measurement model is essential because with poor measures we would not know what the constructs truly mean. Therefore, if a measurement model cannot be validated, researchers should first refine their measures and collect new data. If the revised measurement model can be validated, then and only then do we advice proceeding with a test of the full structural model*. (Hair et al. 2010: 730)

Mulaik and Millsap (2000) describe a more complicated method involving four-step modelling. Like the two-step method, the four-step method also involves testing the measurement model's fit and diagnosing specification error in the measurement model. However, the four-step method tests a sequence of at least four hierarchical models and each factor in the original SEM model should have at least four indicators (Kline 2005: 217). The first step is in fact an EFA model, and the second step is actually a CFA model test, in which the factor loadings of indicators on certain factors are fixed to zero. Once the measurement model is acceptable, the third step is to examine the fit of the whole model and the last step is to test hypotheses. The third and fourth steps are 'basically a more specific statement of activities that could fall under the last step of two-step modelling' (Kline 2005: 218).

It is well agreed that the two-step or four-step approach is better than the one-step approach due to the reasons discussed above (Kline 2005, Hair et al. 2010) but there is no clear judgement as to which of these two approaches is best. However, two-step modelling has the advantage of simplicity in comparison to the four-step approach and therefore this study prefers to follow the two-step approach.

6.4.3 Data screening and evaluation of underlying assumptions

Like other multiple analyses, underlying assumptions such as random sampling, linearity and homoscedasticity are required for SEM. Sufficient sample size, multivariate normality, freedom from outliers and multicollinearity are especially important in SEM. Selecting the maximum likelihood estimation method is in fact the default with the Amos programme (Tabachnick & Fidell 2007).

In addition to avoiding data-related problems for SEM, a preliminary examination is preferred although some assumption assessments can accompany the major analysis since Amos provides tests of these assumptions in the output options. In this way, the underlying assumptions required by SEM are ensured not being violated and this also enables the follow-up major analysis to focus on the main concerns under discussion. The sequential order for the examination takes place as follows.

- Screening for missing data and input accuracy (through SPSS descriptives)
- Sample size
- Multivariate normality (through SPSS descriptives)
- Outliers (though SPSS outliers statistics)
- Multicollinearity and singularity (through SPSS collinearity diagnostics)
- Linearity (through SPSS graphs scatter)

However, prior to assessment of the assumptions, overall data screening is necessary to check for accuracy of data entered into the data file and to check against missing data.

6.4.3.1 Data screening

Data screening is used to check the accuracy of the data input. If data sets have missing observations, especially if a large number of data miss in a systematic way rather than randomly, this may have a serious impact on the results of the analysis. For a large sample, this check can be conducted through the descriptive statistics using SPSS FREQUENCIES, e.g., plausible means, standard deviations and value ranges between maximum and minimum (Table 6-15).

Table 6-15: SPSS frequencies output

		SW	IT	CR	SR	HRM	QR	QC	Br	OL	En	In	SA	OA	CC	EC	IC	SG	SPI
N	Valid	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
	Missing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean		5.74	5.04	5.79	5.71	5.26	5.75	5.91	4.58	5.17	5.34	5.37	5.30	5.35	5.20	5.47	5.58	5.09	4.78
Std. Deviation		1.196	1.328	1.194	1.124	1.284	1.272	1.084	1.541	1.240	1.316	1.423	1.289	1.302	1.209	1.201	1.240	1.574	1.567
Variance		1.430	1.764	1.426	1.263	1.650	1.618	1.175	2.374	1.539	1.731	2.024	1.661	1.696	1.461	1.443	1.538	2.478	2.456
Skewness		-.875	-.159	-.785	-.617	-.449	-1.201	-.798	-.538	-.290	-.678	-.876	-.474	-.629	-.493	-.437	-1.007	-.743	-.324
Std. Error of Skewness		.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164	.164
Kurtosis		.566	-.681	-.235	-.055	-.467	1.754	.103	-.441	-.619	.231	.356	-.062	-.086	.202	-.329	1.451	-.121	-.445
Std. Error of Kurtosis		.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327	.327
Minimum		1	1	2	2	1	1	2	1	2	1	1	1	1	1	2	1	1	1
Maximum		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Note: Items are abbreviated as: *SW* for Skillful Worker, *IT* for Information Technology, *CR* for Customer Relationship, *SR* for Supplier Relationship, *QR* for Quick Response, *QC* for Quality Control, *Br* for Branding, *OL* for Organisational Learning, *En* for Entrepreneurship, *In* for Innovation, *SG* for Sales Growth, *SPI* for Sales Profit Increase, *SA* for Strategic Adaptatability, *OA* for Order Acquisition, *CC* for Cost Control, *HRM* for Human Resource Management, *EC* for External Communication and *IC* for Internal Cohesion.

Table 6-15 shows descriptive statistics in terms of missing data, mean and std. deviation, variance, skewness and kurtosis, etc. There is no missing values in this data set (valid number = 219 and missing number = 0) so there is no need to consider how to handle the problem of missing values, e.g., deleting the cases, ignoring or substituting the missing data. The means of 18 variables range from 4.58 to 5.91 and standard deviations range from 1.084 to 1.574, both of which are plausible. The lowest mean (4.58) is for variable Branding (Br), which is possible since this is the weakest resource for the majority of Chinese clothing firms. The highest mean (m=5.91, s. d. = 1.084)) is for variable Quality Control (QC), which is also possible since the majority of the companies has built up this capability. Values of the variables range from 1 or 2 (minimum value) to 7 (maximum value) and thus the input accuracy is basically confirmed.

6.4.3.2 Assumption 1- Sample size

The SEM technique is sensitive to sample size because its estimation methods, particularly maximum likelihood estimation adopted in this study, are based on

covariance. That is to say, a minimum sample size is necessary to achieve adequate power for a planned hypothesis test. General guidelines about the absolute sample size are offered as: small size with $n<100$, medium size with n between 100 and 200 and large size with $n>200$ (Kline 2000: 110). When SEM path models are involved, the minimum sample size is recommended to be a case-to-variable ratio of 5:1 and a more acceptable sample size would be a 10:1 ratio (Hair et al. 2010: 202). Sample sizes in SEM are also related to goodness of fit, power and degree of freedom. Research results suggest that an increase in the number of degree of freedom (d.f.) decreases the requirement for the minimum sample size. For example, with a given degree of power and significance level (e.g., power=.80 at the .05 significant level), in case of 'd. f. = 50', minimum number for test of close fit is 'n= 214' whereas for 'd. f. = 100', n= 132 (MacCallum, Brown & Sugawara 1996).

For this study, there are 219 cases with 18 observed variables (originally there were 22 variables but 4 variables were dropped through EFA). The case-to-variable ratio is about 12:1. Degrees of freedom are 113 for the initial measurement model. The ratios are adequate given that there is no problem in the other conditions (e.g., construct reliability and no missing data).

6.4.3.3 Assumption 2- Multivariate normality

Multivariate normality is a required assumption for SEM, which assumes that each variable and all linear combinations of the variables are normally distributed, consisting of univariate and bivariate normality (Kline 2005: 48-49). Due to the difficulty in assessing all aspects of multivariate normality, multivariate non-normality is detected through the univariate distribution by examining standardised skew or kurtosis indexes. Skewness is about symmetry of a distribution while kurtosis is about peakness of the distribution. Assuming normality, both the values of skewness and Kurtosis are zero. Positive skewness implies a pileup to the left in the distribution diagram while negative skewness implies the same to the right. Positive kurtosis indicates a peaked distribution with short and thick tails while the negative kurtosis indicates a flat distribution with many cases in the tails.

For small and moderate samples (e.g., less than 200), a conservative method to assess skewness and kurtosis is a statistical significance level (.01 or .001). However, for a large sample size (e.g., more than 200), the fact of statistically significant skewness or kurtosis of a variable often does not affect the analysis substantively (Tabachnich & Fidel 2007: 79-80). Therefore, it is suggested that variables with absolute values of the skewed index greater than 3.0 be defined as extremely skewed while those with absolute values from about 8.0 to over 20.0 indicate extreme kurtosis (Kline 2005: 50).

SPSS frequencies analysis has options for the assessment of univariate normal distributions and the results are displayed in Table 6-15. All the 18 variables are negatively skewed with statistics ranging from -1.201 to -0.159. However, none of the 18 variables is extremely skewed (i.e., the absolute skewness value >3.0).

Critical ratio (c.r.) or z score is calculated as the sample skewness divided by its standard error. Taking the variable Skillful Worker for instance, it has a skewness of -0.875 and the std. error of skewness 0.164, so the c.r. is calculated as -5.335. It has a *sample kurtosis* of 0.566, with a std. error of 0.327, which makes the corresponding c.r. equal to 1.731 (1.731=.566/.327). Although there are 15 variables where skewness is statistically significantly from zero (i.e., absolute c.r. > 1.96), it does not affect the analysis substantively due to the large sample size. The 3 exceptions are IT, SPI and OL (i.e., absolute c.r. < 1.96).

In comparison, 13 variables have negative kurtosis, ranging from -.693 (IT) to -.081(SR) and the other 5 variables (i.e., SW, CC, In, En, and QC) with positive kurtosis statistics ranging from .073 to .526. Three out of the 18 variables have statistically significant kurtosis values (i.e., absolute c.r. > 1.96), namely IC (kurtosis = 1.451, c.r. = 4.437), QR (kurtosis = 1.754, c.r. = 5.364) and IT (kurtosis = -.681, c.r. = -2.083); IC and QR are peaked while IT slightly flat in distribution. None of the remaining 15 variables is statistically significant from zero and none of the total 18 variables has extremely kurtosis value (i.e., the absolute kurtosis value from about 8.0 to over 20.0).

The standard error for Skewness is approximately calculated with equation $S_s = \sqrt{6/N}$ while the standard error for Kurtosis is approximately calculated with equation $S_k = \sqrt{24/N}$ where N is the number of cases. Based on the equations, the null hypothesis of zero is likely to be rejected with large samples even under some minor deviation from normality (Tabachnick & Fidell 2007: 80). In other words, with a large sample the actual value of skewness and kurtosis may be more important than the significance level. In this study, the sample size is 219, which is sufficiently large that even quite a small degree of skewness or kurtosis are likely to show as statistically significant. Furthermore, recalling the data collection criteria, only those designated companies with annual revenue over 5 million RMB are included in the sample and those with revenue below the designated line are excluded. This constraint of the sampling surely affected the data collected and hence the data distribution (e.g. the negative skewness). Therefore, a certain degree of non-normality is understandable and there is no need to take special actions (e.g., data transformation) to deal with it.

6.4.3.4 Assumption 3- Outliers

An outlier is defined as an observation with an extreme score in comparison with other

observations in the dataset. Outliers may be univariate or multivariate. Univariate outliers are cases with an extreme value on one variable, while multivariate outliers are cases of extreme scores on two or more variables is atypical. The presence of outliers may violate the assumption of a normal distribution and impact on statistical results (Kline 2005).

Univariate outliers can be identified by inspecting descriptive statistics such as extreme values, histograms and Boxplot. By inspecting the Boxplots, extreme points identified are cases 95 and 200, both of which have extreme points, i.e., extending more than 3 box-lengths from the edge of the box. However, the two cases are retained for double-checking for multivariate outliers before they are removed.

The Mahalanobis distance (D^2) statistic is useful for detection of multivariate outliers. The Mahalanobit distance indicates the distance in standard deviation units between a set of scores for an individual case and the sample means for all variables (centroids). For each case, the Mahalanobis distance is evaluated by using the Pearson χ^2 with degrees of freedom equal to the number of variables. The conservative significance level for detecting multivariate outliers is $\rho<.001$.

Appendix 6-3a lists those unusual observations with relatively furthest Mahalanobis distances (D_i^2) from the centroid in this research. Taking for instance, observation number 106 in the table shows that its Mahalanobis d-square is D_{106}^2 = 77.984. Given normality, the probability of D_{106}^2 (or any individual D_i^2) exceeding 77.984 is .000. Similarly, still under the assumption of a normal distribution, observation number 200 has D_{200}^2 = 74.311 and the probability of D_{200}^2 (or any individual D_i^2) exceeding that Mahalanobis distance value is .000. To this study, there are 219 observations and 18 variables so any case with a Mahalanobis distance greater than $\chi^2(18)$ = 42.318 (Appendix 6-3b) is defined as a multivariate outlier (Tabachnick & Fidell 2007). Ten cases in this research data set are identified as the outliers, namely, cases 106, 200, 91, 95, 139, 111, 73, 114, 122, and 69. That is, the Mahalanobis distances of these 10 cases, including two cases (i.e., 95 and 200), which are suspicious of being multivariate outliers, are greater than chi-square $\chi^2(18)$ = 42.318, which is statistically significant (Appendix 6-3c).

Prior to deletion, these 10 potential outliers are checked to ensure that they were within the members of the intended population and that the data were also correctly entered. Therefore, these 10 cases are finally determined as genuine outliers.

If the 10 outliers remain in the analysis, steps have to be taken to reduce their impact, e.g., to change the scores or transform variables. However, the problem is that the outliers come from a combination of scores on two or more variables so it is difficult to

decide which scores or which variables to be transformed and shifted. Considering that deleting outliers can contribute to normality and that little will be lost by deleting them (about 4.5% of the sample cases). The decision was made to remove these from the data set. Therefore, after the 10 outliers are excluded, a new data file is created with the remaining 209 cases used for the subsequent analysis.

6.4.3.5 Assumption 4- Multicollinearity and singularity

Multicollinearity refers to the instance that the variables (could be latent or observed variables) in the set are very highly correlated, say, .90 and above, while singularity refers to the case that the variables are redundant or that one of the variables is a combination of two or more of the other variables (Tabachnick & Fidel 2007: 88-90). Multicollinearity and singularity may cause statistical problems in matrix inversion, which is required in calculations (Appendix 6-3c). With multicollinearity or singularity, a near-zero determinant renders very unstable inverted matrix, which results in unstable multivariate solutions, e.g., so large error terms without any significant coefficient. Multicollinearity and singularity also cause logical problems because they inflate the size of error terms and weaken the analysis.

In this study, the singularity problem was prevented during extraction of constructs. Through EFA, one measured variable, Market Share Increase, was deleted because it was realised that it is somewhat overlapped of two other indicators (i.e., Sales Growth and Sales Profit Increase). Therefore, deleting this variable is to avoid the singularity problem, particularly to avoid the case that one of the variables is a combination of two or more of the other variables.

SPSS provides collinearity diagnostics, which suggest criteria for multicollinearity as a conditional index greater than 30 for a given dimension together with variance proportions greater than .50 for at least two different observed variables (Belsely, Kuh & Welsch 1980).

After deleting the 10 outliers, multicollinearity is assessed for this dataset and the results are represented in Appendix 6-3d through the SPSS collinearity diagnostics output. Although the last 8 eigenvalues have condition indexes (dimensions 12-19) greater than 30 (ranging from 30.008 to 43.515), there is no dimension that has one variance proportion greater than .50 within these 8 eigenvalues. Therefore, there is no evidence to suggest that multicolinearity is present in this data set. This result is only for the observed variables but not for the constructs. Multicollinearity for latent variables can be spotted only with the structural modeling in SEM.

6.4.3.6 Assumption 5- Linearity

Linearity is also one of the fundamental assumptions in SEM. Linearity refers to the instance that there is a straight-line relationship between more than two variables. Linearity between two variables is assessed roughly by inspection of bivariate scatterplots. If it is not feasible to examine all pairwise scatterplots (e.g. to a large number of indicators) for linearity assessment, practically randomly selected pairs of scatterplots are examined (Tabachnick & Fidell 2007). Therefore, through analysis of SPSS graphs scatter, some of the randomly selected pairs of scatterplots are examined and all observed variables appear to be linearly related.

In summary, based on the above examination and after deletion of the 10 outliers identified, there is no further violation of the main assumptions of SEM. Therefore next proceed to SEM analysis.

6.4.4 SEM step one: Measurement modeling

This study adopts a two-step approach to structural equation modeling as discussed above (Anderson & Gerbing 1988). In the two-step approach, measurement modeling is the first step, linking observed variables to latent constructs while the second step is structural modeling involving relationships between constructs. Measurement modeling involves Confirmatory Factor Analysis (CFA) by specifying indicators for each construct and assessing the construct validity and model fit (Churchill 1979). In addition, the CFA output also provides additional diagnostic information that may suggest modifications for improving the measurement model.

6.4.4.1 Reflective versus formative

Basically, there are two alternative measurement models to choose from, namely, the Formative Measurement Model (FMM) or the Reflective Measurement Model (RMM). The differences between the two measurement models are simply summarised by the following three aspects (Coltman et al. 2008).

1) In terms of the nature of the construct, RMM assumes that the construct exists independently of its indicators while FMM assumes that the construct is formed by combining its indicators.

2) In terms of the direction of causality between indicators and the corresponding construct, variation in the construct cause variations in the corresponding indicators in RMM whereas variations in the indicators affect the corresponding construct in FMM.

3) There are differences in the characteristics of the indicators used to measure the

construct. Indicators reflect or manifest the construct in RMM whereas indicators form or define the construct in FMM.

Therefore, those indicators which link to a particular construct in RMM are correlated with one another whereas there is little correlation between the indicators in FMM. According to the above considerations, this study adopts the reflective model.

6.4.4.2 Defining individual constructs

According to the RBV theory, the VRIN resources bundle contributes to Sustained Competitive Advantage (SCA). Following Churchill's (1979) paradigm (Discussed in Chapter 6.3), SCA is measured by the construct of Performance and the resources bundle is measured by three conceptual constructs, namely, Fundamental Resource (FR), Dynamic Capability (DC) and Upgrading Capability (UC). Among the three constructs measuring resources, FR is the survival and fundamental construct which generates competitive parity; UC is the urgent and strategic construct which is required for updating the original competitive advantage for SCA (Humphrey & Schmitz 2000, Bair & Gereffi 2003); DC is required to reconfigure the existing resources so as to adjust to the external dynamics for SCA (Teece, Pisano & Shuen 1997, Eisenhardt & Martin 2000). Therefore, the whole measurement framework consists of 4 constructs which are reflected by 18 indicators (Appendix 6-4).

Fundamental Resource (FR) refers to the resources which can help ensure a firm's survival when they are exploited to create competitive parity in an industry (Barney 1989). There is a variety of FR indicators highlighted in the RBV literature, e.g., quality control, firm-specific labour, customer loyalty, capital and machinery (Barney 1989, Dierickx & Cool 1989) yet there is no one agreed criterion for selection. Based on the research background, the conceptual construct of FR in this study is reflected by 4 variables, namely, Customer Relationship (Boyd, Bergh & Ketchen 2010), Supplier Relationship (Bonaccorsi & Lipparini 1994, Koufteros, Vonderembse & Doll 2002), Skillful Worker (Wernerfelt 1984, Barney 1991) and Quality Control (Powell 1995, Tuan & Yoshi 2010) (Figure 6-5). Stable quality control is a general and fundamental requirement for a company to survive in a competitive market and skillful workers are particularly required by the current Chinese clothing manufacturing companies due to a combination of a shortage of skillful workers and rising labour costs. Most Chinese clothing companies manufacture fairly homogenous products using similar inputs. Also, clothes are consumer goods. In this context, good customer relationships are fundamental for survival. For similar reasons, good supplier relationships are also required to ensure a stable and timely supply of inputs.

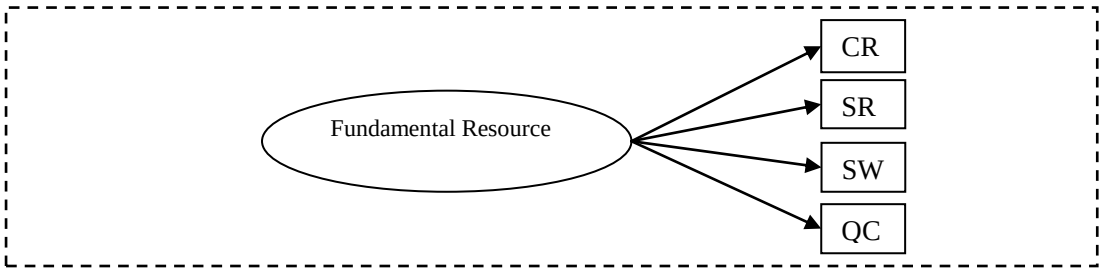

Figure 6-5: Construct of Fundamental Resource

Note: CR=Customer Relationship, SR=Supply Relationship, SW= Skillful Work and QC=Quality Control.

Dynamic Capability (DC) is defined as 'the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environment' (Teece, Pisano & Shuen 1997:516). DC is also about the organisational process which enables organisations to address rapidly changing environment and to renew and reconfigure resources so as to achieve SCA (Eisenhardt & Marti 2000). During the organisational processes, information about external market dynamics could be accessed through organisational learning. Concurrently, quick response to the dynamics requires the company involved to effectively make and implement appropriate decisions, for example, about which new resource or capability should be developed or acquired. Both entrepreneurship and Human Resource Management (HRM) are key elements for decision making and for the follow-up implementation process. Entrepreneurship motivates effective communication and facilitates innovative decisions. Strong and effective HRM ensures coherence of the organisation's aims with maximized personal development of its employees, which in turn ensures effective implementation of decisions. Quick response to the external dynamics also involves innovation (Lengnick-Hall 1992, Camison & Villar-Lopez 2011), for example, innovation of new products, new markets and new production processes. Based on these insights, the construct of DC in this research is reflected by five indicators, namely, HRM (Amit & Belcourt 1999, Chadwick & Dabu 2009), Organisational Learning (DeGeus 1988, Crossan & Berdrow 2003), Quick Response (Womack & Jones 2005, Lewis 2000), Innovation (Lengnick-Hall 1992, Damanpour, Walter & Avellaneda 2009, Terziovski 2010, Camison & Villar-Lopez 2011) and Entrepreneurship (Simon 2010) (Figure 6-6).

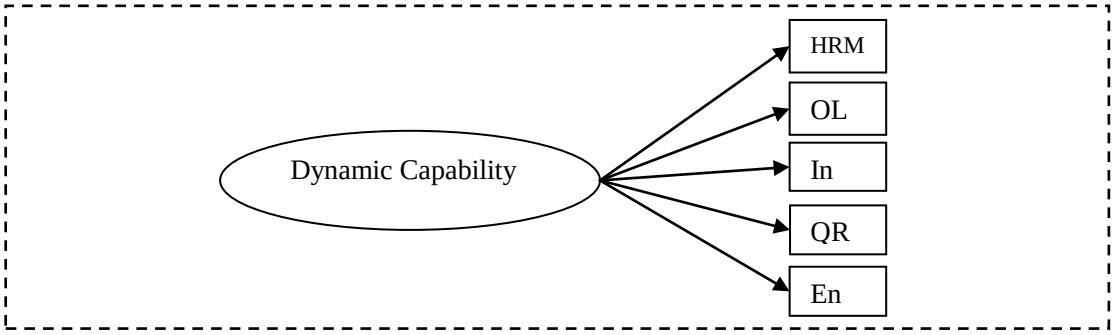

Figure 6-6: Construct of Dynamic Capability

Note: HRM=Human Resource Management, OL=Organisational Learning, In=Innovation, QR=Quick Response and En=Entrepreneurship.

Upgrading Capability (UC) enables a firm to move to more profitable and/or technologically sophisticated capital-intensive or skill-intensive economic niches (Gereffi 1999). According to the fieldwork of this research, functional upgrading (e.g., branding) and technology upgrading (e.g., information technology) are the two most discussed and practiced means for gaining SCA in the current Chinese clothing industry. Functional upgrading can be defined as sequential role shifts, and these shifts typically follow the trajectory of OEA, OEM and ODM to OBM (Humphrey & Schmitz 2001, Gereffi et al. 2001). Functional upgrading for the majority of the Chinese clothing companies entails moving towards the branding stage. Branding contributes to diversity and individuality and enables the clothing company to transform and upgrade its present competitive advantage based on low prices and homogenous products. Information technology contributes to more effective and more efficient production by improving coordination and communication among the value chain activities such as design, supply, production, inventory, sales and distribution. Thus based on the above insights, the construct of UC in this research is operationalised as two measured variables, namely, Branding (Aaker 1989, Keller 2009) and Information Technology (Mata, Fuerest & Barney 1995, Powell & Dent-Micallef 1997) (Figure 6-7).

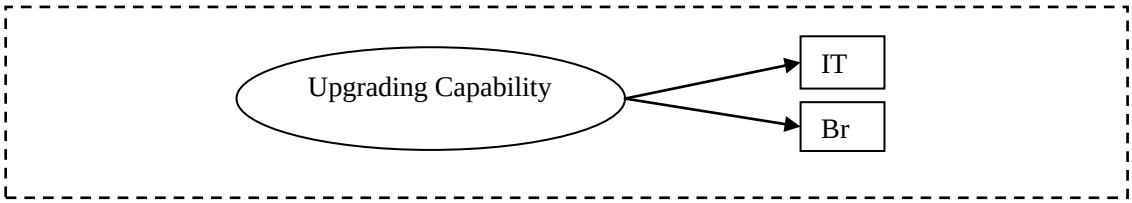

Figure 6-7: Construct of Upgrading Capability

Sustained competitive advantage is measured and reflected by ***Performance*** in terms of

efficiency and ***effectiveness*** of business actions (Neely, Gregory & Platts 1996, Bititci, Carrie & McDevitt 1997, Bititci et al. 2011). ***Effectiveness*** refers to the extent to which customer requirements are met and therefore may be better measured using process performance indicators such as Cost Control (Zhu 2004), Strategic Adaptability (Wu 2010), Order Acquisition (Bititci et al. 2011), Internal Cohesion (Lee, C., Lee, K. & Pennin 2001; Bititci et al., 2011) and External Communication (Lee, C., Lee, K. & Pennin 2001, Bititci et al. 2011).

Efficiency refers to how economically the firm's resources are utilised when providing a given level of customer satisfaction and is therefore appropriately measured using financial performance indicators such as Sales Profit Increase (Powell & Dent-Micallef 1997) and Sales Growth (Lee, C., Lee, K. & Pennin 2001, Wiklund & Shepherd 2009).

Therefore, drawn from the theoretical grounds and derived from the preceding EFA results, the construct of Performance is reflected in this research by 7 variables (Details in preceding Chapter 4), namely, Sales Profit Increase, Sales Growth, Cost Control, Strategic Adaptability, Order Acquisition, Internal Cohesion and External Communication (Figure 6-8).

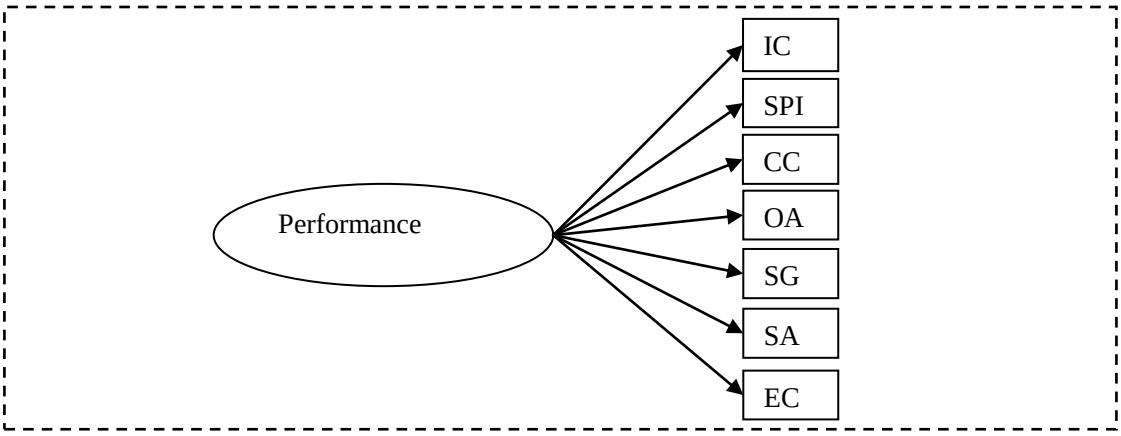

Figure 6-8: Construct of Performance

Note: IC=Internal cohesion, SPI= Sales Profit Increase, CC=Cost Control, OA=Order Acquisition, SG=Sales Growth, SA=Strategic Adaptability and EC=External Communication.

In summary, 4 constructs specified for the further confirmatory factor analysis consist of 7-indicator Performance, 5-indicator Dynamic Capability, 4-indicator Fundamental Resource, and 2-indicator Upgrading Capability (Appendix 6-4).

6.4.4.3 Specifying the measurement model

With the 4 constructs defined, the next step is to specify the measurement model. The AMOS software (Version 20) is applied to draw the measurement model in a graphic diagram. The measurement model specifies two types of relationships, one is relationships between the 4 constructs and the other is relationships between each construct and its reflective indicators (Figure 6-9).

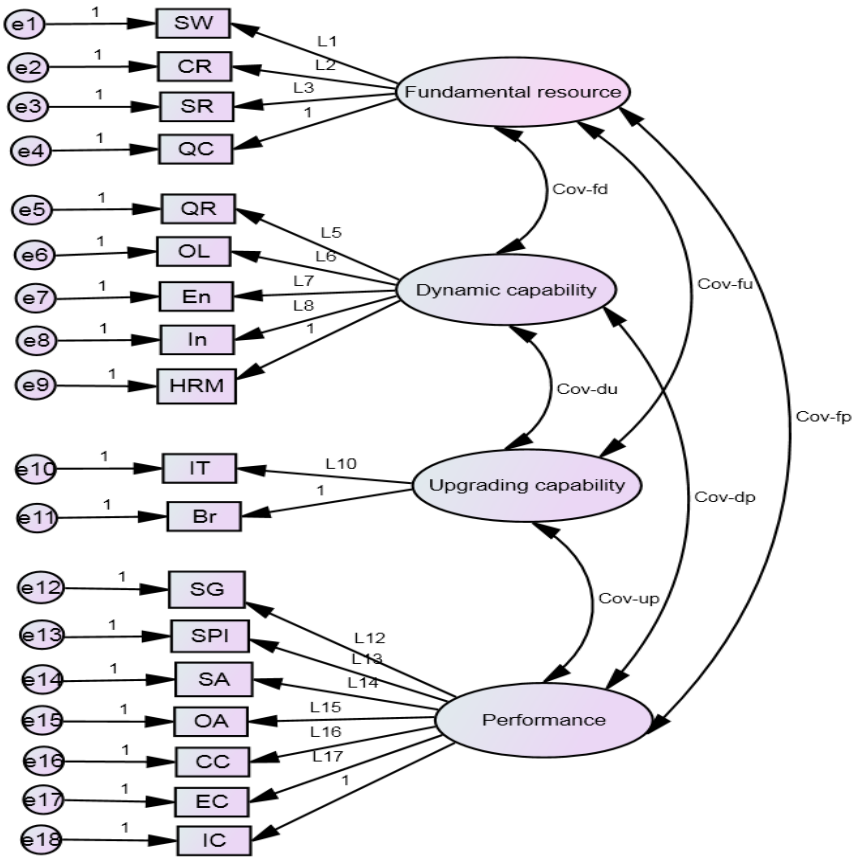

Figure 6-9: Measurement model 1

In the hypothesised measurement model (Figure 6-9), the four constructs or latent variables are correlated to one another and they are represented by ellipses or circles. Each of the 18 indicators, represented by a rectangle or square, is assumed to be explained by only one underlying construct. So each individual indicator links to the corresponding construct with a single-headed arrow pointing from the corresponding construct to each indicator, which is based on the reflective measurement assumption

that latent constructs cause the measured variables.

Curves with double arrowheads between constructs represent covariance and symbol "Cov" denotes the covariance. The symbol "L" denotes the loading estimate (or interpreted as regression coefficients in CFA), that is, the extent to which the construct is reflected by the corresponding observed variable or to which the observed variable is explained by the correlated construct.

Each measured variable or indicator in Figure 6-9 also links to a measurement error (designated with the symbol "e" in the circle or ellipse). The measurement errors are independent of each other and of the construct and each of this error variance is an unmeasured variable. Generally, two types of unique variance are represented by measurement error terms. One is random error which reflects score unreliability and the other is all sources of systematic variance not due to the constructs. In SEM, the measurement error refers to the latter statement, i.e., the extent of inability of the construct to fully explain its corresponding measured variables.

The constant "1s" that appear in this diagram are to set a scale to each construct or unobserved variable. For each construct, one of the loadings is assigned as the unit one for determining the construct's measurement scale or metric, which it also does for each error term.

The identification problem

Prior to assessing the model, the issue of identification should be considered. Identification refers to whether the parameters of the model can be uniquely determined by the sample data. Therefore, identification of the parameters is a prerequisite for estimation of the parameters of a model (Kaplan 2000). Two necessary conditions plus sufficient requirements have to be met for identification (Kline 2005: 169-175). The two necessary conditions are (1) degrees of freedom ≥ 0 and (2) setting a scale for each latent variable (including the measurement errors and constructs).

In this measurement model, a total of eighteen measured variables produce 18 error variances. The four constructs with the eighteen variables result in 14 loadings as each construct fixes a value of 1.0 to "set the scale", which is the default by AMOS. Also the four constructs will produce 10 construct covariances and variances, that is, one variance for each construct plus the 6 unique covariances between constructs. Therefore, the total number of estimated parameters in this model is 42 (42=14 construct loadings + 10 construct variances and covariances + 18 error terms variances). The total number of unique variance and covariance terms is 171 ($171 = 19 \times 18 \div 2$) and thus the degrees of

free (d. f.) are 129 (129=171－42)[45].

However, meeting the two necessary requirements does not 100 percent guarantee that the measurement model is free from the identification problem. There are, however, sufficient conditions for identification as follows: at least 3 indicators in a single-factor CFA model and at least 2 indicators for each factor in a two- or more- factor CFA model (Kline 2005: 172). The sufficient requirements for identification are met in this CFA model. That is, there are 4 factors with 2 or more indicators for each factor. Therefore, this is an over-identified measurement model.

Estimation method

Now the measurement model has been fully specified. The next step is to use a computer programme to estimate the measurement model and to determine how well the model fits the data. Estimation is based on the covariance matrix with the estimation method of Maximum Likelihood, which is the most common approach to parameter estimation and is also the default method in the AMOS programme for quite a few reasons.

One major reason for the selection is that Maximum Likelihood results in a simpler weight matrix than other estimators (e.g., Weighted Least Square) both conceptually and computationally (Cortina, Chen & Dunlap 2001). However, Maximum Likelihood is subject to the assumption of the multivariate normality distribution and violation of the assumption may produce incorrect standard errors (Bollen 1989). In contrast, Weighted Least Square is a distribution-free estimation technique but Weighted Least Square requires much larger samples than Maximum Likelihood does, which often leads to impractical implementation of research. Nevertheless, it is evidenced considerably that Maximum Likelihood is more robust than other alternative approaches such as Generalised Least Squares in case of violation (not extreme violation) of multivariate normality (Bollen 1989). In addition, Maximum Likelihood is superior in terms of bias in parameter estimates, Type Ⅰ error rates and power (Jaccard & Wan 1995).

6.4.4.4 Assessing the measurement model

Measurement model validity depends on two facets, namely, ***measurement model fit*** and ***construct validity***. The measurement model fit is assessed through multiple indices including Goodness-of-fit indices, absolute fit indices, comparative fit indices and parsimony fit indices while the construct validity is examined through convergent validity, discriminant validity and nomological validity.

[45] Degree of freedomdom (DF) is determined by the equation (Hair et al. 2010): DF = $\frac{1}{2}$〔(p)(p+1) - k, where p is the total number of observed variables and k is the number of estimated parameters (free). In this case, p equals to18.

Measurement model fit

SEM's statistical goal is to test a set of relationships representing multiple equations rather than any single relationship. Therefore, the overall measurement model fit instead of any single construct fit is to be assessed based on the correspondence between the estimated covariance matrix and the observed covariance matrix. To this end, some of the most commonly used fit indices are selected for the assessment such as the basics of Goodness-of-fit indices (e.g., χ^2 and d.f.), absolute fit indices (e.g., RMSEA and GFI), incremental fit indices (NFI and CFI) and parsimony fit indices (PARTIO and PNFI).

Chi-square (χ^2), termed CMIN in AMOS output, is the fundamental statistical measure used to estimate the goodness-of-fit (GOF). It tests the difference between the observed covariance matrix (termed S) and the estimated covariance matrix, termed $\sum k$, derived from a theoretically specified model. That is, chi-square is the fundamental index in SEM to test the correspondence between the hypothesised model and the observed data. However, the χ^2 test for model fit has limitations. The underlying null hypothesis (H_0) of the chi-square test is the assumption of a perfect model fit and no difference between the two matrices (i.e. H_0: S = $\sum k$). This is a stringent null hypothesis and thus easily rejected for any overidentified model in practical application (MacCallum, Brown & Sugawara 1996). However, in most applications of significance testing, the Null Hypothesis is set up so that rejection of the Null Hypothesis supports the theory (Fornell & Larcker 1981). Then the alternative hypothesis (H_1) is that the observed covariance matrix is any positive definite matrix. In this context, a relatively small χ^2 with large ρ value generally supports the theoretical model being tested, which implies that the specified model with closely resembles the real-world relationships and effects. Another limitation to using the chi-square test for model fit is that the power of chi-square is unknown (Fornell & Larcker 1981). The power of a test is the ability to reject the null hypothesis when it is false. However, when the power is low, the null hypothesis may not be rejected when it is false, thus resulting in the risk of a Type II error.

Furthermore, complete reliance on χ^2 for testing model fit is also not suggested because chi-square itself has problematic properties (i.e., it is sensitive to sample size) as implied by the following equation (Hair et al. 2010: 665):

$$\chi^2 = (n-1)\,(S-\sum k)$$

where *n* represents the overall sample size, S is the observed covariance matrix, and $\sum k$ the estimated covariance matrix. Therefore, the value of χ^2 is influenced by either the sample size (*n*) or the difference between the two matrices (S-$\sum k$). Therefore, adequately large sample sizes tend to result in rejection of the model via the test of exact model fit. That is, a Type I error is committed and the null hypothesis is rejected when

it is true. Also in the second part of the function, the model degrees of freedom (k) impact the number of the estimated covariance matrix and thus influence the value of χ^2.

In this context, χ^2 GOF easily creates biased output against large samples with a large number of observed variables. It is a widely accepted view that any model is bound to be rejected on statistical grounds if it is tested with a big enough sample or/and a large number of variables. Therefore rejection of a proposed model particularly with a large number of variables on purely statistical grounds is not necessarily over-worrying (Arbuckle 1995).

In view of the above considerations, it would be useful to use Chi-square alongside some other complementary fit measures such as the Goodness-of-Fit Index (GFI) and Rooted Mean Square Error of Approximation (RMSEA) (Table 6-16). GFI is less sensitive to the sample size. The higher is the value of the GFI, the better is the fit, within the possible range of 0 to 1. GFI values greater than .90 are typically considered good. Hair et al. (2010: 667) suggest .95 should be used. RMSEA indicates discrepancy per degree of freedom and is widely used not only because it corrects the χ^2 GOF bias due to large samples and a large number of observed variables but also because it provides a confidence interval, which provides additional information about precision of the estimate. For instance, given a sample size and degrees of freedom, narrower confidence intervals indicate more precise estimates than the broader ones. Generally, a lower value of RMSEA suggests a better fit. Past research provided a cutoff value of .05 or .08 to support a good fit. For example, values less than .05 are considered as indicative of close fit and values ranging from .05 to .08 suggest fair fit while values greater than 1.0 are indicative of poor fit (MacCallum, Brown & Sugawara 1996). RMR (Root Mean Square Residual) is another absolute fit measure, in which low values are indicative of good fit. Normed χ^2 is another absolute fit index and it is the chi-square value divided by d. f., termed as CMIN/DF in AMOS output. CMIN/DF between 1 and 2 is considered very good fit and between 2.0 and 5.0 is acceptable (Hair 2010: 721).

Incremental or comparative fit indices are another class of indices. This class of indices assess how well the estimated model (χ^2_{est}) fits the data in comparison to some alternative baseline model, e.g., a null model that assumes all observed variables are uncorrelated (independent model, χ^2_{indep}) or assumes that all observed variables are correlated (saturated model, χ^2_{satur}). The Normed Fit Index (NFI) is the basis of the incremental fit indices. Within the value range between 0 and 1, a higher value suggests a better fit and an NFI of 1 is a perfect fit, with high values, greater than .95, being indicative of a good-fitting model (Tabachnick & Fidel 2007: 716). The Comparative Fit Index (CFI) is the most widely used indicator and a higher value of CFI suggests a

better fit within the value range between 0 and 1. CFI values greater than .95 are often indicative of good-fitting models (Hair et al. 2010).

Parsimony fit indices identify the best model by comparing a set of competing models in terms of either a better fit or a simpler model. The simpler model refers to the one with fewer estimated parameters. Therefore, this group of indices is better used for comparing the fit of more than one model in terms of complexity between them rather than for assessing the fit of a single model. The Parsimony Ratio (PRATIO) is the original measure and the lower values of the ratio indicate the simpler model. The Parsimony Normed Fit Index (PNFI) is the most widely used parsimony fit index and generally a higher PNFI value indicates a relatively better fit.

Based on an understanding of the chosen indicates, the estimation results are examined in terms of a number of different model fit indicates for the specified measured model (CFA1) (Appendix 6-5a). Some chosen fit indices from the results are presented in Table 6-16 (CFA1). The value for ***Chi-square*** seems a quite large (CMIN = 387.772, DF=129, ρ >.001). Considering the quite large sample size (n = 209) and the number of variables (18), the statistical significance is acceptable, that is, the model is still supported even though the null hypothesis is rejected (Hair et al. 2010, Kline 2005). Values of ***absolute fit indices*** (GFI= .817, RMR=.099, and RMSEA=.098) suggest that the model could be improved though normed χ^2 (CMIN/DF=3.006) is acceptable. Two ***incremental fit indices***, NFI=.834 and CFI=.882, also imply the similar suggestion.

Model modification

It is argued that the model modification process is a post hoc exercise for fitting to data and therefore this strategy is bound to lead to disappointment because it ignores the actual process that generates the observed data (Spanos 1986). So researchers need to be clear on the point that better fit may suggest closer alignment with the data but not necessarily with the theory (Kaplan 2000: 9). However, SEM is a priori but being a priori does not mean that it is exclusively confirmatory (Kline 2005). In practice, many applications of SEM are a blend of exploratory and confirmatory analyses. When an initial model does not fit the data, the researcher subsequently carries out a modification process to achieve at least an acceptable model fit. The goal of this process is to make theoretical sense but also to achieve a statistically reasonable correspondence to the data. In the light of this understanding, several overall model fit indices suggest that the measurement model for this study could be improved and therefore modifying the measurement model is carried out prior to any further analysis.

Modification step 1: from CFA1 to CFA2

Loadings of individual items should meet the suggested cut-off value, otherwise they

could be candidates for elimination (Discussed in Chapter 6.3.1). Appendix 6-5b shows that all the standardised loadings (ranging from .641 to .801) exceed the acceptable guideline value of 0.5 (i.e., standard regression weights in the first column). However, two items are identified as problematic. That is, both SG (S.E.= 0.116 with C.R.=11.692) and SPI (S.E. = 0.118 with C.R. = 11.283) have very high S.E. values and very large error variances (error variances = 0.782 and 0.874 respectively) at the 0.001 significant level of C.R. >3.992[46] for a two-tailed test with 18 degrees of freedom, which mean over 78% of the variance of SG and over 87% of the variance of SPI cannot be explaned by their construct of performance. In addition to this diagnosis, recalling that the two variables (i.e., SP and SPI) are financial performance indicators whereas the remaining 5 in the same construct are process performance indicators, and also recalling that the earlier discussion in Chapter 5 suggests that process performance might be a better measure of sustained competitive advantage (SCA), the two variables may be considered as candidates for removal even though both standard regression weights exceeded the ideal loading cutoff of 0.7 (SG loading=.793, and SPI loading=.773). To be cautious, it is also necessary to check the modification indices before the action of deletion.

Values in the Modification index column suggest ways of improving a model by decreasing the chi-square statistic faster than the increase in its degrees of freedom. However, this device can be misused if there are no theoretical grounds for the modification, though it does have a legitimate place in exploratory studies. When financial performance data is adopted, researchers are suggested to use longitudinal data rather than cross-sectional data for test the resources-SCA relationships because it is argued that by adopting time-series approaches, how resources developed and acquired in one period affects competitive advantages of firms in subsequent periods could be examined while it would be difficult to demonstrate in cross-sectional settings (Barney & Arikan 2001, Armstrong & Schimizu 2007). For example, Wiggins and Ruefli (2002) use longitudinal design of 5-year data on return on assets (ROA) to test sustained superior performance. Accordingly in line with this idea, this study only chooses the 5 process performance indicators by giving up the other 5 cross-sectional financial performance indicators (Details in Chapter 6.3). This idea can theoretically back up the following model modification process.

Modification indices for selected values are shown in Appendix 6-5c. The highest M.I. score is relate to e12 and e13, which suggests correlation of e12↔e13 would decrease the chi-square by M.I.= 42.410 (e12 linking SG and e13 linking SPI, referring to Figure 6-9). The next highest M.I suggests that correlation of e13↔FR would decrease the

[46] C.R. is defined as critical ratio, i.e., the ratio of the parameter estimate to its estimate standard error. It indicates whether individual parameter estimates are statistically different from zero. It is the traditional t-test.

chi-square by M.I.= 40.086. Correspondingly modification indices for regression weights suggest that the highest M.I. score is related to the two indicators of SPI and QC. That is, suggested regression from QC to SPI would decrease the chi-square by M.I. = 26.754. Taking account of all the statistical indices but also of theoretical considerations, instead of allowing modification of the suggested correlation or regression, the two indicators of SG and SPI are deleted.

With the remainling 16 variables, the modified measurement model is tested again and the results show in Table 6-16 (CFA2).

Table 6-16: Goodness of fit statistics and the guidelines

CFA1 (***n*=209, m=18**)	**CFA2** (***n*=209, m=16**)	**CFA3** (***n*=209, m=15**)	**Guidelines for a good fit** (***n*<250, 12<m<30**)*
Basics of GOF	**Basics of GOF**	**Basics of GOF**	
CMIN=387.772 (ρ= .000)	CMIN=203.069 (ρ= .000)	CMIN=158.243 (ρ= .000)	Significant ρ-values even with good fit
DF= 129	DF= 98	DF= 84	--
Absolute fit indices	**Absolute fit indices**	**Absolute fit indices**	**Absolute fit indices**
GFI= 0.817	GFI= 0.891	GFI= 0.906	GFI ≥.90
RMSEA=0.098 (.087, .110)	RMSEA=0.072 (.058, .086)	RMSEA=0.065 (.049,.081)	RMSEA ≤.08 with CFI ≥ .95
RMR=0.099	RMR=0.076	RMR=0.066	--
CMIN/DF= 3.006	CMIN/DF= 2.072	CMIN/DF= 1.884	1≤ CMIN/DF≤2
Incremental fit indices	**Incremental fit indices**	**Incremental fit indices**	**Incremental fit indices**
NFI= 0.834	NFI= 0.891	NFI=0 .908	NFI≥.90
CFI= 0.882	CFI= 0.940	CFI= 0.957	CFI or TLI ≥ .95
IFI =	IFI = 0.940	IFI= 0.952	--
Parsimony fit indices	**Parsimony fit indices**	**Parsimony fit indices**	**Parsimony fit indices**
PRATIO=0 .843	PRATIO=0 .817	PRATIO=0.800	--
PNFI= 0.703	PNFI= 0.728	PNFI= 0.723	--

Note*: *n* = sample size; m = number of observed variables; the guideline is based on Hair et al. (2010:672).

The results suggest that the modified measurement model fit does improve substantially

(Appendix 6-5d). Selected fit indices are presented in Table 6-16 (CFA2). For example, three GOF indices are improved by having lower values, i.e., CMIN/DF (reduced from 3.006 to 2.072), RMR (reduced from 0.099 to 0.076) and RMSEA (reduced from 0.098 to 0.072). Also the other three GOF index values are improved by having increased values, i.e., GFI (increased from 0.817 to 0.891), NFI (increased from 0.834 to 0.891) and CFI (increased from 0.882 to 0.940). Now most of the modified model fit indices reach values that satisfy our guideline rules of thumb. However, the model modification indices show that there is still room for further improvement.

Modification step 2: from CFA2 to CFA3

From the modification indices (Appendix 6-5e), the highest M.I. is 27.768 (which is a conservative estimate of the decrease in chi-square that will occur in the case of the suggested correlation) for the suggested covariance of the error terms between e8 (linking In) and e11 (linking Br). Correspondingly, the highest M.I. value is 17.663 for the suggested regression from Br to In, which is relates to the suggested error term correlation. There will be only a small gain in chi-square decrease at a cost of one less degree of freedom. However, to allow the error terms correlation would be hard to justify on theoretical grounds and it would also be difficult to interpret the results. Therefore, instead of allowing modification of the suggested correlation or regression, it is decided to delete the observed variable In, with the understanding that deleting the indicator would entail a cost in terms of the model's ability to reflect the relevant construct. That is, the original 5-indicator Dynamic Capability becomes a 4-indicator construct.

The measurement model is further modified resulting in 15 remaining indicators (Table 6-17). This further modified measurement model (i.e., Measurement Model 3) is then estimated and the results of the model fit indices are presented in Appendix 6-5f and selected indices are displayed in Table 6-16 (CFA3). Now the fit indices are further improved and a good model fit is achieved. For example, the basic GOF index CMIN (χ^2) (171.780, DF= 97, $\rho < .001$) suggests a good fit. The CMIN/DF score (1.771) is considered as a very good fit. Absolute model fit indices such as GFI (.904), RMR (.066) and RMSEA (.061) also indicate a good fit. Comparative fit indices such as CFI (.957) and NFI (.908) also reflect a good model fit. There is no reference guideline for the parsimony fit indices but in comparison with the previous two models, this class of indices is generally improved, e.g., the PRATIO value gradually decreased which shows a better fit. Now the overall measurement model has a good fit and thus this up-to-date measurement is suitable to proceed to examine the construct validity.

Construct validity

Construct validity reflects how well the conceptual construct is actually reflected by a set of measured items. Three measures for construct validity are ***convergent validity***, ***discriminant validity***, and ***nomological validity*** (Hair et al. 2010).

Indices in the following tables are calculated or edited based on Amos output estimates of the measurement model (CFA3) (Appendix 6-5g), including regression weights, standardised regression weights, covariances, correlations, variances and squared multiple correlations.

Construct validity 1: Convergence validity

Convergence validity refers to the situation where there is a relatively high proportion of shared variance in common among the measured items of each construct. Convergence validity is assessed in this study by applying factor loadings, Average Variance Extracted (AVE) and construct reliability (Table 6 -17).

Table 6-17: Convergence validity- Loadings estimates, S.E., t-value, standardised loadings, AVE, construct reliability and Chronbach's Alpha

Construct	Measured variable	Loading estimates	S.E.	t-value	Standardised loadings	AVE	Construct reliability	Chronbach's Alpha
Upgrading Capability	Br	1.000	--	--	.609	53.5%	.518	.669
	IT	1.164	.158	7.365	.836			
Fundamental Resource	QC	1.000	--	--	.692	56.5%	.793	.821
	SW	1.109	.124	8.970	.708			
	SR	1.065	.119	8.918	.728			
	CR	1.293	.126	10.255	.804			
Dynamic Capability	HRM	1.000	--	--	.742	56.8%	.761	.823
	OL	1.014	.097	10.495	.764			
	En	1.059	.099	10.713	.785			
	QR	0.842	.094	8.966	.645			
Process Performance	IC	1.000	--	--	.756	58.0%	.833	.874
	OA	1.127	.104	10.809	.771			
	EC	0.988	.093	10.593	.738			
	CC	0.985	.093	10.600	.729			
	SA	1.169	.101	11.586	.817			

Factor loading is an important indicator for convergent validity. A minimum requirement is that the loadings should be statistically significant. It is also suggested that the standardised loading estimates should be over .5 and ideally over .7 (Hair et al. 2010:709). Results in this research indicate that all the loading estimates are statistically significant with t-values exceeding 1.96. Eight standardised loadings exceed the ideal value of 0.7 and the remaining seven standardised loadings are acceptably over .6 (Table 6-17).

AVE is a summary indicator of measurement convergence and Hair et al. (2010) suggest that .5 or higher AVE scores indicate adequate convergence. AVE is calculated as the average squared factor loadings on a construct, reflecting average communality of a construct. This study's results indicate adequate convergence with all the four constructs, namely, Fundamental Resource (AVE=.565), Upgrading Capability (AVE=.535), Dynamic Capability (AVE=.568) and Process Performance (AVE=.580) (Table 6-17). Therefore, all the four constructs have AVE values greater than 0.05, which suggests a good measurement convergence.

Construct reliability is also an indicator of convergent validity and measures how highly the indicators are interrelated with each other. A high value of Construct Reliability (CR)[47] indicates a high degree of internal consistency. 0.7 or higher CR values suggest good reliability while an estimate value between 0.6 and 0.7 is considered acceptable (Hair et al. 2010: 710, Kline 2005:59). For this study, 3 of the 4 constructs have high CR values of over .7, which is considered "good reliability", whilst the remaining one, Upgrading Capability, has a low CR value of 0.518 (Table 6-17). However, since both the standardised loadings (L_{Br}= .609 and L_{IT}= .836) and the AVE value (AVE = .535) are adequate, this construct is retained as one of the dimensions of resources for the subsequent analysis.

Cronbach's Alpha is widely used in social science and business for testing internal consistency of the survey items, which is also somehow related to AVE (Cronbach 1951). The results are in line with CR and each construct has a slightly higher value than the corresponding CR value, which also indicates high reliability among the items (Table 6-17).

Construct validity 2: Discriminant validity

Discriminant validity refers to the degree of distinction of one construct from other constructs involved in a SEM model. A rigorous test is to compare the average AVE values for any two constructs with the corresponding squared correlation estimates

[47] CR is computed from the squared sum of factor loadings (L_i) for each construct and the sum of the error variance terms for a construct (e_i) as: CR = $(\sum_{i=1}^{n} L_i)^2/[(\sum_{i=1}^{n} L_i)^2 + \sum_{i=1}^{n} e_i]$ (Hair et al., 2007: 710).

between two corresponding constructs. Good evidence of discriminant validity would be that the average AVE value is greater than the corresponding squared correlation estimate. In Table 6-18, all the estimated correlations (i.e., ranging from .645 to .831) between the four constructs are not excessively high, i.e., <.85 (Kline 2005: 73), which is indicative of discriminant validity. By comparing the average AVE values and the corresponding squared correlations, 4 out of the 6 AVE values are greater than the corresponding inter-construct squared correlation estimates, namely, DC-PP (.574>.521), FR-UC (.550>.416), FR-PP (.573>.473) and UC-PP (.558>.482). This result is supportive of the discriminant validity of the model while discriminant validity is not supported by the remaining 2 inter-construct relationships. That is, the AVE values are less than the corresponding inter-construct squared correlation estimates, i.e., DC-FR (.567<.691) and DC-UC (.552<.629). This lack of support for discriminant validity between Dynamic Capability & Fundamental Resource and between Dynamic Capability & Upgrading Capability may imply that these inter-constructs have more commonality than distinction. However, considering that the inter-construct correlations are not extremely high, this study proceeds to the subsequent analysis.

Table 6-18: Construct correlation matrix (standardised) and construct variance

	DC	FR	UC	PP
DC	***.823***	.691(.567)	.629(.552)	.521(.574)
FR	.831 ***	***.530***	.416(.550)	.473(.573)
UC	.793 ***	.645 ***	***.859***	.482(.558)
PP	.722 ***	.688***	.693 ***	***.731***

Note: Values below the diagonal are correlation estimates among constructs, diagonal elements are construct variance, and values above the diagonal are squared correlations, with the average AVE values of the two relevant constructs (in brackets). Significance level: ***=.001

Construct validity 3: Nomological validity

Nomological validity tests whether the correlations among the constructs make sense from the theoretical perspective, normally by examining the path estimates and their significance. The RBV theory suggests that resources (measured by Dynamic Capability, Fundamental Resource and Upgrading Capability in this study) positively contribute to SCA (measured by Process Performance in this study). The correlation matrix indicates that all the four constructs are positively and significantly correlated to one another, including Process Performance to the other three constructs measuring resources. The correlations range from .645 to .859, all of which are significant at the 0.001 significance level (Table 6-18). Therefore, these correlations are consistent with the theoretical foundation, though it is understood that not all of these correlations imply

causation.

Taking all results into consideration, construct validity in terms of convergent validity, discriminant validity and nomological validity is generally supported and now this study is validated to proceed to the second step of the SEM test.

6.4.4.5 Summary of the confirmatory factor analysis

In summary, with a sample of 209 cases, Confirmatory Factor Analysis (CFA) is first performed through the Amos programme; maximum likelihood estimation is employed to estimate and modify the measurement model. The initial measurement model is specified in Figure 6-9 and post hoc model modifications result in 4 constructs reflected by 15 indicators:

1) Fundamental Resource reflected by Skillful Worker, Customer Relationship, Supplier Relationship and Quality Control,

2) Dynamic Capability reflected by Organisational Learning, Entrepreneurship, Quick Response and Human Resource Management,

3) Upgrading Capability represented by Information Technology and Branding, and

4) Process Performance reflected by Strategic Adaptability, Order Acquisition, Cost Control, External Communication and Internal Cohesion.

The modified measurement model has achieved a good fit and the constructs have been supportively validated, which are ready to proceed to the next step of the analysis.

6.4.5 SEM step two: Structural modeling

This section proceeds to the second step of structural modeling which focuses on the relationships between constructs. It starts from development of hypotheses and specification of structural relationships. This is followed by estimating the fit of the structural model and testing the hypothesised relationships.

6.4.5.1 Developing research hypotheses and specifying the structural model

The structural model and corresponding hypotheses are formulated based on the theoretical underpinnings of RBV (Wernerfelt 1984, Barney 1991, Dierickx & Cool 1989, Peteraf 1993, Prahalad & Hamel 1990, Teece, Pisano & Shuen 1997). RBV explores how firm-specific resources may achieve and sustain competitive advantage (Amit & Schoemaker, 1993, Teece, Pisano & Shuen 1997, Lockett, Thompson & Morgenstern 2009). According to the theory, resources with VRIN attributes are a

source of SCA , where the "value/V" comes from improved efficiency and effectiveness in terms of lower cost, neutralized competition, or/and enhanced benefits; the "rareness/R" attribute ensures a value creating strategy not simultaneously being implemented by any current or potential competitor; the "inimitability/I" and "non-substitutability/N" result from one or more of three reasons - history, causal ambiguity and social complexity - and those attributes ensure that a firm's competitive advantage will not be replicated or replaced by the other firms, thereby ensuring that it is sustained (Barney 1991).

In theory, the VRIN resources are assumed to contribute to SCA in the form of bundling. Bundling refers to correlation and integration of the various resources that make it extremely difficult for competitors to imitate them, which underpins SCA (Powell 1995). Thus it is generally accepted that a specific or single resource is insufficient to create SCA alone but rather it is combined or bundled resources that generate SCA (Ray, Barney & Muhanna 2004, Wiklund & Sheperd 2009). In this study, the VRIN resources are measured by three constructs, i.e., Fundamental Resource (FR), Dynamic Capability (DC) and Upgrading Capability (UC), and the relationships between them are hypothesised as follows (Figure 6-10).

H_1: Fundamental Resource and Dynamic Capability are significantly and positively correlated

H_2: Fundamental Resource and Upgrading Capability are significantly and positively correlated

H_3: Dynamic Capability and Upgrading Capability are significantly and positively correlated

As discussed above, FR is the fundamental factor for the firm to survive and can be viewed as a prerequisite for competitive advantage. Therefore, FR is assumed to be positively and significantly related to SCA (Barney 1989).

Further, FR is a source of SCA in a static situation according to the theory. However, business conditions are rarely static but challenged by the external dynamics. Therefore, given dynamic environment, SCA is conditional upon a firm's Dynamic Capability as it enables the firm to sustain its competitive advantage attained by renewing and reconfiguring resources (Teece, Pisano & Shuen 1997, Eisenhardt & Martin 2000, Teece 2007).

China is the world's largest clothing manufacturer and exporter. The Chinese clothing industry is now challenged by both domestic rising costs and global competitors, e.g., India, Turkey, Bangladesh and Vietnam, to list a few. The intensified global competition

is particularly felt in the labour-intensive and non-brand manufacturing segment, where over-production of homogenous products without own brands inevitably results in competition based on low price and low added value. Therefore, functional upgrading via branding or/and technology leads to higher value-added ends with product diversity and heterogeneity, which is a practical way to avoid the competitive advantage trap in the low value-added manufacturing segment so as to achieve SCA. Hence, in the present situation, upgrading capability is a strategic and critical source of SCA for the Chinese clothing companies (Gereffi 1996, Bair & Gereffi 2003, Kaplinsky 2000).

In the earlier discussion, Process Performance measures SCA while Fundamental Resource, Upgrading Capability and Dynamic Capability measure resource in three dimensions. Based on the theoretical assertions of RBV, three more hypotheses are formulated to specify the dependence relationships between resources and SCA as follows (Figure 6-10).

H_4: Fundamental Resource is significantly and positively related to Process Performance (PP)

H_5: Dynamic capability is significantly and positively related to PP

H_6: Upgrading capability is significantly and positively related to PP

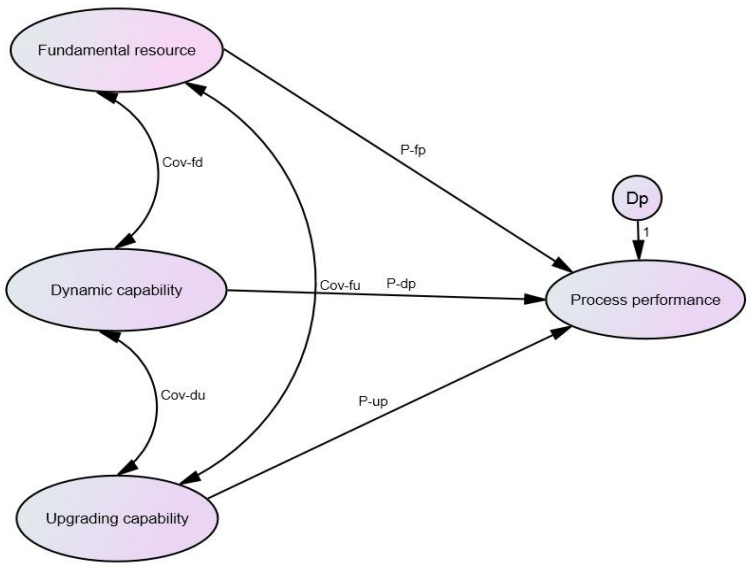

Figure 6-10: Structural model for SCA of the Chinese clothing industry

Note: In the diagram, the hypothesised causal relationships are depicted by straight lines with

single-headed arrows from exogenous construct to endogenous construct while correlations are depicted by double-arrowed curves between two exogenous constructs. As a result, 3 path parameters are to be estimated together with 3 construct covariances or correlations. Dependence relationships are denotated by "P" (path coefficients); the notation "Cov" expresses covariance or correlation. The endogenous construct of process performance also links to a disturbance variance (denoted by "D"), representing the extent of the inability to be fully explained by the exogenous constructs within the model.

6.4.5.2 Assessing the structural model and testing structural relationships

Assessing the validity of the structural model is based on comparison of the structural model's fit with the previous measurement model's fit, so to assess the degree to which the structural model decreases the model fit due to its specified structural relationships. SEM also provides examination of the model diagnostics to examine if any model re-specification is indicated.

Identification issue

The identification problem also pertains to the structural model, just as it does to the measurement model. The structural model used for this study is defined as a recursive model, where the paths between constructs all proceed only from the predictor construct to the dependent construct and there is no feedback loop. A recursive SEM model never has fewer degrees of freedom than its corresponding CFA model involving the same constructs and variables (Hair et al. 2010: 734). This is true when examining the overall structural model in terms of the degrees of freedom. The total number of unique values in the structural model is 120 and the total number of estimated parameters is 36. This gives a total of 84 degrees of freedom (84=120-36), which is exactly the same as those of the Measurement Model 3 and thus the entire model is still identified.

Assessing the structural model's Validity

Assessing the structural model's validity involves comparison of the structural model with the previous corresponding measurement model in terms of overall fit indices, loading estimates, construct reliability and structural relationships. For a good structural model fit, there should not be significant difference between the structural model and the previous corresponding measurement model, i.e., Measurement Model 3 (Hair et al. 2010). For this dataset, a converged solution was obtained for the specified structural model.

The results of overall model fit indices are shown in Appendix 6-6a. By comparing the two models (Appendix 6-6b), there is no change in the selected fit indices, e.g, the chi-square (χ^2 = 158.243 with 84 degrees of freedom and ρ<.001), the normed chi-square (CMIN/DF= 1.884), the CFI (.952), RMR (.066), GFI (.906), RMSEA (.065

with 90% confidence interval between .049 and .081) and the PRATIO (.800). All of these indices suggest a good structural model fit.

Examining the path coefficients and the loadings estimates also provides useful information to support the overall model validity. The results of comparing the loadings estimates of the two models indicate that this structural model has not changed, which further confirms the measurement model's stability (Appendix 6-6a). Comparison of the construct reliabilities of the two models results in the same story and there is no difference between the structural model and the previous corresponding measurement model. Therefore, it can be concluded that structural validity is further confirmed in terms of factor loadings and construct reliabilities.

Testing the structural relationships

From the above tests, the structural model is validated. However, failure to reject the model does not necessarily mean that the individual hypotheses are confirmed. Also the testing of hypotheses is the important part in assessing the structural model's fit (Table 6-19).

Table 6-19: Structural parameter estimate- standardised and unstandardised, t-value, and ρ value

	Unstandardised parameter estimate	S.E.	t-value	ρ	Standardised parameter estimate	Hypotheses confirmed (yes) or rejected (no)
H_1: FR→PP	.350	.176	1.996	.046	.298	Yes
H_2: UC→PP	.311	.139	2.237	.025	.337	Yes
H_3: DC→PP	.195	.207	.942	.346	.207	No
H_4:FR↔DC	.549	.086	6.421	***	.831	Yes
H_5:UC↔DC	.666	.122	5.441	***	.793	Yes
H_6:FR↔UC	.435	.084	5.170	***	.645	Yes

Note: *** represents statistical significance at the 0.001 level (two-tailed test); the single-headed arrow "→" shows dependence relationship while double-headed arrow "↔" shows correlation or covariance relationship.

Table 6-19 shows the test results in terms of parameter estimates both in unstandardised and standardised forms. All three path parameter estimates are positive, amongst which, two parameters, i.e., FR→PP and UC→PP, are statistically significant at the .05 level (t >

1.960 for the two-tailed test) while the remaining one, i.e., DC→PP, is statistically insignificant. All three covariance estimates, namely, FR↔UC, FR↔DC and UC↔DC, are statistically significant at the .001 level. These empirical results in direction and statistical significance are largely consistent with RBV theory.

However, the path parameter between Dynamic Capability and Process Performance (i.e., DC→PP: ρ=.346)) is not statistically significant, which is not what would be expected from RBV theory. Given the validity and robustness of the study, this insignificant relationship requires further investigation and interpretation.

Figure 6-11 shows the standardised overall output in form of a path diagram, which provides additional information relating to structural model fit. The results indicate that 59% of the variance of the endogenous construct (i.e., Process Performance) can be explained by the three exogenous constructs, which suggests that Process Performance is measured reasonably well in this model.

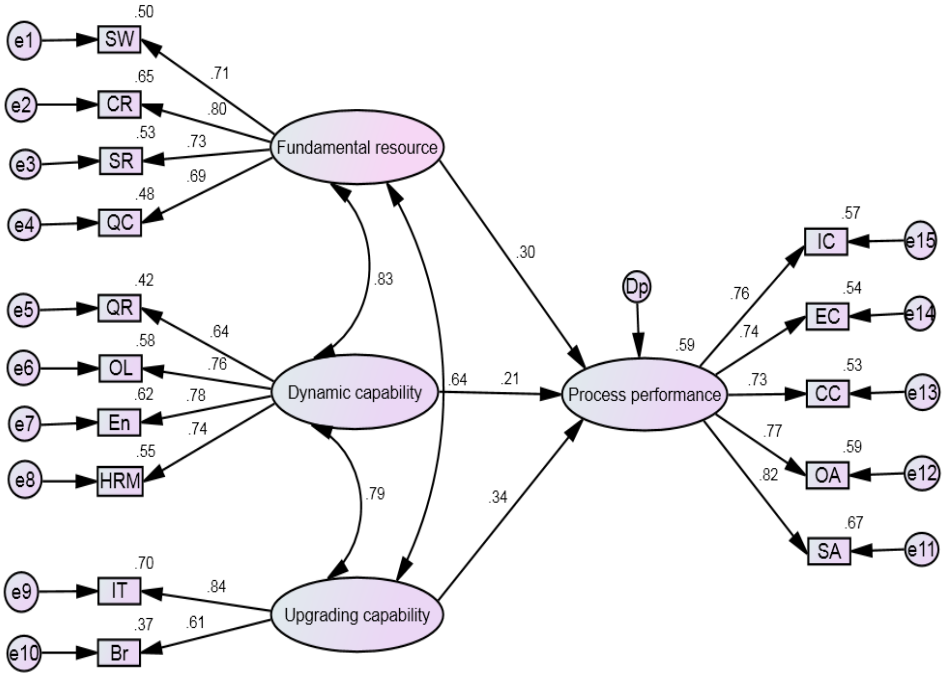

Figure 6-11: Standardised output in path diagram for the overall model

Next, comparison of factor loadings and standardised estimates between the structural

model and the Measurement Model 3 ensures that they have not changed substantially. Otherwise there could be potential implications for the model re-specification (Hair et al. 2010). The factor loadings and correlations in both models remains unchanged (Appendix 6-6c) while the standardised regression weights in the structural model have decreased substantively from the corresponding correlations in the measurement model, e.g., .688 (FR↔PP) down to .298 (FR→PP), .693 (UC↔PP) down to .337 (UC→PP), and .722 (DC↔PP) to .207 (DC→PP) (Appendix 6-6d). The result that correlations in the measurement model are much stronger than the corresponding regressions in the structural model suggests that there might be some scope for possible model improvement. Therefore, next to examine the model diagnostics for the possible model re-specification.

Model diagnostics

Model diagnostics are used to examine whether there is any possibility that the model could be improved through re-specification. At the first step, the measurement model has been validated and therefore the focus at the second step is on the diagnostic information about relationships between constructs. The construct model diagnostics follows a series of steps from fit indices to standardised residuals and modification indices to determine whether there is a need for the model re-specification (Hair et al. 2010).

Comparisons of the goodness-of-fitness indices between the structural model and the measurement model has been discussed previously and the results presented in Appendix 6-6b. The overall fit indices between the two models are no different, which suggests a good structural model fit without any specific implication for structural model respecification.

Then the next diagnostic step is to check the standardised residuals and modification indices of the structural model to see whether the largest values suggest scope for possible model improvement. On examining the residuals, no significant standardised residual covariance exceeds $|2.5|$ and the largest two values are 1.610 (SW↔Br) and -1.768 (SR↔HRM) (Appendix 6-6e). Also, there is no presence of any M.I. among the structural relationships greater than the default threshold (i.e., M.I. = 4). Therefore, there is no suggestion of any need for re-specification of the structural model.

In summary, the structural model has been validated and the results suggest a good overall model fit. Results of testing the structural relationships are largely consistent with the RBV theory.

6.5 Comparison of models

In the above section, the hypothesised model has been validated and the hypothesised relationships tested. Now this section compares the original hypothesised model with three alternative models and the comparison provides a way to avoid inference based on the only selected model and "to increase the 'fruitfulness of SEM research' (Rigdon 1999: 220).

All three alternative models are tested by applying the same estimation method as applied to the original model (i.e., Maximum Likelihood), using the same dataset. As for the model selection method, a Chi-Square difference test is commonly used for the nested models comparison (Steiger, Shapiro & Browne 1985). Meanwhile, Information criteria indices such as the Akaike Information Criteria (AIC)[48] and Bayesian Information Criteria (BIC) are commonly used for comparison of both nested and non-nested models and these criteria also allow for the simultaneous comparison of multiple models (Akaike 1983, Schwarz 1978). In comparison to AIC, BIC assigns a greater penalty to model complexity, and therefore it has a greater tendency to pick parsimonious or simpler models. The Expected Cross-Validation Index (ECVI) is similar to AIC except for a constant scale factor. In addition, ECVI also provides the upper limit and lower limit of a 90% confidence interval for the population. Based on the above understanding, this research adopts AIC, BIC and ECVI for selection of the best-fitting model (Elster 1989, Burnham & Anderson 2004) [49].

6.5.1 Alternative model 1

According to the RBV theory, Dynamic Capability intervenes in the effects of the other resources on SCA under external dynamics (Teece, Pisano & Shuen 1997, Collis 1991, Teece 2000, Winter 2003) (discussed in Chapter 3.3.3). Dynamic Capability enables firms to realise sustained competitive advantage by updating and reconfiguring firm-level resources in dynamic environment (Discussed in Chapter 3.3.3.5). Given that the present Chinese clothing industry is challenged by its dynamic environment (Details in Chapter 2), therefore, this study proposes alternative model 1 (Figure 6-12). In alternative model 1, the effects of both Fundamental Resource (FR) and Upgrading Capability (UC) on Process Performance (PP) are hypothesised to be fully mediated by Dynamic Capability (Ndofor, Sirmon & He 2011). These mediated relationships are depicted as FR→DC→PP and UC→DC→PP. There is no direct relationship of FR→PP or UC→PP, or in other words, both the direct relationships are hypothesised to be zero. In this context, Dynamic Capability (DC) becomes an endogenous construct and the two

[48] AIC = χ^2 – 2df. Generally, the model with the lowest value (or, in some formulation, the highest value) is the one having better fit with the data used.

[49] ECVI is a similar index with AIC except for a constant scale factor.

exogenous constructs, i.e., FR and UC, are correlated to each other. Alternative model 1 then is tested by using the same dataset as was used in testing the original model.

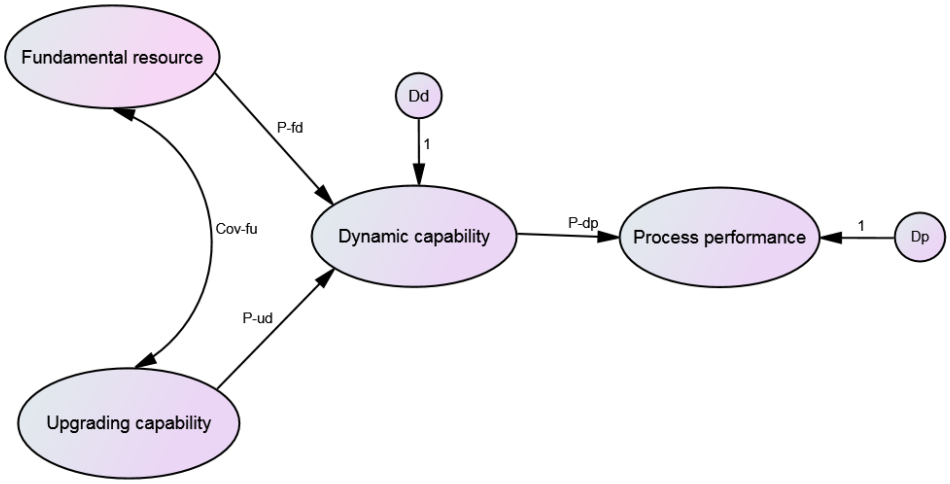

Figure 6-12: Alternative model 1

The results suggest that alternative model 1 itself is acceptable according to the fit indices (selected), e.g., χ^2 = 165.122 (df = 86), RMR = .069 and RMSEA = .067 (Table 6-20). However, the results also suggest that except for a slightly lower BIC value (346.761<350.567), alternative model 1 is no better than the original model in terms of the selected model fit indices, e.g., both AIC (233.122>230.243) and ECVI (1.121>1.107) values are higher in comparison to those of the original model. Therefore, the next continues to seek possible better-fitting models.

Table 6-20: Comparisons of fit indices of the three hypothesised models

	Original model	Alt. model 1	Alt. model 2	Alt. model 3
Model fit indices				
χ^2 (chi-square)	158.243	165.122	169.983	162.088
Degree of freedomdom	84	86	86	85
χ^2/ df	1.884	1.920	1.977	1.907
RMR	.066	.069	.075	.069
GFI	.906	.902	.897	.903
RMSEA	.065	.067	.069	.066
CFI	.952	.949	.970	.950
AIC	230.243	233.122	237.983	232.088
BIC	350.567	346.761	351.622	349.070
ECVI	1.107	1.121	1.144	1.116

6.5.2 Alternative model 2

Alternative model 1 (Figure 6-12) is based on the logic of the Dynamic Capability Approach, in which Dynamic Capability fully mediates the relationships between the other resources (e.g., Fundamental Resource and Upgrading Capability) and Process Performance. In comparison, the GVC scholars hold that industrial upgrading and particularly functional upgrading are practical strategies for SCA of the clothing companies, particularly manufacturing companies in developing economies (Detailed discussion in Chapter 3.2.2). In this context, Upgrading Capability leads to sustained competitive advantage by exploiting other resources (Gereffi 1999, Bair & Gereffi 2003, Humphrey & Schumitz 2002, Tokatli 2003, Bair 2005, Gibbon 2008, Gibbon & Ponte 2008). In view of these theoretical underpinnings, it is assumes that Upgrading Capability intervenes in the effects of other resources on Process Performance (Figure 6-13). The causal relationships are depicted as FR→UC→PP and DC→UC→PP. Therefore, UC together with PP becomes an endogenous construct. Meanwhile, the two exogenous constructs, namely, FR and DC, are correlated to each other.

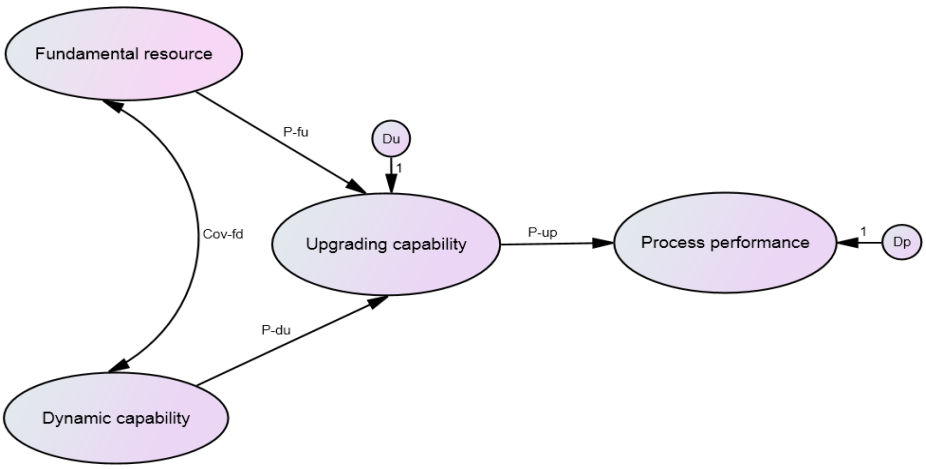

Figure 6-13: Alternative model 2

Estimation results suggest that alternative model 2 itself turns out to be acceptable, e.g., χ^2=169.983 (df = 86), CFI=.970 and RMSEA=.069 (Table 6-20). However, except for a slightly higher CFI (.970>.952), the over model fit indices (selected) are no better than the original model, e.g., all values of AIC (237.983>230.243), BIC (351.622>350.567) and ECVI (1.144>1.107) are higher in comparison with those of the original model. Therefore, the study continues to seek possible models which may have better model fit.

6.5.3 Alternative model 3

Alternative model 3 is developed by combining theoretical considerations from those in both Alternative model 1 and Alternative model 2. Theoretically, valuable and unique firm assets are the potential sources of competitive advantage and firms can attain competitive advantage only after deploying those assets effectively through the organisational capabilities (both DC and UC included) (Barney 1997). Therefore, the firm's unique and valuable assets function as a base for organisational capabilities which lead to services and products, and in turn the services and products generate economic performance and possible SCA if the resources are subject to the VRIN attributes (Hansen, Perry & Reese 2004).

In alternative model 3, UC is assumed to be directly related to PP; DC is assumed to be both directly and indirectly related to PP, i.e., DC→PP and DC→UC→PP; FR, as a fundamental factor but not necessarily leading to sustained competitive advantage, is

only indirectly related to PP via three paths, i.e., FR→DC→PP, FR→UC→PP and FR→DC→UC→PP (Figure 6-14). Therefore, in alternative model 3, both Dynamic Capability and Upgrading Capability are assumed to directly contribute to Process Performance and at the same time partly mediate the relationships between other resources and Process Performance.

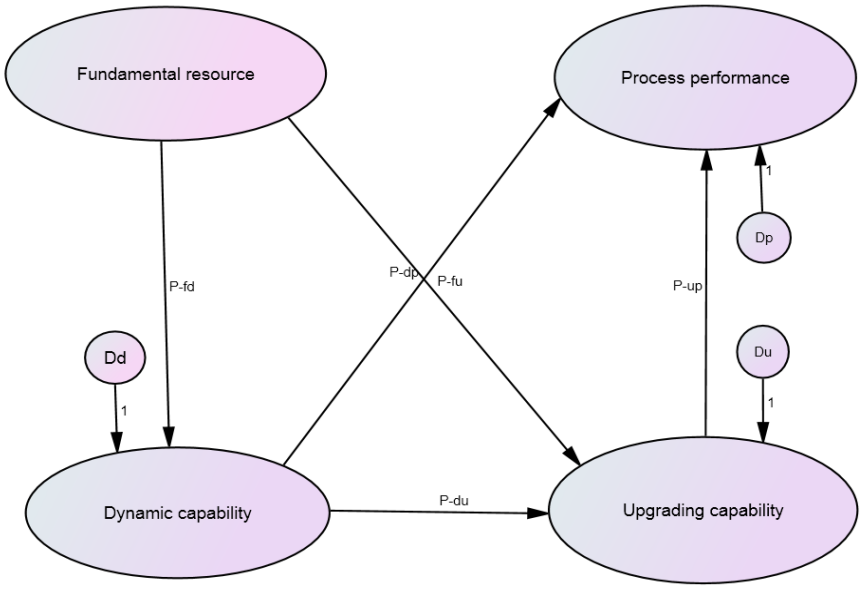

Figure 6-14: Alternative model 3

Alternative model 3 is tested using the same dataset as before. The results suggest that the model itself is acceptable in terms of the selected fit indices, e.g., χ^2=162.088 (df = 85), RMR=.069, CFI=.950, and RMSEA=.066 (Table 6-19). However, again, alternative model 3 is no better than the original model in terms of the selected model fit indices, e.g., both AIC (232.088>230.243) and ECVI (1.116>1.107) values are higher than those of the original model though BIC (349.070>350.567) value is slightly better than that of the original model.

In summary, the three alternative models are individually acceptable in terms of the selected model fit indexes. However, by comparing the original model with the alternatives for model selection, the results sufficiently suggest that the original model still is the best one (Table 6-20). For example, both AIC and ECVI values for the original model are lower than those for the alternative models. As for the BIC value, the original model is not the lowest value, i.e., BIC_{ori}=350.567 versus BIC_{alt1}=346.761, BIC_{alt2} =351.622 and BIC_{alt3} =349.070. However, BIC penalizes the number of

parameters strongly, which may be the main explanation for the differences in the case of these models. That is, the original model has 6 parameters while the alternative models have 4 to 5. In addition, it is noted that AIC has theoretical advantages over BIC (Burnham & Anderson 2002). Considering all the results, it can be concluded that the original model is the best one in comparison to the other three alternative models.

6.6 Chapter summary

This chapter focuses on statistical analysis by using 219 responses collected for the Chinese clothing industry. The analysis follows a series of sequential steps: 4 constructs, namely, Fundamental Resource (FR), Dynamic Capability (DC), Upgrading Capability (UC) and Process Performance (PP), are firstly extracted via exploratory factor analysis (Chapter 6.3); the constructs are then modified and validated via confirmatory factor analysis (Chapter 6.4.4); further, hypothsised relationships between the 4 constructs are examined via structural modeling and the results suggest that FR, DC and UC are significantly correlated to each other and that both FR and UC are significantly related to PP while DC is not (Chapter 6.4.5); finally, the results via comparative analysis of the hypothesised model with 3 alternative models further confirm that the original model is the most appropriate one (Chapter 6.5).

Statistical analysis has confirmed hypothesised relationships in this chapter. That is, whether and which of the suggested resources significantly lead to sustained competitive advantage. However, social science and its detailed information of a social phenomenon are always embodied in a rich context. The context in which social phenomena are observed is sometimes too rich and too complex to be captured by those measurable variables which comprise the statistical data. Therefore, the next chapter provides further interpretation to the statistical results by studying three cases.

CHAPTER SEVEN: CASE STUDIES

7.1 Chapter introduction

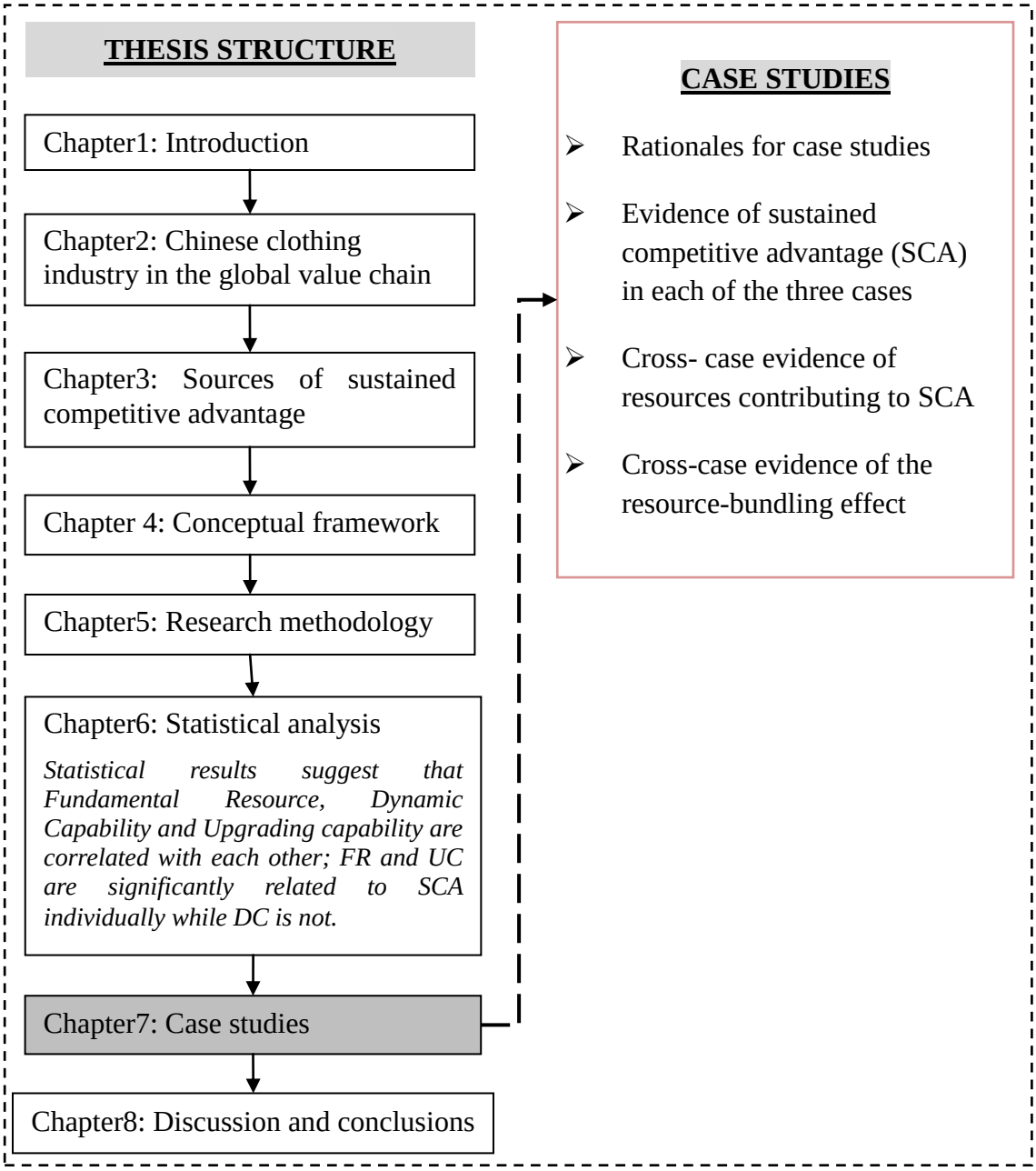

Figure 7-1: Thesis structure and focuses of Chapter 7

Source: The author.

In the previous chapters, the statistical results suggest which of the resources significantly contribute to SCA. To contextualize and illustrate the statistical results, this

chapter presents detailed case studies of three specific companies, explaining why and how the significant resources contribute to the SCA by looking in depth at the individual firms.

7.1.1 Rationale for the case studies

The rationales for the case studies link to specific and real social and economic phenomena and take into consideration the complicated and holistic research contexts (Yin 1984). For example, Skillful Worker is particularly significant due to the current labour shortage problem in the Chinese clothing industry, which is related to complicated social and cultural reasons, e.g., the educational philosophy and the family-plan policy (Details in Chapter 7.3.1). Moreover, given external dynamics, the case studies in this chapter provide a more vertical and dynamic view to complement the cross-sectional and static view provided by the statistical analysis. In addition, by examining the present practices, case studies provide strategic implications for further SCA of the Chinese clothing companies.

7.1.2 Profile of the case companies

Three cases, namely, Tedelon, Youngor and Kaiqi, are selected for interpretation and illustration of the statistical results (Table 7-1).

Table 7-1: Profile of the case companies

Company profile	**Tedelon**[50]	**Youngor**[51]	**Kaiqi**[52]
Location (headquarters)	Hangzhou, Zhejiang	Ningbo, Zhejiang	Shaoxing, zhejiang
Employee No.	3,500	24,000	300
Year of establishment	1995	1979	2000
Main product lines and types in clothing	Fashion and leisure menswear such as jacket, parka, and T-shirt	Professional menswear such as shirts and professional suits	Sportswear such as rugby kit, soccer kit, and cricket kit
own brand	Tedelon	Youngor	Not yet

Source: The author.

[50] Tedelon is the short form for the company's full name of Zhejiang Tedelon Garment Co., Ltd.
[51] Youngor is the short form for the company's full name of Youngor Group Co., Ltd.
[52] Kaiqi is the short form and actually it is composed of two companies with separate businesses, that is, Shaoxing Kaiqi Imp & Exp Co., Ltd. and Shaoxing Kaiqi Textile & Garment Co., Ltd.

Note: Data in this table are based on conditions of the case companies at the end of 2011.

Selection of the three cases is based on several considerations. ***First of all***, the case companies are located in the main clothing clustered cities of Zhejiang Province along the eastern coast region and this region is in a position to be representative to some extent for the research population (Detailed discussion in Chapter 5.5.2). ***Secondly***, all cases are in the same region where the survey questionnaire is delivered, which makes sense to provide illustration to the statistical results. ***Thirdly***, all three case companies achieved superior performance and established themselves quite well, which is useful for interpretation of effects of resources on SCA (Details in section 7.2). ***Fourthly***, the structure of the companies' size, i.e., one big, one medium-to-big and one medium, is also important to be more representative to the research population.

The three companies vary in history, e.g., Youngor, a relatively old one, founded in 1979, Tedelon founded in 1995, and Kaiqi, a relatively new one, founded in 2003. However, they have all built up their competitive advantages, which are sustained up to date (Details in Chapter 7.2).

All the companies began small and have grown to their current sizes. The number of employees varies among the companies but they all exceed the national average level. For example, Youngor employs over 20,000, which is a giant company with few comparable in China, Tedelon about 3,500, which also is a big size, and Kaiqi about 300, which is relative small however still over the national average size[53]. Companies of this size have to manage their resources in a relatively more standardised and strategic way, which is helpful for the analysis of the resources in the individual case studies.

Clothing manufacturing and exports was the original and remains the main and core business for all the three companies, though Youngor and Tedelon have also developed and diversified into other industries. For example, Youngor has extended into property development and financial investment; Tedelon has extended into animation production; Kaiqi retains its specialisation in clothing manufacturing and exports.

All the three companies focus on a wide range of menswear though their main product lines and marketing segmentations vary. For example, Tedelon originally positioned itself in fashion and leisure menswear such as jackets, parkas and T-shirts; Youngor originally targeted the professional menswear such as shirts and professional suits, while Kaiqi specialises in sportswear.

In summary, the three cases share similar external environment and the dynamics in

[53] According to the national bureau of statistics, the national average size is about 250 in 2010 (Details in Chapter 2.3.4).

terms of location, historical background and the industrial contexts. Therefore, given the similar external environment, the superior performance or competitive advantage of the three cases mainly results from the internal firm-level resources based on the RBV theory (Penrose 1959, Wernerfelt 1984, Barney 1991, Teece, Pisano & Shuen 1997). In addition, it should be noted that the three clothing companies chosen for the case studies have been included in the previous data for the statistical analysis. This background consistency enables the case studies in a better situation to provide reasonable interpretations to the statistics results.

7.1.3 Analysis logic and structure

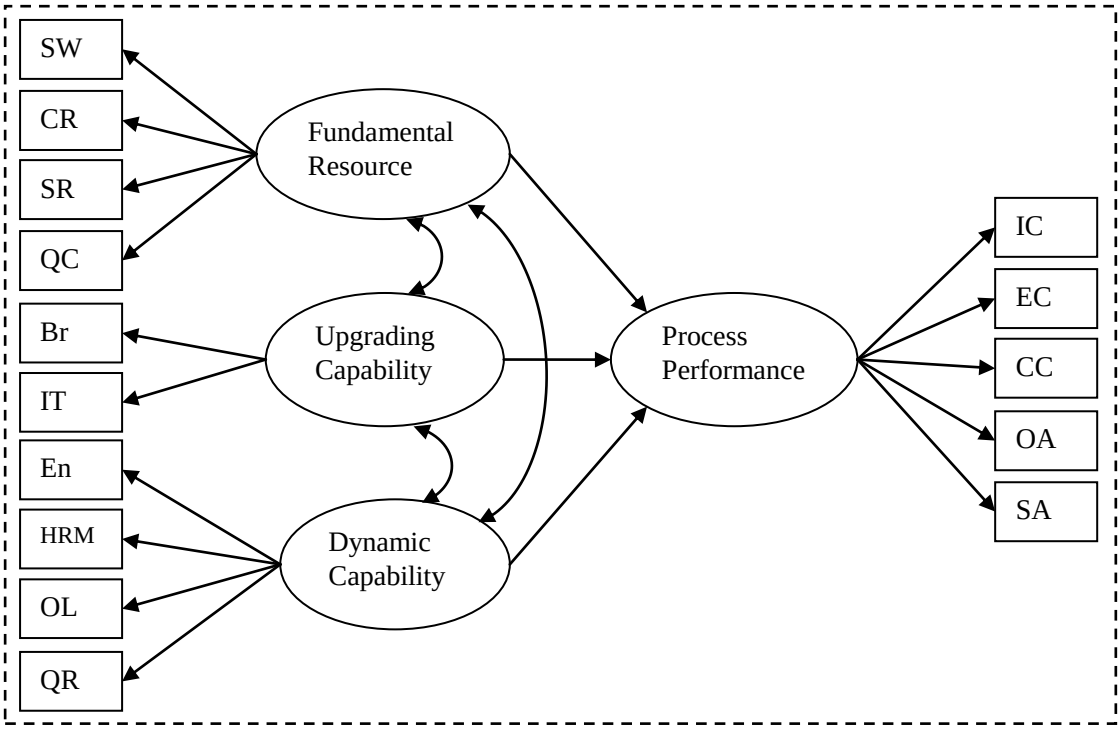

Figure 7-2: Recap of the research model for SCA of Chinese clothing industry

Source: The author.

Note: SW=Skillful Worker, CR=Customer Relationship, SR=Supplier Relationship, QC=Quality Control, QR=Quick Response, OL=Organisational Learning, En= Entrepreneurship, HRM= Human Resource Management, IT=Information Technology, Br=Branding, IC=Internal Cohesion, EC=External Communication, CC=Cost Control, OA=Order Acquisition, SA=Strategic Adaptability.

The case studies aim to provide evidence illustrative of the statistical results rather than to confirm the relationships and therefore the data analysis follow the hypothesised model in term of the RBV logic and the corresponding indicators (Figure 7-2). That is, given the similar external environment as the analytical premise, superior Process

Performance (measuring SCA) is attributable to the firm-level resources, i.e., Fundamental Resource, Dynamic Capability and Upgrading Capability. However evidence of Dynamic Capability is not included in the examination of the cases due to the statistical results that Dynamic Capability is insignificantly related to Process Performance.

To study the cases, interviews with senior manager, CEOs and owners of the case companies are conducted (Table 5-3). The interviews gather evidence and information for illustration and interpretion of the statistical results.

Following the statistics logic, therefore, the cases studies are structured as follows: first examining evidence of the superior performance of the cases (Chapter 7.2), proceeding to illustrate resources which contribute to the superior performance (Chapter 7.3), and ending with summary of the chapter (Chapter 7.4).

7.2 Sustained competitive advantage of the case companies

Linking back to the statistical model, SCA is measured by Process Performance which is reflected in the statistical model by 5 indicators, i.e., Cost Control, Order Acquisition, Strategic Adaptability, Internal Cohesion and External Communication (Figure 7-2). Business process itself is the source of SCA and when it exploits the resources with the VRIN (Value, Rareness, Imperfect imitability and Non-substitutability) attributes it results in superior Process Performance (Barney 1991, Ray, Barney & Muhanna 2004).

The remaining parts of this section examine evidence of the superior Process Performance from the cases. Three indicators of Process Performance are selected, namely Strategic Adaptability, Cost Control and Order Acquisition, while the remaining two are not selected. This selection is based on two considerations. ***Firstly***, this is a reasonable selection since each component of Process Performance has a representive indicator in this selection, e.g., operational processes represented by Order Acquisition, supportive processes represented by Cost Control and managerial processes represented by Strategic Adaptability (Bititci et al. 2011). ***Secondly***, this chapter focuses on the resources perspective rather than the performance one. That is, the focus is on illustration and interpretation of how and why the resources contributing to the superior performance rather than the converse. Therefore, the other two indicators, i.e., External Communication and Internal Cohesion, are not selected to avoid repetition and to keep focused of this chapter. In view of the two considerations, the selected indicators are sufficient to provide the evidence required for the analysis.

7.2.1 Evidence of SCA inTedelon

Tedelon was honoured with “Top 10 most competitive enterprises in the Chinese

clothing industry" in 2005 and once again in 2011[54](Appendix 7-1). Tedelon's sustained competitive advantage is reflected in both stable sales (reflection of Order Acquisition) and stable profits (reflection of Cost Control). For example, Tedelon remains among the top 100 national clothing enterprises by both sales and total profits ever since 2002. The sales ranked no. 82 and the total profits ranked no. 64 in 2002. The rankings by sales for the latest 4 years from 2008 to 2011 were 63, 59, 48, and 61 respectively while ranking by the corresponding profits were 38, 29, 31, and 41 respectively.

Tedelon's SCA is also reflected in Strategic Adaptability throughout its development stages. From a small and privately owned clothing factory in 1995 to a diversified group company at present, Tedelon experienced four stages of evolution, with different business focus and strategy at each stage (Appendix 7-2).

During ***the first stage*** (1995-2001), Tedelon established itself as a clothing company with the original name of "Zhejiang Taizilong Clothing Limited Company" in 1995. Taizilong was registered as the original clothing brand name and the corresponding trademark was registered in 1997. During this period the main business focused on clothing manufacturing and processing.

During ***the second stage*** (2002- 2004), Tedelon began its brand marketing campaigns, e.g., employing a nationally popular movie star as the brand spokesperson in 2002 to build up the brand image and brand popularity, setting up its own-operation selling stores to control its distribution channel. The updated business strategy resulted from adaptation to the contextual dynamics. That is, through nearly 20 years of fast development, the Chinese clothing industry has entered into the branding operation era since the late 1990s (Chen 2008: 3-4). In addition, Tedelon has built up its production capability at that time so it was the time for Tedelon to further strengthen its market through the branding strategy.

For ***the third stage*** (2005 to 2008), the business focus was further adapted to the environmental changes. For example, Tedelon started animation production in 2005 and this business diversification in the cultural industry intended to enhance the brand connotation. The reason for this strategic adaptation was that through over 10 years' discovery of the branding operation, Tedelon realised that in comparison of the hard aspects (e.g., product and services), the soft aspects (e.g., brand culture and brand image) were more important for sustainability of its competitive advantage (Ji 2004).

For ***the fourth stage*** (from 2009 up to date, by 2013), Tedelon focused on brand extension (i.e., multiple brands and brand internationalisation). For example, Tedelon

[54] According to the annual report by National Bureau of Statisitcs China, the number of large- and medium-sized manufacturers of apparel, footwear and caps is 11,865 and 11,750 by the end of 2005 and 2011 respectively.

signed cooperative agreement with a famous Italian design company, Riccardo Rami Studio, to improve its capability in product design towards the international level (Appendix 7-2). This strategic adaptation responded to the effects of the global recession and the intensified competition in the global market.

The four stages of Tedelon's development are a clear example of continuously strategic adaptation to the external environmental dynamics. As a result, Tedelon has now established itself not only as a successful clothing manufacturer but also as a clothing brand developer and operator.

7.2.2 Evidence of SCA in Youngor

Similar to Tedelon, Youngor's sustained competitive advantage is firstly reflected in both its sales revenue (reflection of Order Acquisition) and profits (reflection of Cost Control). Both Youngor's product sales revenue and gross profits have remained as no.1 among the top 100 Chinese clothing enterprises since 2001[55] (Appendix 7-3). Also Youngor has enjoyed the largest market share in China's shirt sales ever since 1994 and the largest suit market share since 2000, e.g., 13.22% of the shirt market share and 13.54% of the suit market share in 2012 (Appendix 7-4).

Similar to Tedelon, Younger's superior process performance is also evidenced throughout the five development stages in terms of Strategic Adaptability to the dynamics of external environment (Appendix 7-5). The first four stages were gradual development of its manufacturing capability, expansion in quantity and size, e.g., horizontal cooperation with Kaikai Shirt Factory in 1983 (1st stage), establishment of Youngor Clothing Company Limited in 1990, a joint venture with Namkwong Trading Company Lmited (2nd stage), business diversification into property development and financial investment and vertical integration among the value chain activities (3rd stage) and international expansion (4th stage). After the 4 stages' development, Youngor has established as a giant "aircraft carrier" in the Chinese clothing industry as well as a group company with diversified businesses. However during the latest years since the globally economic downturn in 2008, Youngor's competitive advantage is challenged by more intensified competition both at home and abroad. For example, the total revenue year-to-year decreased by 18.20% in 2010 and by 20.49% in 2011; the gross operating profits year-to-year decreased by 10.66% in 2010 and by 28.29% in 2011[56]. To adapt to the external challenges and also to sustain the competitive advantage, the company is further updating the development strategy (5th stage), e.g., cutting the OEM exporting business and restructuring the old brand image through brand extension from single brand to multiple brands.

[55] Source: China National Garment Association.

[56] Source: Youngor Group annual reports, 1979-2011.

7.2.3 Evidence of SCA in Kaiqi

Kaiqi has also developed its competitive advantage. However, due to its relatively small size, Kaiqi's competitive advantage cannot be evidenced in comparable figures like national rankings by sales or profits as Tedelon and Youngor do. Kaiqi's competitive advantage is reflected in the following remark by its manager-owner.

> *…In 2000, I left the company (refer to where he worked before) and started my own foreign business together with my brother and the other two partners. At that time there were quite a lot of people like us engaging in clothing exports. But till now only less than 10% of them (like Kaiqi) are still doing well and 20%-30% just surviving while the rest majority was eliminated due to competition. (Shen 5th April 2013)*

Kaiqi is a 100% export-oriented and now medium-sized clothing manufacturer and the evidence of its SCA in term of Process Performance (e.g., Order Acquisition, Cost Control and Strategic Adaptability) can be revealed by examining its development story.

Kaiqi experienced continuous business expansion in both clothing production and clothing exports. Hence, unlike Tedelon or Youngor, there seems to be no clear division of stages across its development. Actually Kaiqi's business did not start booming until 2005 because the textile and clothing exports in China were subject to quota restriction under the Multi-fibre Agreement (MFA) before. After MFA abolishment in 2005, Kaiqi's year-to-year exports doubled (i.e., reflection of Order Acquisition).

> *… from 100,000 (RMB) to 200,000 (RMB) and then from 200,000 (RMB) to 400,000 (RMB) … until up to 3 million (RMB) later on. It is relatively stable during recent years… now about 80% are regular customers mainly in the UK and the US. Of course we are also developing new markets and new customers mainly through international fairs and via the internet platform. (Shen 5th April 2013)*

Therefore, to meet the increasing orders, Kaiqi gradually expanded its production capacity. Meanwhile, Kaiqi developed its expertise in higher value-added ends including upstream design and R&D to downstream customer services. As a result of the strategic adaptation, Kaiqi has updated functionally from a mere export-oriented assebly to now a full-package supplier in the GVC.

However, Kaiqi still remains in the clothing manufacturing segment without establishment of its own brand. In recent years, to respond to the global recession and dynamics in the clothing industry (details in Chapters 2.2.3 and 2.3.7), Kaiqi has started to work on developing its own brand and moving further up the functional upgrading

ladder[57]. Meanwhile, to react to the increasingly rising manufacturing costs at home, Kaiqi is planning to move part of its manufacturing location to Vietnam, where the costs are much lower than in China (Shen 5th April 2013).

In summary, evidence suggests that all the three cases have developed some competitive advantages at the national and even at the international level. The competitive advantages were sustained up at the time when the research was conducted. The next is to examine the internal resources which contribute to the SCA.

7.3 Resources contributing to sustained competitive advantage

The external environment, both national (e.g., China's opening up and reform policy and relevant incentives) and international (e.g., the accelerating transfer of the world clothing production from high-cost developed economies to low-cost developing ones), provides opportunities and possibilities for the fast and stable development of the three cases. To turn these opportunities and possibilities into reality requires favourable internal conditions. In other words, during the course of development there are many competitors but the majority of these have now vanished or are still struggling for survival. In this sense, the stable and fast development history of the three case companies suggests that they possess some competitive advantage against their competitors and that the competitive advantage must be significantly related to the firm-level resources.

Referring back to the statistics in Chapter Seven, resources are measured by three exogenous constructs, namely, Fundamental Resource, Dynamic Capability and Upgrading Capability while SCA is measured by the endogenous construct of Process Performance. After the SCA evidence has been examined in the three cases, the coming section examines the evidence of the resources in relation to the proposed relationships (Figure 7-3).

[57] Source: Kaiqi's website [online] available from <http://www.kaiqisports.com/> [5th May 2013]

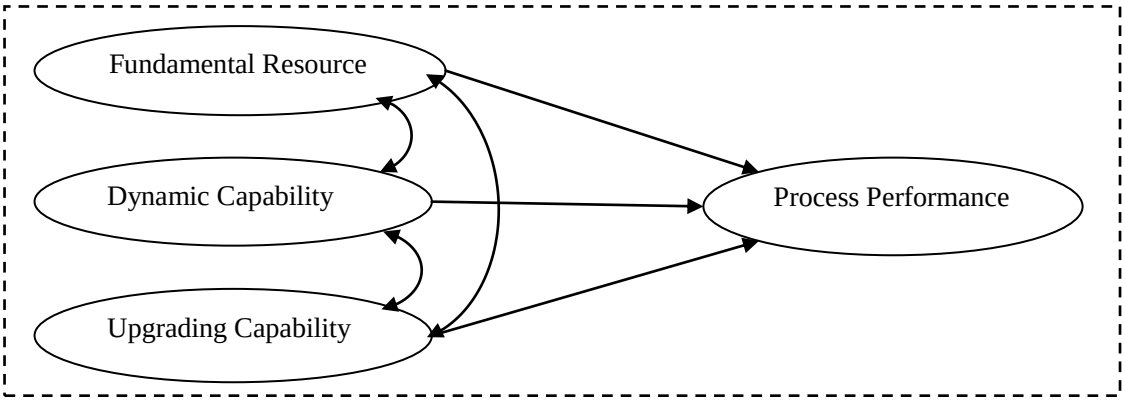

Figure 7-3: Recap of the structural relationships of the research model

Source: The author.

7.3.1 Evidence of Fundamental Resource

The preceding statistical results indicate that Fundamental Resource is significantly related to Process Performance. In this section, evidence of Fundamental Resource in the three case companies is examined in terms of the 4 reflective indicators used in the previous statistics, i.e., quality control, supplier relationship, customer relationship and skillful worker.

Quality Control (QC)

QC is ensured through various means in all three companies, e.g., by improving employees' working skills and attitudes, by introducing updated machines and equipments, by updating advanced processing technology and by adopting strict quality control standards and processing management.

> *Tedelon introduced the most advanced production equipment from Germany (e.g., Durkopp sewing machines) and Japan (e.g., Brother sewing machines) and production technology from Italy. The production process is guided by strictly implementing the international quality management standard ISO9001: 2000 and the environmental system ISO14000… From selection of raw materials and accessories to production processes and further to final product packing, Tedelon always pursues 'perfection' in quality*. (Yu 23rd Feb 2012)

In 2002, Tedelon jackets, shirts and T-shirts were awarded "Zhejiang Quality Trust worthy Products" and in 2007 Tedelon was awarded "National Inspection-free Products". There awards tell that Tedelon's efforts in quality control were recognised at both provincial and national levels.

Similar to Tedelon, Youngor emphasises QC and proposes "Total Quality Consciousness"[58] as Chairman Li comments, 'A famous brand is not created from just advertisements… it is based on product quality, which can compete with the world brands. Quality is an eternal theme and it is etched on every employee's master consciousness and the sense of responsibility' (Li 2011). Youngor's quality control is ensured through strict manufacturing process, a four-tier system of management, and quality control procedure and very strict quality control strandards that are more stringent than the national standards. For example, Youngor's textile quality exceeds the standard Uster 2001 bulletin by 5%. In 2004, Youngor's shirt was awarded "National Inspection-Exempt Product" by the State Quality Inspection Administration.

Similarly, quality control (QC) is also strictly implemented in Kaiqi.

> *…We (Kaiqi) implement quality control via the responsibility system all through the manufacturing process and also via the reward and punishment system… for example, the monthly bonus will be taken away from who is responsible for if a certain proportion of defective products come out*. (Shen 5th April 2013)

In addition, from the very beginning of its establishment, Kaiqi has continually been updating to the most advanced machines and equipment as remarks by the owner, '…by 2008, we almost possess the world most advanced equipment for the clothing manufacture… advanced machines and equipment enable us not only to save costs but also to improve product quality' (Shen 5th April 2013).

Customer Relationship (CR)

Customer Relationship is another key prerequisite for the companies' success and competitive advantage. For example, during the early period when there were many other small competitors engaged in clothing exports, Kaiqi's strategy was to manage customer relationships by cutting out all the intermediaries so as to keep direct links with the foreign customers (Shen 15th January 2013). That is, Kaiqi acquires orders and organises the manufacture by itself and then exports directly. Kaiqi is still a family business and the manager-owner contacts these customers himself. He visits them regularly and has developed effective communication and built up mutual trust for further business cooperation. In recent years, Kaiqi has developed strategic cooperation with its customers and provides more extensive services beyond clothing manufacture and export.

The strategic cooperation takes two steps. At the ***first step***, Kaiqi establishes a

[58] Scource: Yougor's website available at http://en.youngor.com/business.do?action=info&pid=20081119095027154O&cid=200811211010001550 [18th Feb 2014]

horizontal collaboration or alliance with some domestic, often small and medium, clothing manufacturers who are specialised in different lines of product manufacturing, e.g., some in sweaters, some in trousers, some in jeanswears, some in accessories (e.g., buttons, zips, gloves and scarves), etc. Then at the ***second step***, based on the domestic alliance, Kaiqi can provide a package of products and services to its customers. The foreign customers can acquire almost everything they need by dealing with just one supplier and one order. Of course this also implies a double-edged sword to the buyers. On the one hand, they could save transaction-related costs (e.g., costs of searching, negotiation and communication) and on the other hand it could be costly for them to shift to other suppliers. In this way, Kaiqi retains 80% stable and loyal customers and Customer Relationship becomes a unique and valuable resource (Shen 15th Jan 2013).

Customer Relationship to the clothing OBMs (e.g., Tedelon and Youngor) is different from that to the non-brand OEMs (e.g., Kaiqi). As a non-brand clothing manufacturer, there is no need to work on marketing because there are no end users. In contrast, when the clothing manufacturer develops its own brand, customer relationship management involves a broader range of issues, including, *inter alia*, product design, distribution channel, brand positioning, brand culture, product pricing, promotion and marketing.

Taking Tedelon as an example, the company established and developed a unique approach to customer relationship management, involving a number of aspects, including 1) building of brand reputation through various media and social activities, 2) terminal image maintenance via fashion store decoration and ingenious product exhibitions, 3) keeping up to date with the latest fashions, 4) ensuring a rapid process of product design, development and delivery, and 5) particularly high levels of customer service. High levels of customer service include pre-sale, in-sale and after-sale services, e.g., effective pre-sale advertisement, organiseing product release and order conferences, dealing with sales contracts and in-sale delivery and shipping services promptly, learning customers' feedback, actively and practically dealing with their complaints, etc. (Yu 23rd Feb 2012).

Skillful Worker (SW)

Recruiting and retaining skillful workers is particularly important to SCA of the clothing manufacturers. However, due to the widely perceived "labour shortage" problem, particularly in the eastern coast region, recruitment difficulties are currently quite common, exacerbated by rapidly rising labour costs.

> *In Huangshan Industrial Park (Tedelon's old manufacturing base), most skillful workers are aged and some have to work by putting on glasses (thus replacement in urgent need but)… currently it is difficult to recruit experienced youngsters here.* (Yu

23rd Feb 2012).

The recruitment difficulty results from the relatively shortage of potential available workers, which has its causes rooted at least in part in China's policies and cultural context (Zhang 4 Nov 2013). For example, China has adopted the "One couple, One child" family-plan policy since the early 1980s.

> *Majority of the new generation grows up in a single-child family where they could be over-cared for at home from their childhood. Later on from their education, they naturally cultivate a special mental attitude towards their work. That is, they have to get a well-paid and non-physical job which they think is more decent than physical one. In other words, they are unwilling to pick up any "tough" and less-paid job like working in a clothing factory. (Yu Nov 2013)*

Actually most of the workers, predominantly female, in the clothing factories of the eastern coast regions are immigrants from the less-developed central and western regions. Most of them start as non-experienced and non-skilled workers and then build up their skills and experiences while working. In this context, investment in training these new workers and then retaining them is important for the SCA strategy of the clothing firms. Here is the description of Tedelon case as an example.

> *All new workers recruited accept induction training. The technicians and administrative staff have access to regular and on-the-job trainings while the production staff, more often than not, builds up their skills and experiences through regular activities such as team work and communication for 30 minutes every morning at the work place. The promotion and salary incentive systems, as well as the company culture, are effective at retaining the old and experienced workers. (Yu 23rd Feb 2012)*

Youngor has similar employees' training and retention systems to Tedelon[59]. For example, Youngor has regular training programmes to improve employees' professional knowledge and capabilities concerning store decoration, goods display, marketing techniques, logistics, etc. Moreover, Youngor has established cooperation with some universities and high educational institutes, e.g., Donghua University and Zhejiang Textile College, where young graduates provide labour force reserve for the brand studios, first-line store management and new product development. By the end of 2012, the total 24,583 employees consist of different professional skills: 36.48% production workers, 41.37% sales persons, 2.02% technicians, 1.48% financial staff and 18.67%

[59] Source: Youngor website at http://www.youngor.com/job.do?pid=200811190230552627&cid=200811190230552627.

administrative personnel[60].

Supplier Relationship (SR)

Good relationships with suppliers are also fundamental for the clothing company and therefore the case companies manage good relationships with their suppliers. For example, Tedelon develops stable relationships with the regular suppliers based on the principle of mutual benefits.

> *Tedelon has about 60-70 regular textile and accessory suppliers all over the country. We have to keep regular contact and effective communication with them to ensure that their supplies exactly meet our demand at the exact time… (This is important because) Tedelon produces fashion products and this requires for quick response and frequent changes in design, fabric, and textile color on the seasonal base… particularly the 'Fashion China' product line is designed mainly for embellishment of our flagship stores and the textile for the production are mainly exported from foreign suppliers. (Zhang 9th Mar 2012)*

In contrast to Tedelon, Youngor establishes its own complete value chain system within the company from the upward material supply to the downward marketing. In this way, Youngor manages the supplier relationship between its own different subsidiaries or departments which avoids market dysfunctions and also save supply related costs (discussed in Chapter 8.4.4).

7.3.2 Evidence of Upgrading Capability

The preceding statistical results indicate that Upgrading Capability is significantly related to Process Performance (Figure 6-9). This section examines the case companies to find out evidence of Upgrading Capability in terms of its two indicators, namely Branding and InformationTechnology (IT).

7.3.2.1 Upgrading via Branding

The two big companies, i.e., Youngor and Tedelon, have already built their branding capabilities and successfully established their own brands through many years of effort and practice while Kaiqi has not yet established its own brand but the owner-manager has realised the importance of this and is working on its development.

Branding inYoungor

Youngor established its own brands (e.g., Beilun in 1986 and Youngor in 1990) at the

[60] Source: Youngor's yearly reports available at the company website at http://www.youngor.com/investors.do?pid=200811180618348600&cid=200811180619446440.

early development stage (Appendix 7-5). Since the Youngor brand was born it has become popular nationally and gained a series of achievements. For instance, both Youngor shirts (since 1994) and Youngor suits (since 2000) have enjoyed the no.1 market share in China for consecutive years; Youngor was award numerous titles and honors including 'China Famous Brand' in 1994, 'Well-known Chinese Trademark' in 1997, 'Top China 500 Manufacturing Enterprises' in 2006, and 'Most Protected National Brands' on quite a few occasions (Appendix 7-3). In 2007, the Youngor brand ranked no. 52 on the World Brand Lab's list of China's top 500 most valuable brands, with estimated brand asset at 9.18 billion RMB (about 1.46 billion USD)[61].

The purpose of branding is set out in Youngor's corporate vision as 'to create an international brand, to build a century enterprise'[62]. Through many years' continuous efforts in brand management and brand development, Youngor brand successfully achieved popularity throughout Mainland China, particularly during the 1990s and the early 2000s. However, according to Chairman Li's reflection on the early success, Youngor was not really a brand company at that time.

> *During the course of China's transformation from a planned economy towards a socialist market economy, 'Famous Brand' often contained the specific contextual meanings, e.g., a large sum of investment in advertising and Guanxi. However, brand is fundamentally based on market acceptance. A strong and competitive brand needs further advancement and support in all aspects.That is, in addition to those at the material level such as premium quality, unique product design and effective customer service, those at the spiritual level such as brand culture, brand image, brand personality and core brand entity are more important. Youngor was merely a clothing company winning "China's Famous Brand" but not yet a "Chinese brand company" at that time. Therefore, to be a brand company and to establish an internationally strong brand, Youngor still has a long way to go. (Li 2010)*

In view of the above considerations, Youngor has never ceased efforts at brand management and brand development, which are particularly reflected in developing its distribution channel at an early stage, investing in R&D and in extending its multiple brands in recent years.

Branding in Youngor: Distribution channel

In menswear, product style, design and quality can quite easily be imitated, whereas those company specific resources such as brand and distribution channel are a more

[61] World Brand Lab evaluates the Chinese brands, which is based on the three key indicators reflecting brand impact power, i.e., *market share*, *brand loyalty*, and *the leading power* in the globe.

[62] Source: Youngor's office website available at http://www.youngor.com/about.do?cid=200811180345589700.

effective source of SCA (Guo 2009). Youngor realised the significance of its distribution channel for SCA in the late 1990s and from 1998 onwards it started to develop its self-operated distribution channels mainly by setting up outlets in shopping malls and specialty shops in almost all the first-tier and second-tier cities across the nation. By the end of 2005, Youngor had established this new distribution system. During recent years, Youngor continuously decreased the number of small stores and franchising outlets whilst setting up large flagship stores in Hangzhou, Shanghai and other provincial and municipal cities. Most of these flagship stores are properties invested in by the company and are luxuriously decorated (Zheng 2011). In this way, these stores enhance the brand image and facilitate customers' enjoyable purchasing experience in the pleasant shopping environment (Zheng 2011). By the end of 2011, Youngor possessed 2302 sales terminals, amongst which self-operated specialty stores (573) and shopping mall outlets (1302) account for 80% of all domestic sales with franchising stores (480) and group purchase[63] as supplementary (20% of the total sales) (Table 7-2).

Table 7-2: Youngor's distribution channel, 2011

	Self-operated stores	**Shopping mall outlets**	**Franchising stores**	**Group purchases**	**Sum**
Store number	573	1302	480	n/a	2302
Percentage of the total domestic sales	43%	37%	9%	11%	100%

Source: author's creation based on Youngor's annual reports, 2011.

Branding in Youngor: R&D investment

> *The most important and also generally neglected problem for the Chinese manufacturing industry is Research and Development (R&D). Youngor took 5 years to reach the advanced world standard in the clothing manufacturing but R&D is still at the primary stage. Made-in-China as a whole is standing at the primary stage in R&D. (Li 2008)*

Youngor is a leading clothing enterprise in China in terms of R&D investment and there is no doubt that Youngor has now achieved distinctive edges in technology, e.g., the non-iron shirt processing technology and the hemp textile technology.

Youngor has invested about 3%-5% of its sales revenue in R&D each year since 2005, which is far more than the national average level, i.e., less than 0.5% (Guo 2009a).

[63] Group purchase normally refers to the consumer is an organiseation instead of individuals, e.g., a hotel purchasing uniforms for its employees.

Youngor's R&D focuses on high-grade textile and fabric, new processing technology and product design.

Youngor successively introduced HP non-iron technology, VP non-iron technology and the nanotechnology from Japan and America. Based on introduction, digestion and absorption, and through R&D and innovation, Youngor successively developed and updated its non-iron shirt processing technology (Figure 7-4).

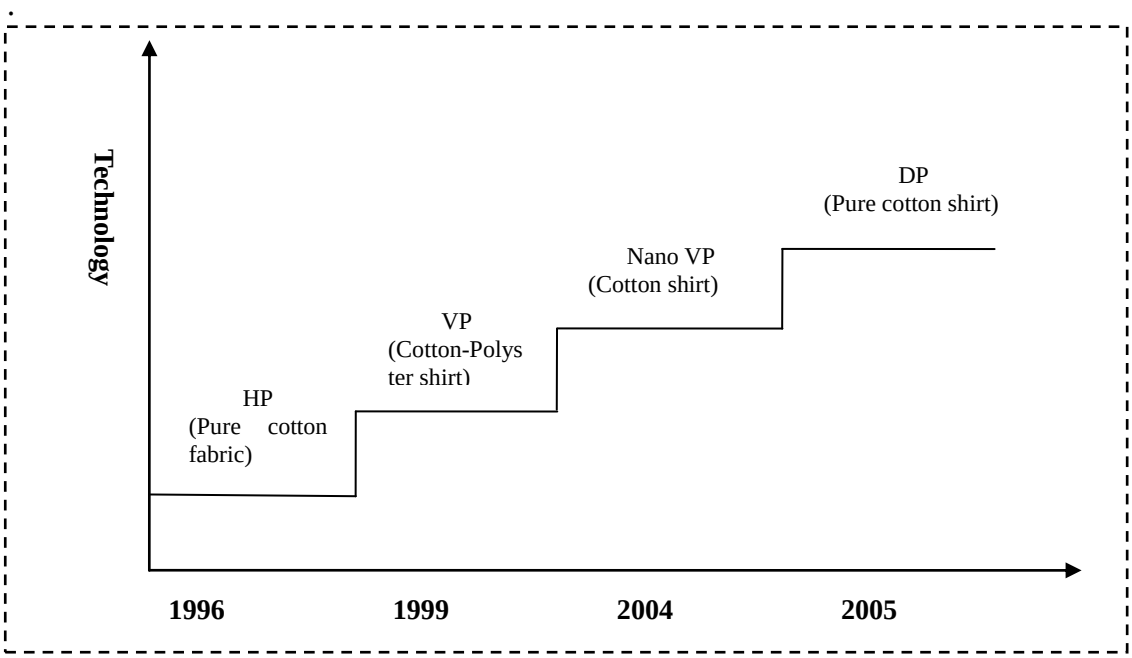

Figure 7-4: Youngor's timeline of non-iron technology development

Source: (Guo 2009b)

HP is a Japanese patent, which is suitable for general cotton fabric but not for high-count[64] cotton and the non-iron effect tends to be unstable after repeated washes. Based on the introduction of HP technology, Youngor launched its wrinkle-free and HP non-iron cotton shirt in 1996.

The VP processing technology was originally a patent of ATP, an American company, suitable for the mixed fabric of cotton with polyster. By combining the nano technology with the VP technology, Youngor developed the "processing method of non-iron nano shirts (nano VP)" and successfully applied for the patent in 2004 but this was abandoned later because it tends to cause high formaldehyde content.

[64] Cotton count measures linear density. It is the number of hanks within a fixed yard of a fixed weigh of the material. In this measure, the higher the number, the finer the yarn is.

DP is a new non-iron processing technology for pure cotton shirts and the patent was initially owned by Youngor in 2005. It solved all the disadvantages inherent in the previous HP and VP technologies. DP non-iron pure premium cotton (used for shirts) is a high-grade product and soon was awarded "State Key New Product".

Youngor's investment in R&D has already led to benefits, including a stable market share in shirts and suits (Appendices 7-3 and 7-5) and has contributed to the company's rapid development and hence sustained competitive advantage.

Branding in Youngor: Multiple brands

Youngor has established its brand and won brand reputation nationwide over the past 20 years. The brand is popular in China, particularly among middle-aged businessmen and the brand is associated with images such as successful businessmen, traditional and favorite suit, middle-aged menswear, etc. Unfortunately, these perceptions also contain some challenging connotations like conservative, lack of fashion, too much Chinese style, lack of international taste, etc. (Dai 2010). Therefore, strategically the company has to address the issues of how to keep the existing customer group whilst attracting new consumers in order to achieve sustained development. To this end, Youngor launched its multi-brand strategy in Beijing in 2010. The five brands are CEO, MAYOR, GY, HEMP and HSM. The first three are subdivisions of the original YOUNGOR brand. Each brand is specifically positioned to cater for a different market segmentation serving distinctive product styles to satisfy different customers' demands.

CEO follows the original brand style in the new field of business and leisure. ***MAYOR*** is positioned at the high-end of the market and its targeted customers are successful businessmen. Customised marketing is the main type of sales with ready-made clothing stores as the second sales. By the end of 2011, there were about 25 stores and 23 customised selling spots in China. ***GY*** targets youngsters in the 25-35 age-group who pursue the latest fashions. Brand awareness is enhanced through the GY official website and GY blog. By the end of 2011, there were about 112 GY stores all over the country. ***China HEMP*** is a brand advocating a healthy and comfortable life. Hemp products are made from Youngor's self-innovated and environmental-friendly hemp materials. By the end of 2011, there were 10 HEMP stores in China in addition to the brand flagship shop on the web. According to the 2011 annual report, 90% HEMP products are sold on online rather than in the real shops. Hart Schaffner Marx (***HSM***) is a famous American menswear brand. Youngor gained the brand operation and management in Mainland China, HongKong SAR (Special Administrative Region) and Macao SAR. HSM positions at American-style business and casual wears, through which the company aims to gain experiences to build and manage a world-class brand. By the end of 2011, there were 86 HSM stores in China.

Through brand development and brand operations, including its distribution channel, R&D investment and multiple brands, Youngor is transforming its business mode from the previous quantity expansion towards quality enhancement and from the previous manufacturing-based towards brand-based enterprise. Branding is firm-specific and also hard to be imitated by competitors, and therefore brand-related resources are the source of Youngor's SCA.

Branding inTedelon

> *Brand culture refers to a combination of those elements including brand name, logos, design, and all cultural traits and phenomena, in which the product or service is operated (Yang 2010).*

Since it was first established, Tedelon has gradually built up its nationwide popularity by continually investing in the development of its distribution channels and in brand marketing, via, for example, advertising on CCTV (China Centre TV) and local TVs, in magazines and newspapers, light boxes and billboards. Tedelon aimed to become an international clothing company via brand development, e.g., adopting the new trademark and the corresponding logo (Figure 7-5), proposing the '5153' strategy for developing multiple brands and brand internationalisation and cooperating with the famous Italian design company, Riccardo Remi Studio, for improving capability in design. Through the cooperation, 'Rami Studio provides updated fashion elements and fashion trends for Tedelon to digest and absorb and then to turn them into fashion design and put into manufacture (Yu 23rd Feb 2012)'. Moreover, Tedelon's unique branding is particularly reflected in construction of the brand culture.

Branding in Tedelon: Brand culture

Brand culture is an important part of corporate culture. Brand culture is the carrier of corporate culture and contains ideas, values and aesthetic appreciations of the company, which the customers appreciate and identify with so that they enjoy the products and services and share the corporate culture at the same time (Wang 2009). That is to say, brand culture contributes to effective communication with customers and thus enhances brand popularity, brand reputation and customers' loyalty. Also, in a similar way the brand culture contributes to more effective internal cohesion, which integrates employees' personal development with the mission of the company. For instance, when talking about effects of the brand culture on the employees, Yu told the following story:

> *By the end of the first year (2010), we found the employee turnover here (in Anhui industrial park) was quite serious. We reflected later that the main reason was probably insufficient communication with the workers… The following year (2011), we improved in this respect and our staff learned more about Tedelon and the brand*

culture. As a result, the employee turnover dropped dramatically, being only about 3% by the end of the year. (Yu 23rd Feb 2012)

Tedelon adopted a new brand name and the corresponding brand logo in 2008. The new brand "Tedelon" is in English letters while the original name "太子龙" comprising three Chinese characters written beneath (Figure 7-5). The new brand name "Tedelon" sounds very similar to the original name, which would be written in Chinese Pinyin as "Tezilong". However, the new version in English letters is more suitable for the international market. The new logo looks like an ancient Chinese shield, giving a kind of beautiful aesthetic feeling and conveying the unique brand benefit to the customers.

Figure 7-5: Tedelon's new brand name and new logo

Source: Google image[65].

Practically, based on the corporate culture, Tedelon built up its brand culture in a series of sequential steps (Appendix 7-1). ***At the initial stage*** (1995-2000), the company adopted a corporate mission 'to carry forward the national brand culture and to enhance the national brand competitiveness' (弘扬民族品牌文化，提升民族品牌竞争力). The corresponding brand advertisement was 'confidence, naturalness, and fineness' (自信、自然、极致), which expresses the initial prototype of the brand culture. ***At the second stage*** (2001-2006), based on the previous company mission and the advertisement, the leadership team gradually put forward the basic concepts about the company aims, management ideas, quality guidelines, company slogan, new advertisements, etc., which comprised the key elements of the company culture. The company's spirit 'confidence, naturalness, fineness' (自信、自然、极致) formalises the core idea of Tedelon's culture

[65] Source: Online available from < https://www.google.co.uk/search?q=tedelon+%E5%A4%AA%E5%AD%90%E9%BE%99&rlz=2C1GGGE_zhGB0537GB0537&es_sm=93&source=lnms&tbm=isch&sa=X&ei=qIh0VPmoFI6P7AbT3YHIBA&ved=0CAkQ_AUoAg&biw=1366&bih=667#tbm=isch&q=TEDDLON+%E5%A4%AA%E5%AD%90%E9%BE%99&facrc=_&imgdii=_&imgrc=Lu-v_zdD05ZkxM%253A%3B-RCnCp4qdja3BM%3Bhttp%253A%252F%252Fwww.kansp.com%252Fuploads%252Fallimg%252Fc141011%252F1412a3463c0-1c012.jpg%3Bhttp%253A%252F%252Fwww.kansp.com%252Fzixun%252Fzonghe%252F2014%252F1011%252F165835.html%3B612%3B293 > [24th May 2012].

system. ***At the third stage*** (since 2007 till now), the company is scientifically and systematically developing the brand culture, by for example adopting the new name and the new logo, developing multiple brands and brand internationalisation in design. Consequently, publication of the book '*Scientific View of Brand Development*' (科学品牌发展观) in 2009 marks a mature stage for construction of the brand culture.

In summary, the business philosophy of Tedelon is to create competitive advantage through brand management and brand development, where the brand culture is at the core. In other words, Tedelon gains its competitive advantage and SCA through development of its brand culture.

Branding in Kaiqi

Kaiqi's development has involved continual upgrading, including (1) product upgrading from simple and general products to more sophisticated and complicated ones, and (2) process upgrading by introducing more advanced processing technologies and advanced machines and equipments. However, Kaiqi has not consciously adopted any strategy to sustain its present competitive advantage either in the manufacturing segment or for the foreign trade. However, in recent years the owner-manager has realised the importance of own brand.

> *Given the increasing competition in the manufacturing segment, those who are based on low price and homogeneity are easily eliminated and only heterogeneity and uniqueness may be the core source for sustainable development. Own brand is the key path for heterogeneity and uniqueness.* (Shen 5th April 2013)

Although Kaiqi still remains as a non-brand clothing manufacturer, it is no longer merely an OEM. As Sheng claims, Kaiqi now has the capability to develop its own brand.

> *…. Actually we have developed strategic cooperation with our customers… Besides clothing manufactureing, We provide a broad range of packages including investment in product and processing R&D, product design and manufacturing, exchange of market information, etc.* (Shen 5th April 2013).

The main reasons why Kaiqi has not yet established its own brand are concerned with the costs and the risks. As the manager-owner reflected, 'Kaiqi is setting about establishing its own brand… thinking of the web-brand as a start which is less costly and less risky' (Shen 5th April 2013).

7.3.2.2 Upgrading via Information Technology (IT)

To gain and retain competitiveness, the clothing companies need upgrading via Information Technology (IT) in addition to upgrading via branding. IT resources vary amongst the three companies. Both Youngor and Tedelon have developed their own resources in IT while Kaiqi's Upgrading Capability in IT is vague and implicit.

IT in Youngor

Youngor started to implement a ten-year information management strategy in 2000 and invested 1200 million RMB during the first 5-year implementation. As a result by the end of 2005, the company's inventory decreased by over 30% which saved stock cost of over 1000 million RMB; order processing and procurement management became automatic and more effective so that the production cycle was shortened to 45 days from the previous 90 days; the internal communication operated more smoothly; losses caused by human errors decreased by 20%[66].

Youngor has also established its comprehensive and nationwide information management systems, including an ERP (Enterprise Resource Planning) production management system, a DRP (Distribution Resource Planning) distribution system, a POS (Point of Sale) retailing system, an integrated platform system for supply chain management and a database searching system[67]. Implementation of the ERP system decreased stock by 30%, increased the production-to-selling rate by 3%, and shortened the production cycle by 7-10 days amd reduced production costs by 3.8%. The DRP and POS systems led to prompt feedbacks of sales, finance and stock information, which consequently reduced stocks, improved the capital turnover rate and reduced financial risk. Implementation of the integrated platform for supply chain management made every step of production, stock and sales transparent and as a result improved the cooperative effect between production and sales.

IT in Tedelon

Tedelon built up its information management systems linking customers, suppliers, business partners and different departments within the company. For example, the OA system is for internal communication between different departments, such as finance, manufacturing, sales, service and customer relationship management. The ERP system integrates internal and external communications.

Tedelon is positioned to manufacture fashion and leisure menswear and also intends to become an international brand company. Therefore, information concerning the

[66] Source: Youngor's website available at http://www.youngor.com/news.do?cid=200811190204542569 .
[67] Source: Youngor's website available at http://www.youngor.com/ .

forefront of world fashion is critical. That's the reason why Tedelon established cooperation with Remi Studio, a famous Italian design company (Appendix 7-1). In this way, Tedelon can acquire the latest fashions in the world clothing arena.

In summary, evidence of Upgrading Capability in terms of branding and IT are quite clear in Youngor and Tedelon but there is no significant evidence of IT in Kaiqi. This result suggests that whether Kaiqi's development and the present competitive advantage will sustain in the future is questionable and needs further study, which in turn opens a further potential research direction.

7.3.3 Evidence of resource bundling effect

Linking back to the statistics model in Chapter 6, resources are composed of three constructs, i.e., Fundamental Resource (FR), Dynamic Capability (DC) and Upgrading Capability (UC). The statistical results suggest that the three exogenous constructs are significantly correlated to each other, which confirms the resource bundling effect on Process Performance (measuring SCA) of the Chinese clothing companies. Now evidence from the three companies shows in detail how the bundling effect works in the real businesses.

Customer Relationship and Branding capability are bundled together contributing to SCA of the companies. Both Tedelon and Youngor provide the evidence in this point. For example, both have built up their own distribution channels to provide better services to and built up better communication with their end users. They established flagship stores to enhance their brand images through unique decoration, product display and premium services. They also developed their brand cultures to enhance the brand connotations. In this way, Youngor and Tedelon secured their customers and built customer loyalty. At the same time, both companies developed multiple brands, targeting new market segmentations and strengthening their product design and marketing capabilities so as to capture new customers. Brand culture and brand services are firm-specific resources contributing to SCA of the companies.

In Tedelon, HRM is deeply embedded in the company's corporate and brand culture, which shows ***bundling of HRM and Branding*** (detailed discussion in Chapter 8.4.2). There is a very low employee turnover in Tedelon. As Wang proudly states, '…those who have once been working with me at the very beginning of the business all stay with the company, trusting and supporting me, and they are the most valuable wealth of the company' (Wang 2006[68]).

The most distinctive feature of Youngor's successful and sustained development is the

[68] Source: Tedelon's website available at http://www.tedelon.com.cn/.

vertical integration of the whole value chain within the company. However, this has been suggested that the upstream expansion is not necessary since this could be replaced by strategic cooperation with the suppliers (Cheng 17th May 2010). Actually, too long a value chain can easily result in response lags. To tackle this problem, Youngor developed information systems in cooperation with the Chinese Academy of Sciences. Through its information systems, the company links all information across value chain activities, including sales, finance, supply, inventory, manufacture and retailing stores. In addition, Youngor successfully invests in the textile innovation, e.g., Hemp material and Hemp products, which contribute to Youngor's overall strengths and competitive advantage. In this context, it is the resource bundle, i.e., ***the bundle of Customer Relationship, Supplier Relationship, IT and Branding***, that creates Youngor's competitive advantage and enables it to be sustained.

Unlike the branded companies, Kaiqi's most distinctive resource lies in its Customer Relationship. This is reflected in the way that Kaiqi develops its Customer Relationship. ⑴ Kaiqi directly contacts its customers and deals with their orders (i.e., manufacturing and exports) without any intermediary involved. ⑵The manager-owner has built up trust and stable relationships with his customers and controls their contacts and detailed information. ⑶ In recent years, Kaiqi has developed strategic cooperation with its regular customers, which further secures its Customer Relationship.

However, SCA is attributable to the resources bundle rather than to a single resource or capability. One key reason is that a single resource or capability may not necessarily be of the VRIN attribute while when the resources are bundled together they create the attribute due to history, casual ambiguity and social complexity involved during the formulation of the bundle (Barney 1991). In this context, it could be argued that Customer Relationship alone may not produce SCA for Kaiqi. In addition, Customer Relationship is a fundamental resource which generally produces only competitive parity. However, in addition to the unique Customer Relationship, Kaiqi also possesses other Fundamental Resource like Quality Control and Skillful Worker (Details in Chapter 7.3.1). Moreover, throughout its development, Kaiqi has continually built up its Upgrading Capability, e.g., updating the processing technology, manufacturing more sophisticated products and developing capabilities of product design. Therefore, Kaiqi's unique Customer Relationship bundling with its Upgrading Capability contributes to its superior performance so far.

The above examples in the three companies are some of evidence to illustrate the bundling effects of resources on SCA, which has been confirmed in the statistical results.

7.4 Chapter Summary

This chapter offers insights into what lies behind the statistical results through the study of three specific cases.

There is strong evidence of Fundamental Resource across the cases, particularly in terms of Quality Control and Skillful Worker. Customer Relationship in Kaiqi is remarkable and unique due to Kaiqi's unique way of developing and managing it. Supply Relationship in Youngor becomes more about relationships between different departments and between different subsidiaries within the company because the company itself developed its own vertical value chain. That is, main suppliers for its clothing production come from the internal departments or subsidiaries rather than the traditional external sources. This is also unique and firm specific resources.

Upgrading strategy, particularly upgrading via branding, has been widely practiced in the Chinese clothing industry since the late 1990s. Branding capabilities, e.g., distribution, marketing and design, are strongly evidenced in Youngor and Tedelon. Both have well-established brands for more than a decade in China. In comparison, Kaiqi's upgrading strategy has remained fairly basic comprising mainly product and process upgrading, though recently it has just developed its own-brand intention and to an extent has implicit branding capabilities. As for Upgrading via IT, both Youngor and Tedelon have developed their own information management systems while Kaiqi has not. Two reasons may explain why Kaiqi has insufficient IT. One reason may be that Kaiqi has not developed its own brand and therefore the company does not need to face endusers. In this context, IT is less required due to no endusers to be managered. The other reason may be that Kaiqi is a relatively smaller size which involves less complex relationships and therefore there is less requirment for management of relationships via IT. As a matter of fact, the owner-manager himself dominates external contacts and communications.

Moreover, evidence from the cases also illustrates the bundling effect of resources on sustained competitive advantage (SCA). That is, Fundamental Resource has to combine with Upgrading Capability and it is this combined effect or bundling effect that contributes to the SCA of the companies.

Having followed and conducted all the research steps, next chapter discusses and concludes the research.

CHAPTER EIGHT: DISCUSSION & CONCLUSIONS

8.1 Chapter introduction

This thesis aims to explore and examine the sources of sustained competitive advantage (SCA) of the Chinese clothing industry. To this end, the research objectives and corresponding questions are set and sequential research activities are conducted. This chapter discusses and concludes the findings (Figure 8-1).

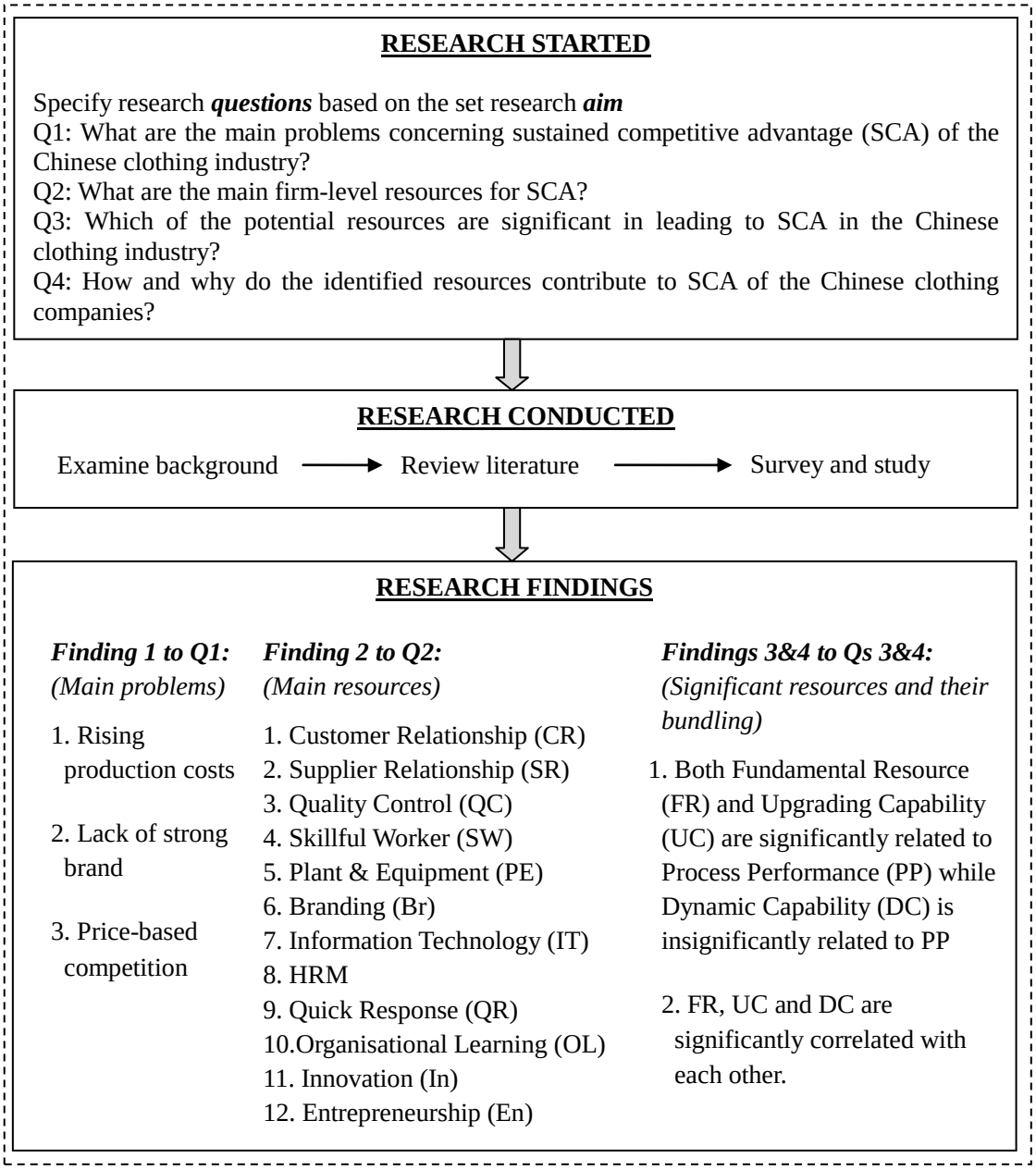

Figure 8-1: Executive summary of the research

Source: The author.

Figure 8-1 sums up the research procedure. The four research questions are raised in the introduction chapter and they are answered step by step through the series of sequential studies described as follows.

Firstly, by examining the research background and by referring to the GVC framework, it is revealed (***Finding 1***) that the main problems to sustain competitive advantage of the Chinese clothing industry are rising production costs, lack of strong brand and price-based competition (Gereffi 1999, 2001, Gereffi, Humphrey & Sturgeon 2005, Bair 2005, Dicken 2007, Appelbaum 2008). Thus ***Question One*** has been answered.

Secondly, according to the resource-based view, valuable, rare, inimitable and non-substitute (VRIN) resources are the source of sustained competitive advantage; dynamic capabilities enable companies to reconfigure and retain competitive advantage in the dynamic environment (Wernerfelt 1984, Barney 1991, 1997, Teece, Pisano & Shuen 1997, Ray, Barney & Muhanna 2004, Newbert 2007, Wiklund & Shepherd 2009). Drawn from the literature, a list of twelve specific resources is identified as the potential source for SCA of the Chinese clothing industry (***Finding 2***). Thus ***Question Two*** has been answered.

Thirdly, statistical results suggest that two constructs of resources, i.e., Fundamental Resource (FR) and Upgrading Capability (UC), are significantly related to sustained competitive advantage of the Chinese clothing industry while the remaining one, i.e., Dynamic Capability, is not (***Finding 3***). All three constructs of resources are significantly correlated with each other, which suggests the bundling effect of resources on SCA (***Finding 4***). The statistical analysis is complemented by three case studies which illustrate and interpret how and why the resources act and interact to generate and sustain competitive advantage in three specific firms. ***Questions Three & Four*** have been answered.

The rest of this chapter is organised into 5 sections. Sections 8.2 & 8.3 discuss and conclude whether and how the research questions have been answered; section 8.4 provides recommendations of SCA strategies for the Chinese clothing industry; the remainder of the chapter reflects on the contributions of this research to knowledge, theory and practice (section 8.5) and its limitations (section 8.6).

8.2 Problems with sustaining competitive advantage - To research Q1

The primary research aim is to explore and examine the sources of sustained

competitive advantage of the Chinese clothing industry. Firstly, as a precondition for the research aim, it should be clear to the question as to what are the problems concerning sustainability of the present competitive advantage? This question (i.e., Q1) has been explored by examining the Chinese clothing industry in the global value chain (Chapter 2).

8.2.1 Competitive advantage of the Chinese clothing industry

> *The combination of high-skilled production, relative technological savvy and low wages ultimately leads to further concentration of global apparel production in East Asia and in China in particular. (Cammett 2006:14)*

The Chinese clothing industry has developed at a fast pace since the early 1980s when China started the opening-up and reform policy. Now China has become the world's largest clothing manufacturer and exporter. China's mode of development has some similarities with the East Asian NIEs such as Hong Kong, Taiwan and South Korea during the 1960s through the 1980s, in that it has benefitted from the transfer of the global apparel production from the developed economies.

Therefore, the competitive advantage of the Chinese clothing industry, from the GVC perspective, is in the manufacturing sector and primarily based on low labor costs and hence cheap prices. In addition to the favorable external environments, the source of the competitive advantage can be summarised as follows:

- From the industry's perspective
  - Clothing value chain and
  - Local industrial clusters
- From the company's perspective
  - Established customer relationships
  - Manufacturing capabilities
  - Skillful workers

The Chinese clothing industry has quite complete value chain, including supportive supply of raw materials, fabric and textile. Some big companies possess world's most advanced technologies and largest production capacities, e.g., hemp fibre and textile and PTT[69] (polytrimethylene terephthalate) fibres and textile. Hemp textile and hemp production are based on Youngor's independent R&D and the company owns intellectual property rights (Details in Chapter 7.4.2). Similarly, Shenghong Corp.[70]

[69] PTT fiber has both stability of polyester fiber and softness of nylon fiber and therefore it is estimated that the PTT fiber will replace both polyester and nylon in the near future (Houck et al. 2001). Source: [Online] available from http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/july2001/index.htm/houck.htm [20 May 2014]

[70] Sources: http://www.shenghong-cf.com/en/ and http://en.youngor.com/index.do.

possesses the PTT technology with its own intellectual property rights and now is the third company in the world, after Shell Chemical and American Dupont, to own this technology. Shenghong is also only the second company in the world to put the technology into production of PTT fibre and textile (Yi 2013).

The geographic distribution of the Chinese clothing companies is characterised by local industrial clusters (LICs), where a large number of companies, including competitors and supportive companies of upstream and downstream industries, gather together and interact with each other, which is an important contributory factor for the whole industry and the region to gain competitive advantage (Hill & Brennan 2000).

From the company's perspective, the competitive advantage of the Chinese clothing industry is attributable to the firm-level resources, e.g., long-established customer relationships with global buyers, skillful workers and manufacturing capabilities such as stable quality control and flexible production in terms of capacity and delivery.

However, these resources are not sufficient for sustained development of the whole industry. Problems with sustained competitive advantage and the corresponding solutions are discussed next.

8.2.2 Problems with sustainability of the competitive advantage

Based on this research, main problems mitigating against sustained competitive advantage of the Chinese clothing industry include rising production costs, lack of strong brand and price-based competitive strategy.

8.2.2.1 Rising production costs

The competitive advantage of the Chinese clothing industry has been increasingly challenged by external dynamics. Continued appreciation of the China Yuan since 2005 has started to undermine China's export advantage in the global market and the global economic recession ever since 2008 has further highlighted the sustainability issue of the development mode in China. Moreover, the already-thin profit margins in the clothing manufacturing segment have been further squeezed from both sides, i.e. rising production costs[71] on the one side and downward pressure of unit prices on the other.

Fast and continuously rising costs is one of the main challenges to sustaining competitive advantage for the Chinese clothing industry, particularly for the clothing manufacturers due to the nature of the labour-intensive input (Taplin 1997, Gereffi 1999, Dicken 2007). The key reason for the rising production costs is the continuous and rapid

[71] The main costs along the manufacturing processes include costs of raw materials, labour costs, land costs, environmental resource costs, financing costs, and energy-saving and emission-reduction costs, etc.

economic development. Correspondingly with the economic development, costs of land, materials, components and labour inevitably go up. In addition, required costs associated with better environmental protection are also going up. Therefore, cost control is a key issue for SCA of the Chinese clothing industry.

In addition to the external challenges (i.e., the rising production costs) and dynamics for sustained competitive advantage in the global value chain, the main internal (i.e., firm-level) problems have been revealed, namely, lack of strong brand at the international level and price-based competition.

8.2.2.2 Lack of strong brand

As Chinese clothing companies have evolved, they have generally realised the importance of having their own brands and some have registered their own brands (Details in Chapter 7.2.2). However, 'to register' a brand name or trademark is not the same as 'to establish' a brand. Brand is not just a legal action, or a name, or a logo, or a symbol. None of these is sufficient for establishment and strengthening of a brand. Actually many of these companies have just registered their brand names with trademarks and logos but neither properly established nor strengthened their brands.

Therefore, the major branding problem is clear, that is, there is no strong brand and it is particularly rare for a Chinese clothing brand to be popular in the global market. China does have the clothing brands and some of these are very popular at the national level, but few, if any, of these are strong enough to compete in the global market (Dai 2010).

Then why is it hard to build strong brands? Aaker (1996: 26-34) reflects on the question and summarises 8 key barriers as follows:

1) Pressure of competing on price which discourages brand building,

2) Proliferation of competitors which minimizes positioning space,

3) Fragmented markets & media which makes it more difficult to match brand marketing with effective media,

4) Complex brand strategies (e.g., corporate brand, ingredient brand, brand extension, multiple brand and sub-brand, etc.), which make building and managing brands difficult (e.g., difficulty in clear brand identities for each brand and the relationships between them),

5) Bias toward changing strategies (e.g., changing a brand identity while it may still be effective or not yet established),

6) Bias against innovation, e.g., minimized reaction (in term of product or service innovation) to external opportunities and competitive challenges which results in vulnerable SCA),

7) Pressure to invest elsewhere, thereby reducing commitment and supports to the core business, which often undermines the original strengths and competitiveness of the brand, and

8) Strategy for short-term results, leading to long-term brand-building programmes being sacrificed.

The first four are the exogenous to the firms and hence less controllable by them while the last four are the endogenous factors which can be managed by the brand builders.

These barriers and challenges can partly explain why Chinese clothing brands are rare in the global market. Taking Kaiqi for example, the fact that the company has not yet developed its own brand is due to two main reasons, namely, enormous pressure of competition on price (i.e., above barrier 1) and adopting a strategy which focuses on short-term results (i.e., above barrier 8). Retailers are powerful force putting downward pressure on price and there is also pressure from overcapacity and homogeneous products and price-sensitive customers. Building a successful brand requires high levels of long-term investment and entails substantial risks. In this context, like the majority of SMEs, Kaiqi focuses on the short-term activities as clothing manufacturers, particularly when the companies has not yet run out of competitive advantage in this role.

The Youngor case illustrates well why China lacks strong brands. This is related to the above three identified barriers, viz., ‘innovation’, ‘internationalisation’, and ‘diversification’. For example, for many years, up until 2010, Youngor had only one brand serving all of its customers without segmentation in terms of age, incomes, or life style; yet the core products covered both professional suits and T-shirts with lack of innovation in product design and services. Furthermore, the main business focused on the domestic markets. At the same time, particularly during the 1990s, Youngor was attracted to invest in financial markets and real estate and this business diversification caused the company to divert limited resources away from its main business, which to an extent, undermined brand management before the brand had met its goal of “internationalisation” and being a “century brand”.

8.2.2.3 Price-based competition

In addition to the problems of rising production costs and lack of strong brand, another major problem with SCA of the Chinese clothing industry is price-based competition. It is generally agreed that original design is one of the weakest aspects of the Chinese

clothing industry. The main reasons for this are related to insufficient investment on R&D and lack of adoption of IT management systems. Lack of motivation for original design, R&D and IT definitely results in a lack of product diversity and overproduction of homogenous products. All these consequently lead to another big problem for the Chinese clothing companies, namely, price-based competition. Therefore, the problem of price-based competition is relevant to a broader range of issues such as design, R&D and IT.

Product design involves broader aspects, including for example, collecting market information and analysing the corresponding responses. Market information among them is particularly important in relation to market demand and demand dynamics to assist the firm in predicting trends both home and abroad in terms of colors, fabrics, fashion styles, price and competition states, etc.

R&D is particularly used for development and innovation in relation to the functional performance of a product, for production processes and for original designs. IT is used for communication and information flow among parties involved (i.e., external stakeholders and internal departments) and hence has a key role in ensuring effective and efficient coordination of activities among them.

In summary, the revealed SCA problems include both external challenges (i.e., rising production costs) and internal weaknesses (i.e., lack of strong brand and price-based competition). These problems are not totally separated but rather they are related to or correlated with one another. Given the GVC framework, next section discusses and concludes practical solutions based on the significant resources.

8.3 Significant resources for sustained competitive advantage

8.3.1 Main resources for SCA - To research Q2

Keeping in view the revealed problems, this research then investigates significant resources for SCA of the Chinese clothing industry as solutions to the identified problem. Firstly, drawn from the literature, 12 indicators of resources are selected (Figure 8-1). This is followed by subsequent exploratory and confirmatory factor analysis. As a result, 10 indicators are left representing three constructs of resources (Figure 6-9). That is, Fundamental Resource is represented by ⑴ skillful worker, ⑵ quality control, ⑶ supplier relationship, and ⑷customer relationship; Dynamic Capability represented by ⑸ quick response, ⑹ entrepreneurship, ⑺ organisational learning and ⑻ human resource management; Upgrading Capability by ⑼ branding and ⑽information and technology. Thus the research Question 2 is answered.

8.3.2 Significant resources for SCA of the Chinese clothing industry - To research Q3

To test and examine which of those identified potential resources are significant for SCA of the Chinese clothing industry, this study formulates a hypothesised model. In this model, resources are measured by three constructs, namely, Fundamental Resource, Dynamic Capability and Upgrading Capability, while SCA is measured by Process Performance (Figure 6-10). Then the hypothesised relationships are tested by using a survey dataset of the Chinese clothing industry.

The statistical results suggest that two of the constructs, Fundamental Resource and Upgrading Capability are significantly related to Process Performance (measuring SCA) and these findings are consistent with the RBV theory (Figure 6-10). However, the results also indicate that the third construct, Dynamic Capability is statistically insignificantly related to Process Performance. This insignificant result is not in accordance with the theoretical expectation and any conclusive explanation of this result cannot be provided until further study is conducted in the future.

The findings of the significant relationships are subsequently illustrated through study of three cases. All three cases show strong evidence of Fundamental Resource. However, Upgrading Capability varies among them. For example, Youngor and Tedelon have established their own brands while Kaiqi has not yet done so, though all the cases are relatively successful by performance. Moreover, detailed study of the three cases provides insights into the significant resources concerning how and why they contribute to SCA of the companies, which are discussed and concluded as follows.

There is no doubt that China has a labour-cost advantage in comparison with the industrialised economies such as the USA and the UK and this is the reason why the industrialised economies outsource to or directly invest in China. Also the Chinese clothing industry retains the competitive advantage in comparison with the other even lower-cost global manufacturers like Bangladesh, Cambodia and Vietnam. A key reason (among others) for the SCA is Fundamental Resource, which is reflected, for example, in skillful workers, quality control, supplier relationships and customer relationships (Gereffi 1999, Humprey & Schmitz 2002, Appelbaum 2008). For example, (1) in Vietnam and Cambodia, labour costs are cheaper than in China but workers there are generally not as abundant or skillful as in China, which in turn influences performance such as labour productivity and production flexibility; (2) product quality produced in Vietnam and Cambodia generally cannot compete with China, which is a main reason why global buyers still prefer ordering from China for their high-end products; (3) the Chinese manufacturers have established relationships and trust with their global

customers for quite some time while Vietnam and Cambodia are latecomers with less experience; (4) China has developed quite a complete value chain, particularly involving competitive supply industries such as accessories and textiles, while Vietnam and Cambodia have not.

Upgrading Capability is a key source for the whole Chinese clothing industry to sustain competitive advantage in the global market. Two terms in this statement need further interpretation. One is "Upgrading Capability" and the other is "the whole Chinese clothing industry". Humphrey and Schmitz (2002: 1020) define ***upgrading*** as 'improving a firm's position within the chain', which results in higher competitiveness and greater added-value. Upgrading is an urgent and a must ***strategy*** for the companies to adopt in order for the industry to sustain competitive advantage. Correspondingly "Upgrading Capability" is the key element to enable implementation of the upgrading strategy and therefore it is the source of the SCA (Gerrefi, Humprey & Sturgeon 2005). Concerning the second term, China's global competitive advantage is currently labour-cost based in the clothing manufacturing segment, which is not sustainable. Therefore, sustainable development requires for upgrading and extending the competitive advantage from the manufacturing segment to "the whole Chinese clothing industry", to the high value-added segments such as design, brand and marketing.

This study suggests that the Chinese companies are on the way towards transforming and upgrading the cost-based competitive advantage. However, Upgrading Capability varies amongst the companies. For example, some have established their own brands while others have not; some branded companies are quite successful while other branded companies are still struggling or barely surviving and generally China lacks of strong brand in the clothing industry.

In summary, Fundament Resource and Upgrading Capability are the two main significant resources for SCA of the Chinese clothing industry. Moreover, according to RBV, a specific or single resource is insufficient to create SCA but instead it is combined or bundled resources that generate SCA (Ray, Barney & Muhanna 2004, Wiklund & Sheperd 2009). This implies that Dynamic Capability might affect SCA somehow through the bundling although its direct effect has not been confirmed in this study and the details are discusses in the following subsection.

8.3.3 Resource bundling - To research Q4

The statistical results suggest that all three constructs of resources are significantly correlated with one another and the correlation coefficients range from medium to high levels (Figure 6-11). These research findings support the resource bundling effect, which answers to research question 4.

However, to help with further understanding of the results concerning the resources bundling effect, it is required to put the whole structural model together (Figure 6-11). Both Fundamental Resource (FR) and Upgrading Capability directly cause SCA which is measured by Process Performance.

Meanwhile, the two together, along with Dynamic Capability (DC) are significantly correlated with each other and this result suggests that DC might have indirect effects on SCA through the resource bundling effect although its direct effect is insignificant. This indirect effect can be interpreted through studies of the cases. For example, when a company has developed Fundamental Resource but lacks proper capabilities in human resource management, which is an aspect of Dynamic Capability, it may result in a higher labour turnover (i.e., loss of skillful workers) and further problems with stable quality control, both of which are indicators of Fundamental Resource. Thus, Dynamic Capability through Fundamental Resource affects Process Performance. This has once happened in Tedelon's Anhui Industrial Park and this story illustrates the importance of resource bundling and the indirect effects of Dynamic capability on SCA. Therefore, the study comes to conclude that it is the resources bundle rather than individual or specific resources that contruibutes to the SCA of the Chinese clothing industry so far.

To sum up, all the research questions have now been examined and answered. Next section provides recommendations for SCA of the Chinese clothing industry.

8.4 Recommendations of SCA strategies

The primary purpose of this research is to explore and examine resources for sustained competitive advantage of the Chinese clothing industry. To this end, the main problems were revealed first. To tackle the revealed problems, this study then, based on RBV, identifed the potential resources that contribute to SCA. These resources have been examined in the Chinese clothing industry. Now, based on the above research findings, this section provides the following SCA strategies to the relevant parties of the Chinese clothing industry such as the government policy makers, strategic decision makers in the clothing companies and service providers. The strategies are also solutions to tackle the revealed problems.

- Cost-control strategies
- Upgrading strategies

The cost-control strategies are the key to retaining existing competitive advantage in the manufacturing segment whilst the upgrading strategies are the key to upgrading and sustaining the competitive advantage of the entire industry in the future. Also these strategies offer solutions to the corresponding revealed problems, namely, rising costs, lack of strong brand and price-based competition.

8.4.1 Cost-control strategies

Due to the importance of rising production costs in the clothing manufacturing segment, cost-control strategies and the corresponding resources make up a critical difference for the individual companies. In other words, controlling the rising costs could mean the difference between surviving and not surviving and is therefore a critical for the sustained development of the companies. Given the labour-intensive nature of the industry, cost-control strategies are mainly discussed in terms of control of the labour costs through subcontract manufacturing, outsource manufacturing and manufacture relocation.

8.4.1.1 Cost control: Subcontract manufacture and outsource manufacture

Subcontract manufacture or triangular manufacture is one of the practical solutions to cutting the production costs. This strategy has been adopted in the Chinese clothing industry where manufacturers get orders from a foreign buyer and then arrange part of this order to be manufactured by a third party (i.e., subcontractor), usually a 'global' rather than 'local' subcontractor (Garengo, Biazzo & Bititci 2005). The global subcontractors are often located in low-cost economies in south Asia or Southeast Asia such as Vietnam, Thailand and Bangladesh, who take over the clothing production from the Chinese contractors. Based on the subcontractor's expertise and technological autonomy ranging from low to high, their roles and tasks vary accordingly as follows (Dulbecco & Vagneron 2001): 1) clothing production with pre-cut fabrics and materials provided by the contractors, often referring to cutting, sewing and trimming, and 2) clothing production as per samples or patterns provided by the contractors using raw materials and fabrics purchased by themselves. In this context, the Chinese clothing manufacturer undertakes more roles and activities than the overseas subcontractor, including, in addition to part of ready-to-sell manufacturing, product design and development, quality control and technical assistance, collecting and delivery, and direct link and communication with both sides, i.e., foreign buyers and subcontractors.

Research suggests that subcontract manufacturing improves competitiveness due to cost reduction, improved labour productivity and a higher share of value-added (Subrahmanya 2008, Grandys, E. & Grandys, A. 2008). To achieve and maintain effective coordination between the principal/contractor and subcontractor it is suggested that it is necessary to build up mutual trust and to ensure conformance of the ready-to-use products to specifications of the industrial buyers, given the demand dynamics (Dulbecco & Vagneron 2001). Concerning the contractor-subcontractor relationship, the key issue is quality control. Practically, specialised workers sent by the contractor train in-house quality controllers, verifying, supervising, checking, and improving the production process.

Outsource manufacture is a widespread practice for the developed economies and now quite a lot of branded clothing companies in China are also adopting this strategy (Han 3rd Nov 2011). For example, both Youngor and Tedelon outsource part of their production. Unlike the overseas triangular manufacture, where the primary consideration is to reduce production costs, the main purpose for the Chinese branded companies to adopt an outsourcing strategy is as a solution to constraints in production capacity and/or to enable their own production to focus on what they do best. In practice, only some products are involved in outsourcing manufacture and the contractors are often domestic clothing manufacturers with specialised product lines other than that of the branded company itself. For example, Tedelon focuses on production of its core product line and outsources its non-core products.

> *we outsource about two thirds (by output value) of the production and those products require a different specialty which Tedelon does not have (e.g., knitwear, leatherwear, embroidery, printing and washing) … We have about 10 regular contractors which are located in Guangdong, Whenzhou and Fujian… we ourselves still keep production of our core products like jacket, leisurewear, padded coat and shirt." (Yu 23rd Feb. 2012)*

8.4.1.2 Cost control: Relocation manufacture overseas or inland China

Another solution to controlling the manufacturing costs is relocation of factories. The general trend since 2008 is that clothing manufacturers, particularly those medium and large enterprises (MLEs) in the East and Southeast coast Yangtze River Delta and Pearl River Delta regions, have started to move part of their manufacturing capacity to inland regions where costs are relatively low (Details in Chapter 2.3.5) and where the local governments also adopt various favorable policies and incentives in terms of tax, finance and land usage to attract the investment. The other favored place for the relocation is in Southeast Asian or the South Asian economies like Bangladesh, Vietnam, or Cambodia, where manufacturing costs are lower than those in China (Details in Chapter 2.2.1).

This global relocation option is also reflected in foreign direct investment (FDI) from outside China, shifting manufacturing out of China. For example, Adidas once had over 30 factories in China but now all of them have been shut down, the last one in Suzhou of China being moved to Vietnam in March 2012. The reason is clear, that is, competition in the basic and general products is mainly based on costs and competitive advantage in production of this category has gradually diminished in China. Therefore currently the overseas subcontract manufacturing or outflow FDI is mostly linked to the basic or general products. For example, Kaiqi was establishing a factory in Vietnam in 2013 for production of its basic products while the company would keep manufacturing

of the medium-to-high value products in China (Shen 15th January 2013).

However, international buyers still keep sourcing the medium-to-high value products from China because the Chinese clothing manufacturers still retain competitive edges in this product spectrum, e.g., production capacity, flexibility, quality, logistics and network (Gu 21st November 2011, Han 3rd November 2011).

For Chinese clothing companies to adopt a cost controlling strategy of overseas manufacturing either through China's outflow FDI (i.e., relocating manufacture overseas) or through global subcontracting, relevant risks and challenges should not be neglected. One big concern is to ensure safety of the investment environment, including political and economic stabilities and relevant investment infrastructure and legal issues. Current examples include the continuous reports about clothing factory fires and the double-digit inflation rates causing labour disturbance in Bangladesh[72]. In Vietnam, the infrastructure problems, particularly in logistics, communication and power, and continual violent demonstrations and subsequent strikes, influence daily business operations[73]. In this context, it is suggested that the clothing companies have to be fully aware of the investment environment and make corresponding preparations. One practical suggestion is that the domestic companies, particularly SMEs, could form an investment group, or consortium, to establish a local industrial park in the host countries. In this way, they become more powerful and obtain better protection and support from the host governments.

In summary, the Chinese clothing manufacturers have to deal with the rising-costs problem which is a main challenge to sustaining competitive advantage for the industry. Strategic and practical solutions include outsourcing or subcontracting manufacture overseas and relocating manufacture overseas or inland. However, from the global value chain perspective, production costs are not the only concern for SCA of the industry. From the GVC perspective, upgrading strategies are urgently required for competitive advantage to be sustained (Gereffi 1999, Bair & Gereffi 2003, Humphrey &Schumitz 2002, Tokatli 2003, Bair 2005, Gibbon 2008, Reinecke 2010).

Industrial upgrading, broadly comprising product upgrading, process upgrading, intra-chain and inter-chain upgrading (Humphrey & Schmitz 2002), is a typical evolution pattern of the global clothing industry, particularly in the East Asian NIEs and some developing economies (Details in Chapter 3.2.3)[74]. At the early development stage of the industry, the focus was on the labour-intensive manufacturing segment and

[72] Source: [online] available from <http://www.voacantonese.com/content/bangladesh-fire-20131009/1766103.html> [4th May 2014].
[73] Source: [online] available from <http://www.voacantonese.com/content/asia-manufacturing/1829712.html> [4th May 2014].
[74] The inter-chain upgrading is beyond the scope of this research and therefore it is not covered.

therefore the clothing companies developed and acquired corresponding resources in terms of scale expansion, stable quality control and continuous upgrading in product and production process. Later on, based on gradually developed capacity and expertise in the manufacturing segment, companies extended to intra-chain or functional upgrading. That is, companies develop their resources in the high value-added activities such as R&D, design, branding and marketing and distribution channels (Gereffi 1999, Smith 2003, Liu & Gu 2007, Tokatli 2007a, 2007b, Tokatli, Kizilgun & Cho 2011).

However, this evolution is not an automatic or universal process. For example, the East Asian NIEs and East European Turkey have successfully gone through the evolution stage and now have developed their own brands in the global market while the majority of the Mexican companies still remain half-package suppliers (Bair & Gereffi 2001). Next section discusses and concludes the upgrading strategy and practices in the Chinese clothing industry.

8.4.2 Upgrading strategies

Cost-control strategies aim to retain the present competitive advantage in manufacturing; while upgrading strategies are for updating and thus sustaining competitive advantage over the entire industry in the global value chain.

Given that the Chinese clothing industry has successfully built up fundamental resources for upgrading in process and product, this section focuses on upgrading strategies via branding and IT. These upgrading strategies address the revealed problems concerning lack of strong brands and price-based competition.

8.4.2.1 Upgrading via branding

The Chinese clothing industry is going through a process of transformation and functional upgrading. However, upgrading capabilities and performance vary amongst the business entities. Some have developed their own brands, amongst which some branded companies are quite successful in the domestic market (e.g., Youngor and Tedelon) and the other branded companies are still struggling for survival (e.g., Shaoxing Cathaya Apparel Co., Ltd.[75]) but none of these brands are strong in the global market. Others have the strategic intension to develop their own brands but still have not yet started due to various reasons. Therefore, the next discusses the strategy in brand building (feasibility and difficulty) and brand management (steps and key resources).

Brand building: Feasibility and difficulty

[75] Once the author interviewed the CEO of the company in December 2011 and she used the term 'survival' to describe the company's performance. The company's website refers to http://www.sxcathaya.com/.

Since 2008 the external dynamics have been challenging the Chinese clothing companies, particularly those exporting-oriented manufacturers. The challenges have included continuous global market recession; domestic rising costs, particularly in raw materials and labour; competition from the global low-cost manufacturers and continuous appreciation of the China Yuan. In this context, more and more Chinese clothing manufacturers are trying to develop their own brands so as to sell their own branded products in the domestic market instead of relying on export oriented manufacturing. This ***strategic intent*** of establishing an own brand is an initiative to achieve successful upgrading (Humphrey & Schmitz 2002, Tokatli & Kizilgun 2004). But not all of them are going to be successful in the transformation. Only those who have accumulated the required resources and who properly manage the resources for this transformation are likely to succeed.

During the last 30 years, the Chinese clothing industry has gradually integrated into the clothing GVC, through which it has built up the required resources such as customer relationships, distribution channels and even product design and marketing as well as building resources in the manufacturing segment, such as production capacity, production flexibility, stable quality control and upgrading in product and process. Therefore, integration into the clothing GVC, which enables resources accumulation on the learning curve, provides feasibility for industrial upgrading of the Chinese clothing industry (Bair & Gereffi 2003).

For individual companies which have not yet established their own brands, in addition to the ***difficulties*** discussed in the preceding Chapter 8.2.2, one more key reason is financial weakness and deficiency. To establish a successful brand requires a large sum of investment in, amongst other things, R&D, marketing, inventory and distribution network. For example, a successful distribution network is essential for a branded clothing enterprise and it is, particularly expensive to set up self-operation stores, which are the most effective way to enhance brand image and awareness. However, at present only a few of the branded clothing companies have established their own distribution networks. A long inventory cycle is also required when the company runs its own brand. The cycle may take as long as 6 months and includes cooperation with the textile manufacturer, order processing, manufacturing, inventory and delivery. This makes heavy demands on cash flow for the company involved. For example, it was reported that the inventory value of Metersbonwe was nearly 1.1 billion RMB in March/April 2012. Youngor has for a long time suffered a similar problem, with the inventory value of branded clothing reported to be about 1.34 billion RMB at the end of 2012[76].

Notwithstanding the above problems, the Chinese clothing industry has now established

[76] Source: Beijing Commercial Daily on 27 August 2013 [online] available from http://finance.people.com.cn/n/2013/0827/c1004-22701574.html [14th March 2014].

sufficient feasibility that the individual companies are in a position to develop their own brands if the difficulties can be properly managed.

Brand management: Steps and key resources

To create a brand is one thing but to make the brand successful and strong is quite another. Next discussion focuses on brand management by considering the key steps of strategic brand management, namely, brand positioning, brand marketing and sustaining brand equity (Keller 2003).

Brand management: Step 1-- brand positioning

Brand positioning is a significant element in brand management (Vukasovic 2009). Position of a brand is defined as '…the part of the brand identity and value proposition that is to be actively communicated to the target audience and that demonstrates an advantage over competing brand' (Aaker 1996: 176). The key terms in this definition are 'brand identity and value proposition'. ***Core brand identity*** is 'the central, timeless essence of the brand', based on which a cluster of brand identity elements can be developed for active communication to target audience. The ***identity elements*** include product (e.g., product design, quality, uses, users and country of origin), organisation (e.g., local vs. global), person (e.g., brand personality/imagery and brand-customer relationships), and symbol (e.g., brand image and brand heritage). ***Value proposition*** links market with consumers' perceptions and it is based on the functional and emotional benefits to the ***target audience*** or market segmentation (Vukasovic 2009). The target audence can be specified mainly in terms of customer demographic character (e.g., customer income, age, sex and race) or psychographic attributes (e.g., attitudes, lifestyle, values, and activities). ***Active communication*** to the target customers refers to changing and/or strengthening the brand image based on the core brand identity. A unique brand position enables the brand to differentiate itself from its competitors which consequently result in brand values over its competitors and thus create ***competitive advantage***.

The key implementation of brand positioning is to specify core brand identity/ values through a set of abstract associations (e.g., product attributes, celebrity, endorsement, life-style, geographic area, etc.) and by using brand mantra (e.g., a short three-to five-word expression) to capture the core brand values (Keller 2003).

However, it is common in China that the brand position is broadly categorised in terms of market segmentation, which is particularly reflected in the predominance of homogeneous products and thus competition based on price. Chinese clothing brands generally lack effective brand positioning and the core brand identity and value proposition are not clearly specified. As a result, advantage of these brands over

competitors is not noticeable in either functional (e.g., product heterogeneity) or emotional values or benefits (e.g., brand personality).

Brand management: Step 2-- brand marketing

In addition to promoting direct transactions (i.e., short-term effect on brand behavior), brand marketing or brand communication also influences not-directly-buying (NDB) consumer behavior (i.e., long-term effect on brand behavior). The NDB brand communication creates more competitive advantage and underlies strong brands (Feldwick 2003). The NDB communication gives information about the brand, creates brand awareness, creates involvement and creates association that will influence consumer behavior.

To market or communicate brand equity depends on three sets of factors, namely, brand elements (e.g., brand name, logos, symbols and slogans), marketing programmes and activities (e.g., flagship decoration, event and sponsorship programmes and advertising media of TV, radio, and magazine) and leveraging secondary associations (Keller 2003). These secondary associations include details such as 'promises, images, personalities, emotional characteristics, social characteristics, and various other objective and subjective qualities…' and to make the point more succinctly, 'everything you say and do' distinguishes and brands you (Jones & Bonevac 2013:118).

Since the late 1990s, directly-leading-sale advertisements and brand marketing programmes, such as those using media, sponsorship and celebrity endorsements, have been widely adopted by branded companies in China, including, for example, Tedelon and Youngor. However, these activities are less effective at creating strong brand identities. More recently, some pioneering companies have begun to adopt not-directly-leading-sale brand marketing programmes and activities. Taking Tedelon for example, the company adopted the new brand name and new logo in 2008, improved the brand image via flagship stores in the big cities, and since 2009 interpreted the brand essence through cultural enhancement combining with life styles (detailed discussion in Chapter 8.2.4).

Moreover, for the branded companies in the Chinese clothing industry, brand identity elements in the product aspects, such as quality, price, and even design, have reached a certain level of homogeneity while core brand identity concerning emotional brand value, e.g., premium after-sale services, personality, and life style, is a particular weakness of many Chinese clothing enterprises and needs to be enhanced.

Brand management: Step 3-- sustaining brand equity

Successful brands start by specifying brand positioning and defining core brand identity

and brand values, and are supported with brand marketing and communication programmes and activities. Moreover, successful brands need to adapt to external dynamics over time so as to achieve SCA and such adaptation involves updating branding strategies (e.g., multiple brand and brand internationalisation) and corresponding reconfiguration of companies' resources (e.g., R&D and design) (Chailan 2008: 259). Based on an empirical research, the author proposes a three-phase transformation model which generates a brand portfolio. The first phase focuses on brand accumulation which is based on external customer needs and develops required resources; the second phase is reformation process which is based on internal stakeholder needs and develops branding skills; the third phase focuses on competitive conceptualisation which is based on definition of a company-specific and non-reproducible model and thus achieves sustained competitive advantage. The brand portfolio contributes to sustainable competitive advantage due to a powerful causal ambiguity involved in the brand management process (Chailan 2008: 260). Based on Chailan, the brand management of portfolio is discussed in the following four aspects, namely, R&D, design, multi-brands and brand internationalisation.

R&D

> *For sustainable development of the Chinese manufacturing industries, the most important and also universally neglected issues are R&D and innovation. Youngor has reached the world's most advanced level in clothing manufacturing technology within 5 years whilst its R&D is still at the primary stage. (Li 2008:10).*

The reason for lack of R&D in the Chinese clothing industry is mainly due to the nature and structure of the industry. As discussed earlier in this study, this is a buyer-driven and price-sensitive industry, which is mostly comprised of small and medium sized enterprises (SMEs). Due to budget constraints, SMEs tend to seek short-term returns while R&D requires long-term investment before it returns a profit. This situation is particularly reflected in China. That is, the majority of Chinese clothing companies comfortably take over global clothing manufacturing without motivation for R&D investment.

R&D in the clothing industry covers a wide range of activities which can be classified roughly into two groups. One group of R&D is about market knowledge, relating for example to fashions and styles, which lead to the development or modification of business strategies, such as developing new products or new market access. The other group of R&D relates to the development of new products, new processes, new management techniques or new services. R&D can be conducted by a special unit of the company or outsourced to universities or professional agencies. For the SMEs which have budget constraints, outsourcing is a practical option. Another alternative way to do

R&D is to establish cooperation with universities and other research organisations. Some clothing companies in China started these types of R&D activities several years ago but they are normally confined to short-term projects and are still at an early stage of development.

Design

Do the Chinese clothing companies have design resources? The answer is "Yes, we have". How much original design do we have? The answer is surely that the Chinese clothing industry generally suffers from a lack of original design. This is one of the significant reasons explaining why there are no strong Chinese clothing brands to stand on the international T-show arena to date (Details in Chapter 8.2.2).

Practically, these companies attend international fashion fairs, where they absorb some fashion elements and then work out their brand designs based on these fashion elements. This is a kind of mixture of innovation with imitation.

Top clothing companies in China, such as Youngor and Tedelon, have developed their design capabilities through many years' learning, practicing and improving. However, both companies realise that there is still a long way to go before their designed products become popular in the international market. Therefore, both companies have been strengthening investment in their design capabilities during recent years. For example, Tedelon has established three design centers in Hangzhou, Guangzhou, and Wenzhou and is appointing famous designers to enhance its design capabilities. Also, the company has established cooperation with famous Italian design companies to enhance its design capability. In addition, the company has set up a marketing management center to collect market information to serve design and production.

Multiple brands

A strong brand is sustainable and adaptable, responding to external dynamics. One of the key strategies is retaining its loyal customers whilst developing new customers through multiple brands.

The multi-brand strategy is adopted and practiced by quite a few successful branded companies in China such as Tedelon, Youngor and Progen (Pang 2010). Taking Tedelon as an example, the multiple-brand development is guided by the company's strategy, termed "5153" plan. That is, to build up 15 brands within the next 5 years, of which 3, i.e., RIAB, RYMA, and TEDELON, will go to the international market. In accordance with the concept that the brand stands for a life style, RIAB stands for the sophisticated man's life; RYMA stands for the life of fashion and vitality targeted at young business men; TEDELON retains the original positioning, reflecting fashion, leisure, and

successful men. Similarly, Youngor also started a multi-brand strategy in 2010, strengthening its original brand whilst new brands target new market segments. For example, Golden Youngor (GY) is positioned at the group of 40-55 years old, successful people (e.g., government officials, entrepreneurs, and senior white collars), representing mature, passionate, personality, and masculine in style.

Brand internationalisation

Since the opening-up and reform in 1978, international clothing brands have been increasingly coming into the Chinese market, particularly in recent years. Besides the top luxury brands like Zegna, DIOR and HERMS, popular brands like H&M, ZARA and UNIQLO also rushed into the Chinese market. Under this setting, brand internationalisation is an unavoidable step because in order to sustain competitive advanatage in the global market, Chinese clothing companies have to compete with the internationals evern at home.

However, a very limited number of Chinese brands have achieved success in the overseas markets so far, though 'Made-in-China' products have been sold everywhere in the global market. Then why has China not successfully developed international brands in the clothing industry? As yet, this question has received little detailed attention in the academic literature, though there has been some generalised discussion in newspapers such as *The Economist* and *The New York Times*. Amongst these there has been much gossip about bad reputation with "Made-in-China". This concern is not totally without reason. The 'Made-in-China' label is often associated with some negative images such as 'cheap', 'poor quality' and 'copy'. However, research suggests that the willingness to accept Chinese brands is 51%, which is similar with that of South Korean brands, i.e. 50% (Wang 2013). Moreover, the author's research results suggest that among factors affecting overseas consumers' purchasing decisions, the top three are product quality, price and after-sale service while brand origin and production origin are the least important factors. The research results also suggest that among the 12 most competitive factors of the Chinese brands, 'internationalisation' and 'innovation' are relatively weak, being ranked 11th and 9th respectively. Therefore, China's brand internationalisation should be based on meeting the customers' universal hopes such as 'competitive price with good quality' whilst making improvements in terms of 'internationalisation' and 'innovation'.

Insights into the successful world-class clothing brands such as Chanel and Pierre Cardin (France), Burberry (UK), Prada and Giorgia Armani (Italy), Levis and Calvin Klein (USA), and Uniqlo (Japan), may also provide implications for internationalisation of the Chinese clothing brands as follows (Peng 2013):

1) Culture enhancement in brand and cultural elements embedded in brand character and brand style,

2) A complete industry system consisting of R&D + design + raw material supply + production and sales + consultancy and medium + exhibition and events,

3) Cluster of fashion design centers, clothing model company, media agency and exhibition organisation working for clothing related exhibitions,

4) Well-developed higher education in clothing.

However, the industry system for the brand internationalisation in China has not yet well developed, particularly lack of supporting from fashion media atmosphere and from model and exhibition services. In addition, clothing education in China just started not long time ago and therefore it takes time for development itself before it can provide supports to the clothing industry.

8.4.2.2 Upgrading via Information Technology

For the branded clothing companies, Information Technology (IT) makes particularly sense because in this case endusers and the corresponding marketing activities are involved in the company's business. For example, information about sales from endusers is needed to determine the other activities and operations along the value chain, including product design (e.g., style, material and color), production arrangement (e.g., volume, batch, time flexibility and cost control), inventory, marketing and promotion, etc. In this context, therefore, IT plays a critical role for SCA of the branded clothing companies.

A complete set of information systems generally includes 6 aspects (Shen & Cheng 2013), namely, infrastructure, dataset, application system, portal layer, information security and information administration. Amongst these, the IT application system is the core resource, which helps the company to link various resources and activities for more effective and more efficient operations.

The IT application system mainly includes 6 components as follows (Shen & Cheng 2013):

⑴ ERP (Enterprise Resource Plan), a core information system for managing enterprises' resources, which helps to effectively integrate main resources by managing every node along the supply chain including design, R&D, procurement, production, logistics, distribution and sales,

⑵ PLM (Product Life Management), the information system for managing product processes from new product through product growth and maturity, to product decline and termination,

⑶ WMS (Warehouse Management System), the inventory and logistics management system, which helps to reduce costs of inventory and logistics,

⑷ OA (Office Automation), a system for information exchange and communication among the internal departments, which is also a cooperative office platform among general staff and managers,

⑸ POS (Point Of Sale), the retail system, which helps to timely and precisely access to information about sales and the end-users,

⑹ CRM (Customer Relationship Management), the customer relationship management system, which mainly includes a customer service module, a customer management module, a VIP customer management module, a sales management module, a comprehensive analysis module and a call center.

However, Promotion of IT does not merely refer to the adoption of software. The essence refers to the implementation of dynamic management and the integration of all business processes, including ordering, stock control, distribution, data collection and information analysis. Therefore, building up an effective IT system involves a number of parties (e.g., suppliers, customers, coordinators, retailers, etc) and requires substantial investment over a relatively long period.

In this context, only relatively large companies like Youngor and Tedelon are in a position to undertake the necessary investment. Also, the big companies have a greater need to develop an IT system due to the complicated relationships and business processes involved. For example, clothing businesses have to deal with large stocks, data about numerous styles and structures, customer identifications, etc.

Managing all this complicated information requires IT to make an effective value chain management system including precise forecasts, procurement management, production planning, distribution management, etc. IT could start from the company’s headquarters and then extend to the branches and working offices in different regions and districts, and further extend to the major self-operation stores and franchising stores. In this way, the whole value chain is included in the IT systems.

For many clothing MLEs, the biggest problem with IT is a shortage of talented human resources. On the one hand, many software suppliers, due to lack of a clothing

background, understand programme development but know little about clothing production or clothing selling, not to mention company management. Therefore, the software developed often experiences teething problems during the implementation phase. On the other hand, amongst the clothing enterprises, those who know about both clothing management and IT are rare. As a result, human capital is the bottleneck for the clothing enterprises promoting more efficient exploitation of IT.

In summary, upgrading via branding and IT is a general trend and practical strategy for the Chinese clothing industry, particularly in the higher value-added segments such as R&D, branding and marketing, to achieve SCA. At the same time, cost control strategies through relocation and outsourcing are necessary to retain the present competitive advantage in the clothing manufacturing segment.

Other SCA strategies

There are some other widely discussed strategies for securing sustainable competitive advantage of the Chinese clothing industry which are not focused on in this research. These strategies mainly include diversification of investment, vertical integration, local industrial clusters (LICs) and horizontal cooperation between the manufacturers. These are briefly introduced and discussed below.

Diversification

The development of the overall clothing industry in China, particularly of the clothing manufacturing, is slowing down. To protect against this, some companies have diversified their investment portfolios but few have been successful. There is no inherent sin in the diversification strategy itself. However, in many cases, it is the deficient and unprofessional strategic management and its implementation that cause limited resources decentralized, which subsequently results in business failure (Di 2013). Taking Shanshan Group as an example, after Shanshan transformed its no. 1 principal business from the original textile & clothing into lithium battery materials, the company has experienced various difficulties including a quality-problem incident, high management costs and plunging profits. As a result, although clothing is still one of its principal businesses the competitive advantage of its clothing business has not continued (Di 2013). For example, the net profits of the company in the clothing business decreased by 85.60% in 2012.

Vertical integration

Youngor is a typical example of vertical integration. Over more than 30 years of continual efforts, Youngor Group has developed its complete clothing value chain, involving integration of the upward supply chain (e.g., fabric and textile supply and

even raw materials) and downward distribution channel, including marketing and services. However, the company has been widely criticised for departing from the common practice of focusing on what the company can do best. It has also been argued that vertical integration made Younger a 'big lump' causing outstanding inventory problems in recent years (Chen 2004).

Local industrial clusters

There are dual phenomena in the Chinese clothing industry, namely, geographical clusters and the dispersal of production. On the one hand, in order to cut production costs, the MLEs tend to relocate their factories to the low-cost regions of inland China or overseas. On the other hand, the SMEs would like to converge on one place to enjoy all the benefits from local industrial clusters (LICs) (Details in Chapter 2.3.7) and in this way achieve sustained competitive advantage.

Horizontal co-operations

In order to be in a stronger position to attract foreign orders, some Chinese clothing companies establish strategic alliances. That is, companies with different specialised capabilities and different product lines organise into a group serving foreign buyers who need a variety of product lines. The main benefit for the foreign buyers is that it saves transaction-related costs because they only need to deal with a single trusted partner instead of all the different dealers.

In summary, companies try different ways to achieve their competitive advantage. However, none of these can directly tackle the identified problems with SCA of the industry. In comparison with the cost controlling strategies and upgrading strategies, these strategies could be looked as supplementary or options but could not replace the former.

For implementation of the recommended strategies, next section provides an executive plan specifying stages, possible evolution patterns, focuses for each stage, and estimated time for each stage.

8.4.3 The executive plan

The competitive advantage of the clothing industry changes with the different stages of economic development of an individual country (Ha-Brookshire & Lee 2010). The authors further argue that the countries in the early stages of development may have a comparative advantage in labour-intensive activities such as clothing manufacturing whereas in later phases of economic development their comparative advantage tends to change to capital-intensive activities such as fibre and textile manufacturing while

competitive advantage of the developed economies is likely to be in high value-added activities such as design, branding and marketing. The history of the global clothing industry has witnessed this pattern of evolution (Barney 1991). For example, since the 1960s clothing manufacturing in America and the EU (e.g., UK) has gradually moved to the Asian NIEs (e.g., Singapore and South Korea). Later on, with the NIEs' economic development, their original cost-based advantage gradually diminished. China has then gradually taken over the labour-intensive manufacturing from the NIEs since the 1980s. More recently, global clothing manufacturing is shifting to South and Southeast Asian economies such as Vietnam, Cambodia and Bangladesh. Correspondingly, SCA of the Chinese clothing industry is going through transformation and evolution (Figure 8-2).

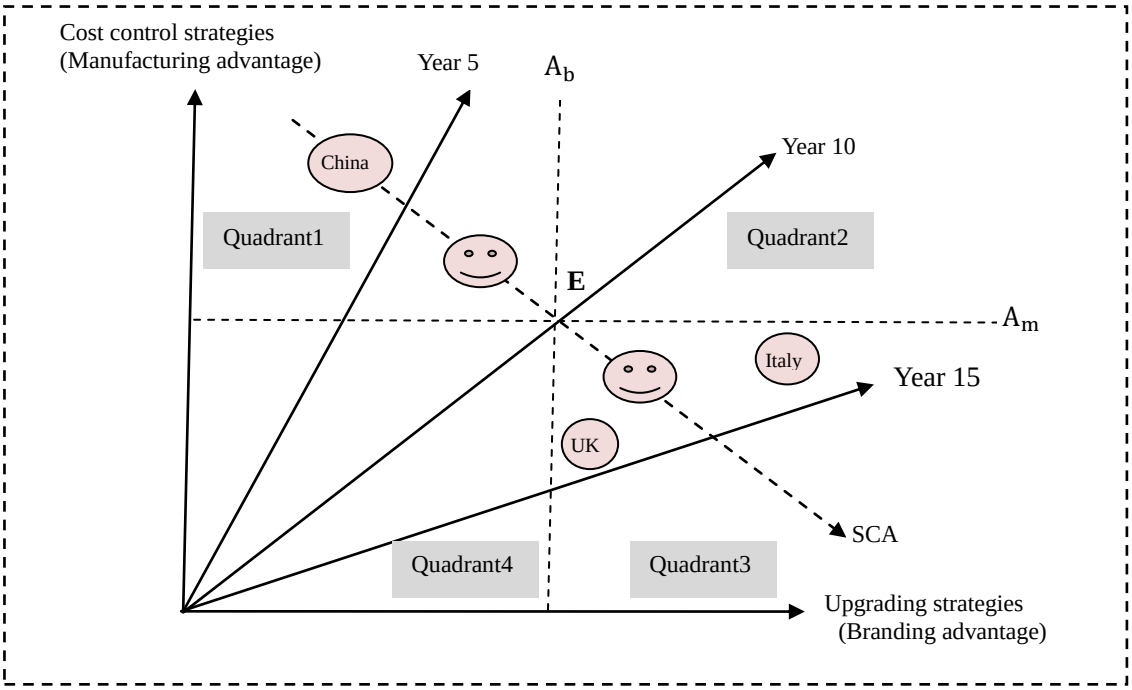

Figure 8-2: Recommendation of SCA strategies to the Chinese clothing industry in the GVC

Source: The author.

Notes: E is the competitive equilibrium between manufacturing advantage and branding advantage which is at the intersection of dotted lines A_m (manufacturing advantage line) and A_b (branding advantage line). Therefore, the four quadrants represent different combinations of strategies/advantages: Quadrant 1 (manufacturing advantage and branding disadvantage), Quadrant 2 (manufacturing advantage and branding advantage), Quadrant 3 (manufacturing disadvantage and branding advantage), Quadrant 4 (manufacturing disadvantage and branding disadvantage).

The horizontal axis represents upgrading strategies and corresponding investment leading to branding advantage (including advantage in R&D, design, marketing and brand) while vertical axis

is cost control strategies and corresponding investment leading to manufacturing advantage.

The dotted arrow line shows the evolution pattern of the Chinese clothing industry. This is from the perspective of the entire industry rather than from that of the individual companies and therefore a 45-degree solid arrow line shows a balance of investment between cost-control strategies and branding strategies, while individual companies may experience a more or less steep line, where a relatively flat line reflects investment more in branding strategies than in cost-controlling strategies while a steep line reflects more investment in cost-controlling strategies rather than in branding strategies.

The solid arrow lines represent the estimated number of years taken for implementation of the strategies and the corresponding development stages.

Figure 8-2 is a strategy matrix for SCA of the Chinese clothing industry. Based on the GVC literature and on the findings of this research, the executive plan for the recommended SCA strategies is depicted. The corresponding implementation stages with specified years are based on the researcher's optimistically estimation of the industrial development trend in China. It is estimated that the industrial transformation and implementation of SCA strategies will take about 10-15 years in three stages. Through the development stages, the Chinese clothing industry may transform and upgrade its competitive advantage from the mere clothing manufacturing segment to the other higher value-added segments such as branding and marketing, and thereby finally sustains competitive advantage of the entire industry.

Stage 1 in Quadrant 1 within 5 years

Over the next 5 years (i.e., by 2019), China will retain competitive advantage in the clothing manufacturing segment of the GVC. During this period, cost control strategies will be widely adopted though the manufacturing competitive advantage will be undermined whilst companies are adopting more upgrading strategies and developing more upgrading capabilities.

Stage 2 moving from Quadrant 1 towards Quadrant 3 within year 5 to year 10

In 5 more years from Stage 1 (i.e., by 2024), the Chinese clothing industry will gradually update its competitive advantage in design, marketing and brand management by widely adopting upgrading strategies. During this development phase, the industry as whole will move from Quadrant 1 towards Quadrant 3 along the dotted arrow line, signified by the smiling face. It is possible that some companies may fail in Quadrant 4, particularly if they experience disadvantages both in manufacturing and in branding. This is due to companies being trapped in the relatively labour-intensive manufacturing segment of the value chain, whilst at the same time not yet applied upgrading strategies or not having sufficiently invested in upgrading strategies.

Quadrant 2 is where the companies become leaders and acquire advantages both in manufacturing and branding. However, it may be impossible for companies to move directly from Quadrant 1 to Quadrant 2 because their capabilities in branding, marketing and design are not yet ready. The most likely way to get access to Quadrant 2 is through Quadrant 3, where the companies have developed a competitive advantage in designing, marketing and branding. Manufacturing advantage in Quadrant 2 needs to be technology-intensive or capital-intensive rather than labour-intensive.

Stage 3 in Quadrant 3 after year10

After about 10 years (i.e., after 2024), the entire Chinese clothing industry will have established a competitive advantage in the GVC in high value-added segments such as R&D, design, marketing and branding, whilst the original competitive advantage in the labour-intensive manufacturing segment will have disappeared. At the same time, although clothing manufacturing will have lost its competitive advantage in the GVC, it might to an extent maintain substantial presences, which would be similar to the Italy mode rather than the non-Italy mode such as the UK or the US (Figure 8-2). As a result, the entire clothing industry will have sustained its competitive advantage in the global market.

The evolution pattern described in the above three stages has been similarly experienced in Japan and South Korea. Companies in these NIEs have evolved and are in a position to compete at the international market and they pursue "premium" fashion instead of "fast" fashion and "premium" products instead of mass products. To this end, the companies need to keep considerable part of manufacturing at home so as to better serve for the sustainable development pattern. Taking South Korea as an example, the clothing and textile industry still 'remains a valuable industry in Korea, accounting for 15.9% of the total manufacturing establishments or 9.6% of the total manufacturing employment in 2007' (Ha-Brookshire & Lee 2010: 282). This is also termed the Italian mode.

Italy is quite different from the many of the other EU members. The clothing industry there still accommodates substantial employment and production. Many small clothing manufacturing companies retains competitive advantage because they '…have been in the forefront of industrial upgrading, seeking to compete on the basis of design, quality and fashion style and hence remain in high value-added market segments' (Taplin 2006: 180).

As a matter of fact, the Chinese clothing industry has started to follow the above pattern of development. It is just a matter of time before the competitive advantage of the industry eventually shifts from the low value-added manufacturing segment to higher

value-added segments such as design, branding and marketing operations.

Moreover, people have noticed the significant difference between the development mode of Italy and the other developed economies, particularly the UK and the US (Eryurunk et al. 2010). Nevertheless, there are some commonalities between the Italian mode and the non-Italian mode: (1) They all have presence of globally popular brands while organisation of production differs. (2) The luxury brands and high-end spectrum products retain production at home while production of the price sensitive products such as fast fashion and mass products is outsourced to the globally low-cost regions and economies.

Therefore, taking all of the above considerations into account, this thesis holds that China can have both modes, the Italian mode (R&D/design + manufacturing of premium products + marketing) and the UK mode (R&D/design + outsourcing manufacture of mass products + marketing).

8.5 Contributions and implications of the research

8.5.1 Research contributions

8.5.1.1 Theoretical contributions

This research is primarily based on the underpinnings of RBV. From review and assessment of the existing literature, this study has identified limitations of the theory (Details in Chapter 3.3.4.3). Table 8-1 summarises contributions of this study by addressing the identified limitations.

Synthesised research framework

The most common critique about the RBV theory points to its static analytical framework. However, this study developed a synthesised research framework, combining internal (RBV) with external (GVC) theories (Figure 4-2). The synthesised research framework is a dynamic method, in which resources keep adapted to the external dynamics via dynamic capabilities. Dynamic capabilities enable companies to updated and reconfigured resources over dynamic environments (Teece, Pisano & Shuen 1997, Peteraf & Bergen 2003, Winter 2003, Wiklund & Shepherd 2009).

Holistic model testing the RBV logic

According to RBV, the VRIN resource bundle is a source of sustained competitive advantage (Rumelt 1984, Wernerfelt 1984, Grant 1991, Barney 1991, 1995, 1997, Amit & Schoemaker 1993, Teece, Pisano & Shuen 1997, Newbert 2008, Armstrong &

Shimizu 2007, Wiklund & Shepherd 2003, 2009). However there is no holistic model to refer to for the testing of relationships between resources and SCA.

This study, therefore, formulates a hypothesised model which is originally designed for this study (Figure 6-8). In the model, each of three exogenous constructs (measuring resources), is hypothesised to significantly and positively contributes to process performance, measure of SCA. The three exogenous constructs are also assumed to significantly correlate with one another.

Table 8-1: Research contributions

Limitations of RBV	**Contributions of this research**
1) critique of static analytical framework	a) Synthesising internal (RBV) with external (GVC) theories, b) The synthesised research framework is a dynamic method, in which resources keep adapted to the external dynamics via Dynamic Capability.
2) no holistic model to test the RBV logic	a) Three constructs of resources are correlated to each other, b) Each of three constructs is related to SCA.
3) insufficient study focusing on the resource bundling effect	a) Three constructs of resources are assumed to be correlated to each other and the test result supports the bundling effect, b) All resources are dynamically bundled because the resources keep updated and reconfigurated through Dynamic Capability, which keeps adaptation to the external dynamics.
4) no holistic measures of concepts "resources" and "SCA" in RBV	a) Resources are measured by three constructs, namely, Fundamental Resource, Dyanmic Capability and Upgrading Capability, b) SCA is measured by Process Performance.
5) no unified taxonomy of resources (i.e., operationalisation of resources)	a) 4 categories of resources (Table 3-2), b) 12 indicators of resources (3 specific resources for each category)

Source: The author.

Resource bundling effect

It is a generally accepted that combined or bundled resources contribute to sustained competitive advantage (Amit & Schoemaker 1993, Barney 1995, Ray, Barney & Muhanna 2004, Wiklund & Sheperd 2009). This theoretical idea has been tested in a number of empirical studies (e.g., Peteraf & Reed 2007, Simon, Gove & Hitt 2008,

Furlan, DalPont & Vinelli 2011, Srivastava, Franklin & Martinette 2013). However, there is insufficient study focusing on the resource bundling effect. Therefore, this study added contribution to this deficiency. In this research model, three constructs of resources are assumed to be correlated to each other and the test result supports the bundling effect. Moreover, all resources are dynamically bundled because the resources keep updated and reconfigured over external dynamic through Dynamic Capability.

Measure and operationalisation of concepts

There lacks reference concerning measures of holistic "resources" or "SCA" in RBV literature. Also there lack reference for operationalisation of the concepts. In this context, this study originally develops measures and operationalisation of these two concepts "resources" and "SCA" by following Churchill's (1979) procedure. The original 22 items are drawn from the literature and as a result of Exploratory Factor Analysis (Chapter 6.3) and Confirmatory Factor Analysis (Chapter 6.4), resources are measured by 3 constructs, namely, Fundamental Resource, Dyanmic Capability and Upgrading Capability; SCA is measured by Process Performance (Figure 6-11).

Research methods

Research concerning SCA in the strategic management field, when focusing on a specific industry in one economy, typically uses qualitative methods due to the inherent difficulties in undertaking quantitative research in this area. The difficulties result from both practical data access and measures & conceptualisation of the complicated social concepts involved.

This study has experienced similar difficulties. For example, financial information is sensitive to many SMEs so the companies are not willing to provide it. In this context, this study employs the process performance measure as an alternative, which largely avoids the practical difficulties of gaining access to performance data.

Also, the study involves measures of social concepts. Based on the theoretical groundings and by using statistical techniques (Churchill 1979), this study formulates a model originally for this research and developes corresponding measures (i.e., constructs) of the concepts such as SCA and resources. Structural Equation Modeling is adopted as the analytical technique, bringing in the research results.

8.5.1.2 Empirical contributions

Empirical evidence of RBV in the Chinese clothing industry

In building the research model, developing measures and designing the specific research

method, this study has made theoretical contributions. Moreover, beyond that, this study made some empirical contributions. Empirical study consisted of statistical test and case studies by using the primary data collected in the Chinese clothing industry. The research results generally supported RBV. That is, this study has provided empirical evidence that resources-SCA relationships, which have been drawn from the RBV theory, actually do exist in the Chinese clothing industry. By doing so, this study made empirical contribution to the RBV theory.

Resource bundling effect

Rare literature focuses on the resource-bundling topic. This study reviews some relevant studies (e.g., Dierickx & Cool 1989, Powell 1992, 1995, Amit & Schoemaker 1993, Macduffe 1995, Wiklund & Sheperd 2009, Furlan, Vinelli & Pont 2011, Srivastava, Franklin & Martinette 2013) and the hypothesised effect of the resource bundle on SCA is tested. The statistical results support the resource bundling effect. This is followed by studies of evidence in the cases in terms of how-and-why issues of the resource bundling. This research approach makes the resource-bundling effect to be a noticeable topic of the RBV theory. Also the resource bundling effect provides implications for business managers in the Chinese clothing industry (to be discussed below).

Primary data and empirical study

The primary data is about resources and performance of the Chinese clothing companies. In addition to the specific data for this study, the primary data also includes profile and factual data of the companies such as size, profit margins, export patterns, business attributes and own brands, which may also facilitate follow-up research in relevant areas.

8.5.2 Research implications

The empirical estimation and testing uses the dataset collected from the Chinese clothing industry and therefore the research findings provide insights into this industry. These insights provide managerial implications in terms of significant resources for SCA, resource bundling effects and the performance measurement.

8.5.2.1 Implications of significant resources

Significant resources for SCA of the Chinese clothing industry include Fundamental Resource and Upgrading Capability. The research findings provide the following implications for managers.

First of all, Fundamental Resource is a significant factor contributing to SCA for the

Chinese clothing industry. Understanding and emphasizing this idea and also putting it into operation practically and strategically are critical if Chinese clothing companies are to achieve SCA. However, in business practice, some Chinese clothing companies pay insufficient attention to or even neglect this issue. For instance, they often invest much money in advertisements or in fashion design aimed at catering for customers' demand for fashion. However, customers often end up being disappointed by the basic aspects, such as the fact that the products are not of good quality, or the fact that they do not receive satisfactory after-sale services. Some clothing companies always try to squeeze their suppliers at the skimming price and not realise the significance and potential benefits of good and long-term relationships with their suppliers. Other companies may also neglect or pay insufficient attention to the issue of employees' skills. For example, they do not like to pay more for skillful workers, or they are reluctant to invest in the on-the-job employee training. It is true in many industries that staff may be deskilled due to increased automation and efficiency but not in the clothing industry, particularly in the manufacturing segment of the value chain, which is still characterised by labour-intensive input. Skillful workers really matter not only for higher productivity but also for quality control. Therefore, companies who try to recruit new staff at low costs but with poor skills and who are also unwilling to provide the on-the-job training opportunities to their staff are not going to survive, not to mention gain sustained competitive advantage.

Secondly, having integrated into the clothing global value chain and having developed competitive advantage in the manufacturing segment of the value chain, the Chinese clothing industry now reaches the critical stage of transforming from "quantitative expansion" into "quality development". The quantitative expansion refers to mass production of generic and homogenous products which often link to non-branded manufacturing whereas the quality development refers to higher value-added and heterogeneous products which often link to branding operations.

Accordingly, the most urgent and practical strategy for the transformation is functional upgrading via branding. However, not every clothing company is in a position to establish and develop a successful and strong brand. Establishment of a successful brand takes time and requires substantial investment in design, R&D, own distribution channels, information communication systems, etc. Many of the Chinese companies have agreed that branding is a practical and necessary step for sustained development but they do not pay sufficient attention to the necessary steps. Sometimes they take short cuts. For example, they try to establish a successful band merely through advertising campaigns when the product quality is still problematic, when customer services or supplier relationships are not satisfactory and when rates of employee turnover are still high. Also, a successful and strong brand should develop its core brand entity, which requires proper marketing and communication with stakeholders, which

remain weak points for the majority of the Chinese clothing companies (Details in Chapter 8.4.2). Moreover, a strong brand requires updating and sustained development.

8.5.2.2 Implications of resources bundling

The resource bundling provides insights into practices of the Chinese clothing industry which can have implications for managers.

In practice, some Chinese clothing companies are moving their factories to the central and western regions to reduce rising production costs. It is true that costs of the central and western regions are lower than the eastern coast regions. However, the environment (e.g., facilities, infrastructure and administrative services) and resources are not as supportive as in the eastern coast regions due to the relatively lower levels of development of these regions. For example, it is difficult to find skillful workers in the local market while those skillful workers now working in the eastern coast companies are not willing to move to the central and western regions to accept a lower salary. Since SCA is attributable to the resources bundle of the firm, lack of some resources may cause malfunction of the whole resources bundle.

Similar to the above practice, nowadays more and more Chinese clothing manufacturers have relocated their factories to lower-cost Southeast Asian economies such as Vietnam and Cambodia where labour costs there are much cheaper than in China. However, there are some risks and challenges in these Southeast Asian economies, including, inter alia, unstable politics, high management costs due to religious beliefs and cultural differences, poor infrastructure, lack of supporting upstream and downstream industries, shortage of power, high logistics costs, etc.

The above analysis actually reveals a complicated situation, that is, the interaction of external dynamics with internal resource bundling, which actually bears closer resemblance to the real business world. The original theory concerning the resource bundling effect focuses more on the interactions between internal assets and capabilities. In this context, the resources bundling effect reminds the strategic managers of fits and complementarities of resources when making strategic decisions. Taking Dishang as an example, clothing manufacturing is the company's starting point and a base for building up its own manufacturing brand. To enhance its own brand, the company adopts overseas mergers and acquisition (M&A) as the platform and channel to integrate advantages of various resources, e.g., the advantage of Dishang itself in manufacturing, combined with overseas advantages in design, management experiences and sales networks[77].

[77] Source: web page from China Garment Association, [online] available from http://www.cnga.org.cn/news/View.asp?NewsID=41499 [14th May 2014].

8.5.2.3 Implications of measures of business performance

Concerning business performance measures, the research suggests that in addition to the traditional financial performance indicators, business process performance indicators may be used as alternatives (Figure 6-8). These process performance indicators are linked to firm specific resources so that the managerial team can check and monitor the company performance in these specified aspects, for example, effectiveness or efficiency in getting orders, in managing cost control of procurement, managing communication with customers and within the company, and updating their strategies against the external dynamics for SCA.

Finally, the above managerial implications are not only limited to the Chinese clothing industry but also to other Chinese labour-intensive manufacturing industries (e.g., furniture and home appliances) and even to other developing economies which may experience a similar process of industrialisation to China.

8.6 Limitations and future research directions

Several limitations of this study should be addressed. One limitation concerns the primary ***data***. A non-random ***sampling method*** is adopted in this study due to the practical difficulty in applying random sampling. Hence, it is acknowledged that there is deviation from traditional random sampling guidelines for achieving scientific rigor. Again, due to difficulties in collecting objective financial data, this study instead develops non-financial indicators, and resulting to an extent in subjective and attitudinal data, which again may imply a lack of robustness. Concerning data for the case studies, it would have been better to include multiple sources of the primary data. Again, due to constraints in time, budget, and networks, sources of primary data are limited. For example, for individual cases, interviewers should ideally have been chosen from various positions and ideally interviews would have been taken on several occasions. For future research, randomly sampling methods are suggested, including longitudinal financial data and obtain access to multiple sources of data.

The next limitation concerns the ***measured variables*** and the corresponding research model used in the study. Only a limited number of variables are selected, e.g., 10 indicators measuring resources and 5 indicators measuring SCA. However, it is suggested more indicators may capture more dimensions of a phenomenon, which may improve robustness of the results. This limitation, nevertheless, provides opportunities for future research, which may provide additional contributions to a better understanding of RBV theory and more practical recommendations for the Chinese clothing industry and its managers.

For a long time, the media, industrial and academic communities have referred to upgrading and transformation but the ***bundling effect*** has seldom been focused on. However, this research suggests that the bundling effect does exist, is important and is significantly related to SCA of the industry. However, there remain many details to be investigated and further understood, e.g., what bundles what (e.g., bundling sources and bundling levels), how bundling (e.g., static bundling or animate bundling, through M&A or through corporate alliance).

Why is ***dynamic capability*** statistically insignificant? This could be further research to answer this question.

How about comparing performance measures of financial and process performance to obtain a better ***measure of SCA?*** This could be another direction for future research.

In summary, despite a few limitations, this thesis unveiled the research topic and made both theoretical and empirical contributions. The theoretical contributions mainly include the holistical model testing the RBV logic and measures of constructs "resources" and "sustained competitive advantage". The empirical contributions mainly include evidence of the RBV theory and resource bundling effects in the Chinese clothing industry. This study also provides implications for sustaining competitive advantage of the Chinese clothing industry in terms of significant resources, resource bundle and assessment of business performance. In addition, this study also proposes recommendations and its executive plan as solutions to the revealed problems. Moreover, surrounding the unveiled topic, there are still quite a few interested, broadly and deeply relevant research areas and directions to be investigated in the future.

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APPENDIXES

Appendix 2-1: China clothing brand annual awards (with brand name in Chinese), 2004-2013

奖项	1st year (03-04) Brand	2nd year (04-05) Brand	3rd year (05-06) Brand	4th year (06-07) Brand	5th year (07-08) Brand	6th year (08-09) Brand	7th year (09-10) Brand	8th year (11-12) Brand	9th year (12-13) Brand
风格大奖	白领	思凡	例外	歌力思	江南布衣	艺之卉	GXG	速写	芝禾
品质大奖	报喜鸟	红领	乔顿	创新	创世	耶莉娅	美尔雅	罗蒙	领秀．梦舒乐雅
策划大奖	杉杉	美特斯邦威	爱慕	应大	利郎	劲霸	特步	歌莉娅	十月妈咪
创新	依文	派克兰帝	太平鸟	白领	卡宾	凡客诚品	诺奇	舒朗	比因勒芬
潜力大奖	康博	希努尔	海澜之家	巴拉巴拉	诺丁山	唐狮	南茜．高	雷迪波尔	黛诺
营销大奖	美特斯邦威	海澜之家	白领	雅戈尔	森马	太平鸟	音儿	雅莹	朗姿
公众大奖	雅戈尔	七匹狼	波司登	美特斯邦威	真维斯	鄂尔多斯	安踏	利郎	爱登堡
价值大奖	波司登	红豆	七匹狼	报喜鸟	李宁	安踏	爱慕	太平鸟	歌力思
成就大奖	杉杉	雅戈尔	红豆	波司登	七匹狼	美特斯邦威	真维斯	爱慕	报喜鸟

Source: The author.

Appendix 4-1: Main dimensions of the contemporary BPMS models

Dimensions	Definitions of the dimensions
1.Strategy alignment	The PMS must ensure the measures adopted are coherent with the strategy.
2.Strategy development	Performance measurement helps improve pre-defined objectives and strategy.
3.Stakeholders' satisfaction	Stakeholders' requirements are one of the main starting points in the design of the PMS.
4.Balance	The PMS uses different perspectives that are based on the type of measure (financial and non-financial) and/or the object of the measures (internal and external).
5.Dynamic adaptability	Review systems of measures and objectives are included in the PMS. These review systems aim to ensure the PMS quickly responds to the changes in internal and external contexts.
6.Process orientation	The organisation is not seen as a hierarchical structure but as a whole set of co-ordinated processes which create a system.
7.Depth & breadth	Depth: Measures are disaggregated into detailed indicators (the single operational activities involved in each process are measured). Breadth: The whole organisation is the object of the performance measure. A broad number of functions (or macro-processed) are included.

8.Causal relationships	Results and their determinants have to be measured to quantify the "causal relationship" between them, and to support the control of actions and the improvement process.
9.Clarity & simplicity	The fixed objectives and measures and methodology to be used to gather and process information are clearly defined and communicated to those involved in the PMS.

Source: Extract from Garengo et al. (2005: 37).

Appendix 4-2: Check the measures based on dimensions of BPMS models

Measurement dimensions	Accordance with the measured items	Interpretations
1. Stakeholder	Yes	--All stakeholders' requirements are reflected, e.g., customers', employees', and employers'.
2.Balance	Yes	--Balance by using both financial and non-financial indicators
		--Balanced indicators of internal and external performance
3.Dynamics	Yes	--Subjective based indicators of "quick response", "sale growth", "sales profit growth", and "market share increase" reflecting change over a period time
		--Indicators of process performance reflecting dynamic response to the environment volatility
4.Process	Yes	-- Indicators of measuring multiple processes used: quick response, order acquisition, cost control, external communication, and internal cohesion
5.Causality	Yes	--Based on RBV, VRIN resources are source of the firm's performance, which are measured by the 10 items

Source: The author.

Appendix 5-1: Summary of two ethics projects

First-stage ethics project (Ref No.: 1415) was created on 29th September 2011 and approved on 4th October. This is a Low Risk Project because no risk would be involved to participants and the researcher in this research conduct.

Project Information: The primary purpose of the research is to find out key resources and strategy for sustained competitive advantage of Chinese clothing industry. To this end, a series research will be conducted in the specific context of Chinese clothing industry. At this first phase, interviews with 3-5 experts in this domain are to help with

design of the phases two and three researches. Open questions are asked about the general situations of sustained competitive advantage of Chinese clothing industry in terms of present situations and challenges, and about main resources and capabilities for the sustained competitive advantage and for the industrial upgrading.

Second/ third-stage ethics project (Ref No.: 3374) was created on 15th January 2012 and approved on 20th January 2012. This is a Medium to High Risk Project due to the primary research involving questionnaire survey to human individuals.

Project summary: The primary purpose of the research is to find out key resources and strategy for sustained competitiveness of Chinese clothing industry. To this end, a series research will be conducted in the specific context of Chinese clothing industry. At this second-phase research, a questionnaire will be delivered to about 500 above senior managers in Chinese clothing firms. These firms should be above the designated size with annual revenue over 5 million RMB from the principal businesses. The third stage research is interviews with managers in three case companies and the semi-structured questions concern these companies' resources and sustained competitive advantages. For consideration of convenience and costs, the survey will mainly focus on the geographical location of Zhejiang province in China, where many clothing firms cluster and which situates in the Southeast part of China, one of most developed economic regions.

Appendix 5-2: Questionnaire in English version 1

Part one: General information about you and your company

Please choose the appropriate number(s) concerning general information about you and your company. Please note that the answers could be single choice or multiple ones. You can also use "n/a" to indicate no choice since some resource may be not applicable in your clothing company. (to whom in the company is this survey going to be given to? Will they all have equal access or knowledge to the information that you are asking for, e.g., profit margins? Will they all understand the terms that you are using or do you need to rephrase or provide a small glossary, e.g., the definition of own brand? What happens if they don't have this information?

Item	1	2	3	4	5	Chosen No(s).
About you:						

Gender	Female	Male				
Highest education attainment	High school	Bachelor's degree	Master's degree	Doctoral degree	Other (specify)	
Work years in the clothing industry	Below 1 year	1-2 years*	2-3 years	3-4 years	Over 5 years	
Employment status	Ordinary staff	Technician	Intermediate or Senior manager	CEO/Owner	Other (specify)	
Other things you may want to tell:						
About your clothing company：						
Length of time that your company has operated in the clothing industry	<5 years	5-10 years	10-20 years	20 -50 years	>50 years	
Employment numbers	＜50 persons	50-200 persons	200-300 persons	300-500 persons	>500 persons	
Retail profit margin	<0	<5%	5%-10%	10-15%	>15%	
Operation years with own brand name	0	< 5 years	5-10 years	10-20 years	>20 years	
Proportion of sales with own brand to total sales	0	< 10%	10%-50%	50%-90%	90%-100 %	
Proportion of exports to total sales	0	< 10%	10%-50%	50%-90%	90%-100 %	
Pattern(s) of export business	Original equipment Assembly/OEA	Original equipment manufacturing/OEM	Original design manufacturing/ODM	Own brand manufacturing /OBM	Other (specify)	
Business breadth	Apparel design	Apparel manufacture	Branding	Marketing	Other (specify)	
Business extension	Clothing industry	The other industry or industries	Commercial service	Financial service	Other (specify)	
Business scope	Womenswear	Menswear	Childrenswear	Knitting apparel	Weaving apparel	
Other things you may want to describe your company?:						

*Note: To group variables, the lower limit is included in the lower number group. Take an example, to a variable group "50-200 persons", the variable "=50person" is included in the lower group "＜50 persons", and the variable "=200 persons" is included in the group "50-200 persons" but not included in its higher group "200-300 persons". This principle is applied to the other similar matter in this table. (I don't follow this at all. Is it just lost in translation or am I being simply dumb?)

Part two: Key firm-level resources required for sustained competitiveness of the Chinese clothing industry

The first column of the following table shows the various firm-level resources associated with the Chinese clothing industry. Please indicate the degree of importance that you attach to the various resources listed below in terms of their contribution to the ***sustained competitiveness*** of the Chinese

clothing industry. Please tick (√) in the appropriate box below, using the scale ranging from 1(very little importantance) to 5 (extremely important). Please also assess the degree of importance attached to the same resources in your company by choosing the corresponding number. In this way it may provide information about any differences between your company and your industry.

	Firm resource/capability	1=of very little importance	2=slight important	3=quite important	4=very important	5=extremely important	Degree of importance in your company by choosing a no.*
Productive resources ***(Vr)***	***Vr1:*** Skillful worker						
	Vr2: Plant & equipment						
	Vr3: Technological know-how						
Internal and external integrative capability ***(Vc)***	***Vc4:*** Customer relationship						
	Vc5: Supplier relationship						
	Vc6: Human resource management						
Functional capability ***(Vc)***	***Vc7:*** Quick response						
	Vc8: Quality control						
	Vc9: Brand development & management						
Dynamic capability ***(Vd)***	***Vd10:*** Organisational learning						
	Vd11: Leadership skills and capabilities						
	Vd12: Innovation						

*Note: You can use "n/a" to indicate no choice since some resources may be not applicable in your clothing company.

Part three：Key influential factors required for the industrial upgrading

Please measure degree of importance of the various influential factors below on successful implementation of ***the industrial upgrading strategy*** of the Chinese clothing industry generally. Please tick (√) in the corresponding square frame below by using the scale ranging from 1(very little importantance) to point 5 (extremely important). Please also assess the degree of importance of the relevant factors in your company by choosing the corresponding number.

Influential factors	1=of very	2=significant	3=quite	4=very	5=extremely	Importance

	little importance	but not very important	important	important	important	degree (chosen no.) in your company*
(Vf1) Strategic intent of developing own brand						
(Vf2) Brand positioning						
(Vf3) Capability of brand development and management						
(Vf4) Foreign business involvement						
(Vf5) Organisational Learning and absorption capability						
(Vf6) Innovation capability						
(Vf7) Quality control						
(Vf8) Quick response						
(Vf9) Adaptability to dynamics						
(vf10) Financial capability						

*Note: You can use "n/a" to indicate no choice since some factors may be not applicable in your clothing company.

Source: The author.

Appendix 5-3: Questionnaire in English version 2

Part one: General information about you and your company

Please tick (√) the descriptions concerning general information about you and your company in the appropriate box below. Please note that the answers could be single choice or multiple ones. Please use the last column for specifications or for the mark "n/a" in case of no choice.

item	1	2	3	4	5	Specification(s)
About you：						
Highest education attainment	High school	Bachelor's degree	Master's degree	Doctoral degree	Other (specify)	
Working years in the clothing industry	＜= 1 year	1-2 years	2-3 years*	3-4 years	Over 5 years	

Employment status	Ordinary staff	technician	Intermediate or Senior manager	CEO/Owner	Other (specify)	
Other things you may want to add:						
About your clothing company：						
years operated in the clothing industry	＜=5 years	5-10 years	10-20 years	20 -50 years	＞50 years （specify）	
Employment numbers	＜=50 persons	50-200 persons	200-300 persons	300-500 persons	＞500 persons （specify）	
Gross profit margin of sales	＜=0	0-5%	5%-10%	10-20%	＞20%	
Labour productivity (10,000RMB/per capita output)	＜=5	5-10	10-20	20-30	＞30	
Years of operation with own brand name	0	0- 5 years	5-10 years	10-20 years	＞20 years	
Proportion of sales with own brand to total sales	0	＜0-10%	10%-50%	50%-90%	90%-100 %	
Proportion of exports to total sales	0	0- 10%	10%-50%	50%-90%	90%-100 %	
Patten(s) of export business	Original equipment Assembly/OEA	Original equipment manufacturing/OEM	Original design manufacturing/ODM	Own brand manufacturing /OBM	Other (specify)	
Business breadth	Apparel design	Apparel manufacture	Branding	Marketing	Other (specify)	
Business extension	Clothing industry	The other industry/industries	Commercial service	Financial service	Other (specify)	
Business scope	Womenswear	Menswear	Childrenswear	Knitting apparel	Weaving apparel	
Other things you may want to add:						

*Note: To group variables, the lower limit is included in a lower number group. Take an example, to a variable group “2-3 years”, the variable “=2 years” is included in the lower-number group “1-2 years”, and the variable “=3 years” is included in the group “2-3 years” but not included in its higher-number group “3-4 years”. This principle is applied to the other similar matter in this table.

Part two: Key firm-level resources required for sustained competitiveness of The Chinese clothing industry

The second column of the following table shows the various firm-level resources associated with THE CHINESE CLOTHING INDUSTRY. Please indicate the degree of importance that you attach to the various resources listed below in terms of their contribution to the ***sustained competitiveness*** of the Chinese clothing industry. Please tick (√) in the appropriate box below, using the scale ranging from 1(very little importance) to 7(extremely important).

Resource group	Firm resource/capability	1	2	3	4	5	6	7
Productive resources ***(Vr)***	***Vr1:*** Skillful worker							
	Vr2: Plant & equipment							
	Vr3: Technological know-how							
Internal and external integrative capability ***(Vc)***	***Vc4:*** Customer relationship							
	Vc5: Supplier relationship							
	Vc6: Human resource management							
Functional capability ***(Vc)***	***Vc7:*** Quick response							
	Vc8: Quality control							
	Vc9: Brand marketing & management							
Dynamic capability ***(Vd)***	***Vd10:*** Organisational learning							
	Vd11: Leadership skills and capabilities							
	Vd12: Innovation							

Part Three: Status quo of the sustained competitiveness of your clothing firm

Ⅰ Firm resources required for sustained competitiveness: Please tick "√"the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7" means that you most agree and figure "1", least agree.

1 The equipments in this company have specialised functions in addition to general and extensive usages 1 2 3 4 5 6 7

2 The company has a stable number of professional technicians and skillful employees 1 2 3 4 5 6 7

3 The productive process in this company is efficient with support of advanced technology and information 1 2 3 4 5 6 7

4 The company possesses a stable and high-quality customer group 1 2 3 4 5 6 7

5 Good relationship with the suppliers ensures the company can acquire stable inputs 1 2 3 4 5 6 7

6 Human resource management in this company is strong enough to ensure coherence of the aim of the organisation with maximized personal development of the employees 1 2 3 4 5 6 7

7 The company is able to meet customers' demands in terms of product design, quality, price, output elasticity, delivery, and placement in a timely manner 1 2 3 4 5 6 7

8 This company is able to provide products with satisfactory quality to the customers, and the quality is steady. 1 2 3 4 5 6 7

9 This company has strong capabilities in brand development, brand management, and marketing operation 1 2 3 4 5 6 7

10 The strong organisational learning capability of the company ensures effective adjustment to the dynamics of external environment. 1 2 3 4 5 6 7

11 The company is consistently improving and innovating in terms of products, design, 1 2 3 4 5 6 7

business management, and process flow.

12 The leadership team members in this company are effective in decision-making, team motivation and communication	1	2	3	4	5	6	7

Ⅱ Firm strategies for sustained competitiveness: Please tick "√"the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7"means that you most agree and figure "1", least agree.

1 The original core competitiveness of the company has been weakened so it is necessary to develop a new one	1	2	3	4	5	6	7
2 The company should seek to acquire sustained competitiveness by focusing on special products or market segments	1	2	3	4	5	6	7
3 The company should seek to acquire sustained competitiveness by consistently lowering costs	1	2	3	4	5	6	7
4 The company should seek to lower costs through expansion of production to achieve scale economies	1	2	3	4	5	6	7
5 The company should seek to lower costs through integration of the upstream and downstream chains	1	2	3	4	5	6	7
6 The company should seek to acquire sustained competitiveness through good quality of products and services	1	2	3	4	5	6	7
7 The company should seek to acquire sustained competitiveness through consistent product innovation resulting in high value-added products	1	2	3	4	5	6	7
8 The company should seek to acquire sustained competitiveness through consistent innovation and upgrading in the process flow to enhance efficiency	1	2	3	4	5	6	7
9 The company should seek to acquire sustained competitiveness through gradual function shift from the lower value-added and lower technology-embedded manufacturing segment to the higher value-added design and marketing segments	1	2	3	4	5	6	7
10 The company should seek to acquire sustained competitiveness by gradually developing its own brand	1	2	3	4	5	6	7
11 The company should seek to acquire sustained competitiveness through gradual asset shift from the apparel industry to the other industries with higher ROA	1	2	3	4	5	6	7
12 The company should seek to acquire sustained competitiveness by strengthening organisational learning and by quickening response to external dynamics	1	2	3	4	5	6	7

Ⅲ Dynamic capabilities and its organisational performance: Please tick "√"the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7"means that you most agree and figure "1", least agree.

1 Since the financial crisis, the company has been able to quickly react to the global market recession in strategy	1	2	3	4	5	6	7
2 Since the financial crisis, the company has still been able to receive stable orders successfully	1	2	3	4	5	6	7
3 Since the financial crisis, the company has been able to control costs properly, including costs of raw material, labour, and land, etc.	1	2	3	4	5	6	7
4 Since the financial crisis, the company has developed effective external communication channels and has been able to pass sales information smoothly	1	2	3	4	5	6	7
5 Since the financial crisis, the company has developed strong team cohesion and all the staff has been confident to the future	1	2	3	4	5	6	7

6 Since the financial crisis, the sales value has been rather stable and even increased annually	1	2	3	4	5	6	7
7 Since the financial crisis, the sales profit margin has been rather stable and even increased annually	1	2	3	4	5	6	7
8 Since the financial crisis, the market share has been rather stable and even increased annually	1	2	3	4	5	6	7

Source: The author.

Appendix 5-4: Questionnaire in English version 3 (Final version)

Dear Participant，

My name is Dongmei Cao and now a PhD student at Coventry University in the UK. The subject of the PhD research is "Sustaining Competitiveness of THE CHINESE CLOTHING INDUSTRY".

Presently I am collecting data for the research. The purpose of this survey is to explore the major firm-level resources required for sustained competitiveness in the special context of the Chinese clothing industry. The potential informants include senior managers, CEOs, and owners of the clothing companies.

The information you provide will only be used for the academic research and the data are collected anonymously. I can guarantee that all the information you provide will be treated in the strictest confidence.

I also want you to know that I am willing to share with you the research findings and will be able to email these to you after the data is analysed. This may be helpful with your decision-making in relation to the sustained development of your company.

The survey should take you about 15 minutes to complete. I sincerely appreciate your time and help with this research.

Part one: General information about you and your company

Please tick (√) or color the descriptions concerning general information about you and your company in the appropriate box below. Please note that the answers could be single choice or multiple ones. Please use the last column for specifications or for the mark "n/a" in case of no choice.

item	1	2	3	4	5	Specification(s)
About you：						
Highest education attained	High school	Bachelor's degree	Master's degree	Doctoral degree	Other (specify)	
Working years in the clothing industry	≤1 year	1-2 years	2-3 years*	3-5 years	＞5 years	
Employment status	Ordinary staff	technician	Senior manager	CEO/Owner	Other (specify)	
Other things you may want to add:						

About your clothing company：						
Years operated in the clothing industry	≤5 years	5-10 years	10-20 years	20 -50 years	＞50 years（specify）	
Employment number	≤50 persons	50-200 persons	200-300 persons	300-500 persons	＞500 persons（specify）	
Gross profit margin of sales	≤0	0-5%	5%-10%	10-20%	＞20%	
Labour productivity（100,000 RMB/annual output per person)	≤5	5-10	10-20	20-30	＞30	
Years of operation with own brand name	n/a	0- 5 years	5-10 years	10-20 years	＞20 years	
Proportion of sales with own brand to total sales	n/a	0-10%	10%-50%	50%-90%	90%-100 %	
Proportion of exports to total sales	n/a	0- 10%	10%-50%	50%-90%	90%-100 %	
Export pattern	Original equipment Assembly/OEA	Original equipment manufacturing/OEM	Original design manufacturing/ODM	Own brand manufacturing /OBM	Other (specify)	
Business extension	Design	Manufacture	Branding	Marketing	Other (specify)	
Business diversification	Clothing industry	The other industry/industries	Commerce	Finance	Other (specify)	
Product line	Womenswear	Menswear	Childrenswear	Knitting apparel	Weaving apparel	
Other things you may want to add:						

*Note: To group variables, the lower limit is included in a lower number group. Take an example, to a variable group "2-3 years", the variable "=2 years" is included in the lower-number group "1-2 years", and the variable "=3 years" is included in the group "2-3 years" but not included in its higher-number group "3-4 years". This principle is applied to the other similar matter in this table.

Part two: Key firm-level resources required for sustained competitive advantage of the Chinese clothing industry

The second column of the following table shows the various firm-level resources associated with the Chinese clothing industry. Please indicate the degree of importance that you attach to the various resources listed below in terms of their contribution to the ***sustained competitiveness*** of the Chinese clothing industry. Please tick (√) or color the appropriate box below, using the scale ranging from 1(very little importance) to 7(extreme importance).

Resource group	Firm resource/capability	1	2	3	4	5	6	7
Productive resources ***(PR)***	***Vr1:*** Skillful worker							
	Vr2: Plant & equipment							

	Vr3: Technological know-how							
Internal and external integrative capability ***(IC)***	***Vc4:*** Customer relationship							
	Vc5: Supplier relationship							
	Vc6: Human resource management							
Functional capability ***(FC)***	***Vc7:*** Quick response							
	Vc8: Quality control							
	Vc9: Branding							
Dynamic capability ***(DC)***	***Vd10:*** Organisational learning							
	Vd11:entrepreneurship							
	Vd12: Innovation							

Part Three: Status quo of the sustained competitiveness of your clothing firm

Ⅰ Firm resources required for sustained competitiveness: Please tick "√" or color the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7" means that you most agree and figure "1", least agree.

1 The equipments in this company have specialised functions in addition to general and extensive usages	1	2	3	4	5	6	7
2 The company has a stable number of professional technicians or skillful employees	1	2	3	4	5	6	7
3 The productive process in this company is efficient with support of advanced technology and information	1	2	3	4	5	6	7
4 The company possesses a stable and high-quality customer group	1	2	3	4	5	6	7
5 Good relationship with the suppliers ensures the company can acquire stable inputs	1	2	3	4	5	6	7
6 Human resource management in this company is strong enough to ensure coherence of the aim of the organisation with maximized personal development of the employees	1	2	3	4	5	6	7
7 The company is able to meet customers' demands in terms of product design, quality, price, output elasticity, delivery, and placement in a timely manner	1	2	3	4	5	6	7
8 This company is able to provide products with satisfactory quality to the customers, and the quality is steady	1	2	3	4	5	6	7
9 This company has strong capabilities in brand development and brand management	1	2	3	4	5	6	7
10 The strong organisational learning capability of the company ensures effective adjustment to the dynamics of external environment	1	2	3	4	5	6	7
11 The company is consistently improving and innovating in terms of products, design, business management, and process flow	1	2	3	4	5	6	7
12 The leaders' team in this company are effective in decision-making, team motivation and effective communication	1	2	3	4	5	6	7

Ⅱ Firm strategies for sustained competitiveness: Please tick "√" or color the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7" means that you most agree and figure "1", least agree.

1 The original core competitiveness of the company has been weakened so it is necessary to develop a new one	1	2	3	4	5	6	7
2 The company should seek to acquire sustained competitiveness by focusing on special products or market segments	1	2	3	4	5	6	7
3 The company should seek to acquire sustained competitiveness by consistently lowering costs	1	2	3	4	5	6	7
4 The company should seek to lower costs through expansion of production to achieve scale economy	1	2	3	4	5	6	7
5 The company should seek to lower costs through integration of the upstream and downstream chains	1	2	3	4	5	6	7
6 The company should seek to acquire sustained competitiveness through stable and good quality of products and services	1	2	3	4	5	6	7
7 The company should seek to acquire sustained competitiveness through consistent product innovation resulting in high value-added products	1	2	3	4	5	6	7
8 The company should seek to acquire sustained competitiveness through consistent innovation and upgrading in the process flow to enhance the efficiency	1	2	3	4	5	6	7
9 The company should seek to acquire sustained competitiveness through gradual function shift from the lower value-added and lower technology-embedded manufacturing segment to the higher value-added design and marketing segments	1	2	3	4	5	6	7
10 The company should seek to acquire sustained competitiveness by gradually developing its own brand	1	2	3	4	5	6	7
11 The company should seek to acquire sustained competitiveness through gradual asset shift from the apparel industry to the other industries with higher return on assets (ROA)	1	2	3	4	5	6	7
12 The company should seek to acquire sustained competitiveness by strengthening organisational learning and by quickening response to external dynamics	1	2	3	4	5	6	7

Ⅲ Dynamic capabilities and organisational performance in your company: Please tick "√" or color the corresponding figures to the following statements based on your understanding of your clothing company. Figure"7" means that you most agree and figure "1", least agree.

1 Since the financial crisis, the company has been able to quickly react to the global market recession in terms of strategy	1	2	3	4	5	6	7
2 Since the financial crisis, the company has still been able to receive stable orders successfully	1	2	3	4	5	6	7
3 Since the financial crisis, the company has been able to control costs properly, including costs of raw material, labour, and land, etc.	1	2	3	4	5	6	7
4 Since the financial crisis, the company has developed effective external communication channels and has been able to pass sales information smoothly	1	2	3	4	5	6	7
5 Since the financial crisis, the company has developed strong team cohesion and all the staff has been confident to the future	1	2	3	4	5	6	7
6 Since the financial crisis, the sales value has been rather stable and even increased annually	1	2	3	4	5	6	7
7 Since the financial crisis, the sales profit margin has been rather stable and even increased annually	1	2	3	4	5	6	7
8 Since the financial crisis, the market share has been rather stable and even increased	1	2	3	4	5	6	7

annually

Please check again to make sure that you have not skipped any questions !

Source: The author.

Appendix 5-5：Questionnaire in Chinese version 3

调研问卷

致问卷参与者：亲爱的朋友 您好!

我是曹冬梅，现在英国考文垂大学攻读博士学位，博士研究课题是：中国服装产业的持续竞争力研究。

现对您进行的问卷调查是课题第二阶段数据收集工作。该问卷设计的主要目的是，从企业层面探索中国服装产业持续竞争力所需要的主要企业资源。问卷调研的对象是中国服装企业中高级管理人员，也包括总经理和企业主等。

声明并保证：数据收集是匿名的，所提供的信息只用来做学术研究，并执行严格的隐私保护。

本项研究的分析结果将愿意与您分享。如果您需要并发邮件告知，我会用电子邮件发送调研分析结果，这将有助于有关企业持续发展方面的决策。

这份问卷大约需要您 15 分钟时间，诚挚感谢您的宝贵时间和对调研的帮助!

第一部分：您和您所在公司的一般信息

下表反映您和您所在公司的一般信息，请在适当的选项上打“ √ ”号或涂色。请注意选项可以是单选也可以是多选。最后一列是“其他说明”项，请给出相应的具体说明；或标注“n/a”表示该选项不适合您所在公司。

	1	2	3	4	5	其他说明
关于您：						
最高教育程度	高中	学士学位	硕士学位	博士学位	其他(具体说明)	
在服装行业从业时间	＜=1 年	1-2 年	2-3 年*	3-4 年	＞5 年	
工作级别	一般员工	科研/技术人员	中高级管理人员	总经理或企业主	其他(具体说明)	
其它您愿意反映的内容：						
关于您所在的公司：						
主营服装年数	＜=5 年	5-10 年	10-20 年	20-50 年	＞50 年	
在职工人数	＜=50 人	50-200 人	200-300 人	300-500 人	＞500 人（具体说明）	
销售毛利率	＜=0	0-5%	5%-10%	10%-20%	＞20%	

劳动生产率(万元/人均年产值)	＜=5	5-10	10-20	20-30	＞30	
自主品牌年数	0	0-5 年	5-10 年	10-20 年	＞20 年	
自主品牌销售占总销量比	0	0-10%	10%-50%	50%-90%	90%-100%	
出口占总销量比	0	0-10%	10%-50%	50%-90%	90%-100%	
出口业务方式	组装加工（OEA）	贴牌加工（OEM）	设计加工（ODM）	自有品牌加工（OBM）	其他（具体说明）	
业务延伸	服装设计	服装生产	品牌经营	服装零售	其他 (具体说明)	
业务多元化	服装产业	其他行业	商业服务	金融服务	其他 (具体说明)	
产品范围	女装	男装	童装	针织	机织	
其它您愿意反映的内容：						

2*注：对于分组变量来说，下限包含在低数量组中。例如，对于“2-3 年”这一组，变量“=2 年”包含在它的低一级数量组“1-2 年”这一组中，而变量“=3 年”包含在“2-3 年”这一组中，而不是包含在它的高一级数量组“3-4 年”这一组中。表中其他类似分组变量的上下限变量的确定以此类推。

第二部分：中国服装行业持续竞争力所需的主要企业资源

下表第二列是中国服装企业的各种资源和能力，请根据它们对中国服装行业***持续竞争力***方面的贡献，评价它们的相对重要程度，并依次在相应的方框里打钩号(√) ：7 表示最重要，1 表示最不重要。

企业资源分类	企业资源/能力	1	2	3	4	5	6	7
生产性资源 ***(Vr)***	***Vr1***:熟练技工							
	Vr2:厂房与机器设备							
	Vr3:技术知识							
内外部整合能力 ***(Vc)***	***Vc4:***与客户关系							
	Vc5:与供应商关系							
	Vc6:人力资源管理							
功能性能力 ***(Vc)***	***Vc7:***快速反应能力							
	Vc8:质量控制能力							
	Vc9:品牌开发与管理							
动态变化能力 ***(Vd)***	***Vd10:***组织学习能力							
	Vd11:领导艺术与能力							
	Vd12:创新能力							

第三部分：您所在服装企业的持续竞争力状况

一、企业持续竞争力的资源与能力（请根据您所了解的情况，给下列指标打分，可以打“√”或涂色表示选项：1 为最不支持，7 为最支持）	
1 贵公司生产设备比较先进，除了一般的广泛的用途外，兼有特定的功能	1 2 3 4 5 6 7
2 贵公司有较稳定数量的专业技工和熟练职工团队	1 2 3 4 5 6 7
3 贵公司生产过程是有效率的，体现高度技术化与信息化	1 2 3 4 5 6 7
4 贵公司有稳定而高质量的客户群	1 2 3 4 5 6 7
5 贵公司具有良好的供货商关系，使资源取得不虞匮乏	1 2 3 4 5 6 7
6 贵公司人力资源管理能力较强，能保证组织目标实现与成员发展的最大化	1 2 3 4 5 6 7
7 贵公司有能力及时配合顾客的需求 (包括：产品设计、质量、价格、生产弹性、交货、渠道等方面)	1 2 3 4 5 6 7
8 贵公司有能力提供令客户满意的产品质量，且保证这种质量持续稳定。	1 2 3 4 5 6 7
9 贵公司具有较强的品牌开发与管理能力	1 2 3 4 5 6 7
10 贵公司有较强的组织学习能力，能及时应对外界环境变化进行有效的调整	1 2 3 4 5 6 7
11 贵公司坚持持续的产品、设计、管理、工艺流程等方面改良与创新	1 2 3 4 5 6 7
12 贵公司领导团队具有创新精神的，在决策、激励团队、有效沟通方面的能力和技巧尤其突出	1 2 3 4 5 6 7

二、企业持续竞争力策略（请根据您所了解的情况，给下列指标打分，打“√”或涂色表示选项：1 为最不支持，7 为最支持）	
1 贵公司的原有核心竞争力已渐弱势，必须逐步重建新的核心竞争力	1 2 3 4 5 6 7
2 贵公司应把资源集中在特定产品或细分市场上经营以取得持续竞争力	1 2 3 4 5 6 7
3 贵公司应通过不断降低成本来取得持续竞争力	1 2 3 4 5 6 7
4 贵公司应扩大产能通过经济规模来降低成本	1 2 3 4 5 6 7
5 贵公司应通过整合上下游产业链降低成本	1 2 3 4 5 6 7
6 贵公司应以优良稳定的产品和服务质量来取得持续竞争力	1 2 3 4 5 6 7
7 贵公司应以不断的产品创新，生产出更高附加值产品来取得持续竞争力	1 2 3 4 5 6 7
8 贵公司应以不断的工艺流程方面的创新与升级，通过提高效率来取得持续竞争力	1 2 3 4 5 6 7
9 贵公司应逐步转移出低附加值、低技术的生产功能，通过发展设计和市场营销等高附加值功能来取得持续竞争力	1 2 3 4 5 6 7
10 贵公司应逐步发展自主品牌来取得持续竞争力	1 2 3 4 5 6 7
11 贵公司资产应逐步转移到其他回报率较高的行业来取得持续竞争力	1 2 3 4 5 6 7
12 贵公司应加强组织学习、提高动态反应能力，通过快速有效应对外界变化来取得持续竞争力	1 2 3 4 5 6 7

三、企业动态竞争力及其组织绩效（请根据您所了解的情况，给下列指标打分，可以打“√”或涂色表示选项：1 为最不支持，7 为最支持）	
1 金融危机以来贵公司有能力应对市场萎缩的变化，并能迅速反应	1 2 3 4 5 6 7
2 金融危机以来贵公司仍能接单顺畅	1 2 3 4 5 6 7
3 金融危机以来贵公司对于成本控制适宜，包括原材料成本、劳动力成本和用地等成本	1 2 3 4 5 6 7
4 金融危机以来贵公司对外沟通渠道通畅，能充分传递销售信息	1 2 3 4 5 6 7
5 金融危机以来贵公司员工间凝聚力强，仍充满信心	1 2 3 4 5 6 7
6 金融危机以来贵公司的销售额相当稳定甚至逐年提高	1 2 3 4 5 6 7
7 金融危机以来贵公司的销售利润率相当稳定甚至逐年提高	1 2 3 4 5 6 7
8 金融危机以来贵公司的市场占有率率相当稳定甚至逐年提高	1 2 3 4 5 6 7

最后，请再次检查以上问卷回答的完整性，确定没有遗漏或跳过某个问题。

再次感谢您对该项调研的支持！

Source: The author.

Appendix 5-6: Interview questions and protocol

1. General questions to start with
Topic 1: Problems with the SCA of the Chinese clothing industry
Topic 2: Practical solutions/strategies against the problems (i.e., topics):

- about Industrial Upgrading
- about Branding (brand development and brand management)
- about Cost Control

2. SCA and evidence in the following variables

- Order Acquistion, Cost Control, Strategic Adaptability, External Communication and Internal Cohesion

3. Resources leading to SCA

- Fundamental Resouce: CR, SR, ES and QC
- Dynamic Capability: HRM, Entrepreneurship, Organisational Learning and Quick Response
- Upgrading Capability: Branding and IT

Interview with Mingjie Zhang, CEO of Youngor
Time: 3:00-4:30pm on 4th Novemver 2011
Place: No. 10 Building, Youngor headquarter, Ningbo

Q1: About the status quo, problems, and solution to the current clothing industry in China
--The global economic and industrial background
--solution—government or companies themselves?
Q2： About resources required for SCAof the Chinese clothing industry
--Global manufacturing shift?
Q3: About value chain, marketing, and supply chain
--to meet customers' requirement
Q4: Global manufacturing shift outwards?
Q5: Other firm-level elements/resources for SCA?
--distribution
--e-business

Interview with Kaifagn Shen, owner-manager of Kaiqi
Time: 15th January 2013 (1st time)

Place: his office at Shaoxing

--Customer relationship—to meet their need?
--Quick response
--Entrepreneurship role in Kaiqi
--Brand building and Brand development
-- Quality control
--How far can the clothing processing?
--About Kaiqi's strategic cooperation?
--Inter-industry transformation
--Move inland for cost control strategy
--About sustained competitive advantage, how

Time: 5th April 2013 (2nd time)

Place: his office at Shaoxing

1. Company profile and background
2. Firm resources and SCA

--The role of the industrial cluster?
--Customer relationship
--Enterpreneurship in Kaiqi

3. Company practice and development strategy

--Oversea outsourcing manufacturing
--Own brand development
--Hrizontal cooperation

Interview with Mingfei Yu, CEO of Tedelon

Time: 23rd February 2012

Place: Yaohai Industry Park, Hefei

1. Brand: innovation, management and development
2. Corporate culture and brand culture
3. Internationalisation development
4. Clothing design, manufacturing, and brand
5. About enrollment and employment management
6. Processing technology
7. Organisational learning
8. Entrepreneurship
9. Own manufacturing and outsourcing
10. Internationalisation

Interview with Di Zhang, Senior Managr of Tedelon

Time: 9th March 2012

Place: Tedelon headquarter, Xiaoshan district, Hangzhou city

--About supplier relationships

--About human resource management

Appendix 5-7: Demographic data of the interviewees

Interviewee	City	Date	Status	Company/university/organisation
Han	Hangzhou	03/11/2011	General sectary, vice-chairman	Zhejiang Garment Industry Association
Zhang	Ningbo	04/11/2011	General manager	Youngor Group
Sheng	Shaoxing	05/11/2011 15/01/2013 05/04/2013	CEO, Owner	Shao Kaiqi Textile & Garment Co., Ltd.
Liu	Shuzhou	10/11/2011	Professor	Shuzhou University
Gu	Shanghai	17/11/2011	Professor	Donghua University
Gu	Shaoxing	21/11/2011	CEO, Chairman of Board	Zhejiang Langshaer Clothing Co.
Wu	Hangzhou	26/11/2011	Professor	Zhejiang Sci-tech University
Xie	Beijing	30/11/2012	Vice-president	China Garment Association
Yu	Hefei	23/02/2012	General manager	Tedelon Group
Zhang	Hangzhou	28/02/2012	Senior manager	Tedelon Group

Source: The author.

Appendix 6-1: Assessing appropriateness of factor analysis

Appendix 6-1a: Assessing appropriateness of factor analysis: correlations and overall MSA

	SW	PE	IT	CR	SR	HRM	QR	QC	Br	OL	En	In	SP	LP	SA	OA	CC	EC	IC	SG	SPI	MSI
SW	1.000																					
PE	.379	1.000																				
IT	.469	.525	1.000																			
CR	.585	.364	.419	1.000																		
SR	.504	.406	.500	.558	1.000																	
HRM	.428	.457	.515	.520	.589	1.000																
QR	.435	.356	.424	.388	.476	.536	1.000															
QC	.446	.397	.315	.580	.377	.439	.459	1.000														
Br	.202	.316	.513	.212	.344	.400	.356	***.139***	1.000													
OL	.361	.371	.477	.462	.405	.565	.443	.459	.411	1.000												
En	.374	.308	.378	.427	.450	.494	.434	.408	.350	.616	1.000											
In	.431	.443	.523	.439	.488	.597	.540	.382	.604	.621	.576	1.000										
SP	***.057***	.159	.290	***.141***	.286	.290	***.099***	***.028***	.394	.223	***.181***	.346	1.000									
LP	***.078***	***.090***	.312	.176	***.115***	*.171*	***.056***	***.060***	.282	.257	***.142***	***.164***	.300	1.000								

SA	.449	.315	.531	.424	.359	.377	.309	.384	.347	.418	.366	.371	***.193***	.322	1.000							
OA	.355	.194	.334	.429	.261	.322	.235	.367	.245	.369	.420	.303	***.053***	.360	.563	1.000						
CC	.273	.253	.401	.258	.313	.340	.240	.283	.240	.427	.347	.416	.198	*.168*	.468	.440	1.000					
EC	.344	.244	.379	.452	.270	.391	.368	.435	.261	.452	.407	.400	***.145***	.279	.562	.531	.469	1.000				
IC	.320	.278	.417	.335	.303	.330	.202	.340	.249	.480	.395	.357	***.125***	***.176***	.519	.409	.615	.550	1.000			
SG	.207	.317	.393	.220	.228	.422	.355	***.137***	.440	.492	.474	.499	.320	.313	.488	.569	.441	.506	.497	1.000		
SPI	*.156*	.285	.438	***.141***	.297	.358	.290	***.066***	.410	.480	.457	.393	.297	.218	.462	.471	.551	.440	.566	.754	1.000	
MSI	.227	.286	.473	.228	.309	.455	.379	***.116***	.478	.500	.509	.521	.316	.275	.472	.525	.448	.465	.478	.861	.826	1.000

Note: Bolded values indicate correlations not significant at the 0.01 level.
Kaiser-Meyer-Olkin Measure of Sampling Adequacy: .906
Bartlett test of sphericity: 2845.351
Significance: .000
Number of correlations significant at .001 level: 206

Appendix 6-1b: Assessing the appropriateness of factor analysis: MSA for individual variable

Measured variable	MSA 1	MSA 2
Skillful worker	.584	.585
Plant & equipment	.412	---
Information technology	.598	.581
Customer relationship	.701	.709
Supplier relationship	.586	.596
Human resource management	.640	.644
Quick response	.565	.583
Quality control	.658	.654
Branding	.618	.622
Organisation learning	.582	.590
Entrepreneurship	.556	.572
Innovation	.710	.720
Sales profit	.583	.589
Labour productivity	.719	.713
Strategic adapatability	.649	.653
Order acquisition	.652	.645
Cost control	.514	.517

External communication	.618	.614
Internal cohesion	.604	.609
sales growth	.797	.798
sales profit	.824	.826
market share increase	.833	.834

Note: Extraction Method- Principal Component Analysis.

Appendix 6-1c: Assessing the appropriateness of factor analysis with revised set of variables (ES deleted): correlations and overall MSA

Variable	ES	IT	CR	SR	HRM	QR	QC	Br	OL	En	In	SP	LP	SA	OA	CC	EC	IC	SG	SPI	MSI
ES	1.000																				
IT	.469	1.000																			
CR	.585	.419	1.000																		
SR	.504	.500	.558	1.000																	
HRM	.428	.515	.520	.589	1.000																
QR	.435	.424	.388	.476	.536	1.000															
QC	.446	.315	.580	.377	.439	.459	1.000														
Br	.202	.513	.212	.344	.400	.356	.139	1.000													
OL	.361	.477	.462	.405	.565	.443	.459	.411	1.000												
En	.374	.378	.427	.450	.494	.434	.408	.350	.616	1.000											
In	.431	.523	.439	.488	.597	.540	.382	.604	.621	.576	1.000										
SP	***.057***	.290	***.141***	.286	.290	***.099***	***.028***	.394	.223	***.181***	.346	1.000									
LP	***.078***	.312	***.176***	***.115***	***.171***	***.056***	***.060***	.282	.257	***.142***	***.164***	.300	1.000								
SA	.449	.531	.424	.359	.377	.309	.384	.347	.418	.366	.371	.193	.322	1.000							
OA	.355	.334	.429	.261	.322	.235	.367	.245	.369	.420	.303	.053	.360	.563	1.000						
CC	.273	.401	.258	.313	.340	.240	.283	.240	.427	.347	.416	.198	.168	.468	.440	1.000					
EC	.344	.379	.452	.270	.391	.368	.435	.261	.452ta	.407	.400	.145	.279	.562	.531	.469	1.000				
IC	.320	.417	.335	.303	.330	.202	.340	.249	.480	.395	.357	.125	.176	.519	.409	.615	.550	1.000			
SG	.207	.393	.220	.228	.422	.355	***.137***	.440	.492	.474	.499	.320	.313	.488	.569	.441	.506	.497	1.000		
SPI	***.156***	.438	***.141***	.297	.358	.290	***.066***	.410	.480	.457	.393	.297	.218	.462	.471	.551	.440	.566	.754	1.000	
MSI	.227	.473	.228	.309	.455	.379	.116	.478	.500	.509	.521	.316	.275	.472	.525	.448	.465	.478	.861	.826	1.000

Note: Bolded values indicate correlations not significant at the 0.01 level.
Kaiser-Meyer-Olkin Measure of Sampling Adequacy: .909
Bartlett test of sphericity: 2734.905
Significance: .000

Number of correlations significant at .001 level: 214

Appendix 6-2: Exploratory Factor Analysis

Appendix 6-2a: Deriving factors via PCA- total variance explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.737	41.605	41.605	8.737	41.605	41.605	4.799	22.854	22.854
2	2.182	10.390	51.995	2.182	10.390	51.995	4.348	20.703	43.556
3	1.578	7.515	59.509	1.578	7.515	59.509	3.184	15.160	58.717
4	1.154	5.495	65.004	1.154	5.495	65.004	1.320	6.287	65.004

Appendix 6-2b: Deriving factors via PCA- unrotated factor matrix and communality

21 variables	Factor 1	2	3	4	Communality
Skillful worker	.572	.487	-.118	.086	.585
Information technology	.708	.065	.176	.211	.581
Customer relationship	.620	.516	-.135	.199	.709
Supplier relationship	.624	.384	.239	.040	.596
Human resource management	.716	.258	.247	-.067	.644
Quick response	.603	.331	.202	.-.263	.583
Quality control	.533	.551	-.257	.000	.654
Branding	.582	-.160	.494	.112	.622
Organisation learning	.749	.071	.066	-.140	.590
Entrepreneurship	.698	.093	.053	-.143	.572
Innovation	.750	.120	.350	-.143	.720
Sales profit	.365	-.233	.528	.350	.589
Labour productivity	.359	-.275	.023	.712	.713
Strategic adapatability	.701	-.056	-.296	.265	.653
Order acquisition	.641	-.144	-.432	.163	.645
Cost control	.627	-.196	-.275	-.095	.517
External communication	.683	-.043	-.375	.074	.614

Internal cohesion	.655	-.174	-.374	-.096	.609
Sales growth	.730	-.496	-.005	-.139	.798
Sales profit increase	.691	-.543	-.022	-.022	.826
Market share increase	.750	-.477	.076	-.192	.834
					Total
Eigenvalue	8.737	2.182	1.578	1.154	13.651
Percentage of trace	41.605	10.390	7.515	5.495	65.004

Note: Trace= 21 (sum of eigenvalues)

Appendix 6-2c: Deriving factors via PCA - rotated factor matrix and communality

21 variable	Factor				Communality
	1	2	3	4	Extracted
Sales profit increase	.811				.826
Sales growth	.781				.798
Market share increase	.759		.506		.834
Internal cohesion	.723				.609
Cost control	.669				.517
Order acquisition	.660				.645
External communication	.629				.614
Strategic adapatability	.562				.653
Customer relationship		.802			.709
Quality control		.786			.583
Skillful worker		.742			.585
Supplier relationship		.637			.596
Human resource management		.582	.500		.644
Quick response		.570			.653
Organisation learning					.590
Entrepreneurship					.572
Branding			.732		.622
Sales profit			.675		.589
Innovation			.630		.720
Information technology					.581
Labour productivity				.782	.713
					Total

Eigenvalue	8.737	2.182	1.578	1.154	13.651
Percentage of trace	41.605	10.390	7.515	5.495	65.004

Notes: Rotation method- VARIMAX with Kaiser Normalisation; rotation converged in 16 iterations.

Appendix 6-2d: Deriving factors via PCA- 1st re-specifying factors (LP deleted)

	factor				communality
20 variables	1	2	3	4	extracted
Internal cohesion	.748				.639
Sales profit increase	.717				.810
Order acquisition	.698				.611
Cost control	.692				.567
Sales growth	.676		.544		.823
Strategic adapatability	.675				.669
External communication	.657				.606
Market share increase	.639		.574		.846
Customer relationship		.783			.692
Quality control		.737			.667
Skillful worker		.732			.603
Supplier relationship		.617			.630
Entrepreneurship			.668		.638
Quick response			.640		.622
Innovation			.614		.718
Organisation learning			.593		.624
Human resource management			.516		.645
Sales profit				.793	.641
Branding				.633	.611
Information technology				.535	.633
					Total
Eigenvalue	8.622	2.137	1.579	.959	13.297
Percentage of trace	43.108	10.686	7.889	4.793	66.476

Notes: Rotation Method- VARIMAX with Kaiser Normalisation; rotation converged in 10 iterations.

Appendix 6-3: SEM- Assumption tests

Appendix 6-3a: SPSS multivariate outlier statistics

		Case Number	Statistic
Mahal. Distance	1	106	77.984
	2	200	74.311
	3	91	65.126

	4	95	53.681
	5	139	53.398
	6	111	48.884
	7	73	48.686
	8	114	47.783
	9	122	46.294
	10	69	45.849

Notes: Dependent variable, SCA component is extracted via principal component analysis (PCA) from the original 7 indicator measuring SCA.

Appendix 6-3b: Critical values of Chi Squasre (χ^2) (Tabachnick & Fidell 2007: 949)

df	0.100	0.050	0.025	0.010	0.005	0.001
…						
14	21.0642				31.3193	36.123
15	22.3072				32.8013	37.697
16	23.5418				34.2672	39.253
17	24.7690				35.7185	40.790
18	25.9894				37.1564	42.318
19	27.2036				38.5822	43.820
20	28.4120				39.9968	45.315
21	29.6151				41.4010	46.797
22	30.8133				42.7956	48.268
23	32.0069				44.1813	49.728
24	33.1963				45.5585	51.179
25	34.3816				46.9278	52.620
…						

Appendix 6-3c: Matrix inverses and determinants

In matrix inversion (e.g. for the matrix A), one needs to look for the reciprocal matrix *(Tabachnick & Fedell 2007: **929-930**).* This process of finding A^{-1} is analogous to performing a matrix division, which is explained as the following equation (1).

$$A^{-1}A = I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad (1)$$

To find A^{-1}, the first step is to find the determinant of A, noted $|A|$. Suppose A is a variance-covariance matrix where a and d are variance while b and c are covanriance, which expressed in the equation (2) as follows:

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \quad (2)$$

Then the determinant comes as

$$|A| = ad - bc \quad (3)$$

In the case of multicollinear or singular matrices, the near-zero determinant prohibit inversion since the next step of division by zero is impossible.

Appendix 6-3d: SPSS statistics for multicollinearity

Dimension	Eigen-value	Condition-Index	Variance Proportions (Constant)	SW	IT	CR	SR	HRM	QR	QC	Br	OL	En	In	SA	OA	CC	EC	IC	SG	SPI
1	18.387	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.125	12.105	.00	.01	.00	.01	.01	.00	.01	.01	.02	.00	.00	.00	.00	.00	.00	.00	.00	.05	.07
3	.096	13.822	.00	.00	.01	.00	.00	.01	.01	.00	.24	.00	.00	.03	.01	.02	.01	.01	.01	.00	.00
4	.054	18.478	.00	.01	.08	.00	.00	.03	.02	.00	.15	.04	.10	.02	.07	.01	.01	.00	.00	.02	.01
5	.044	20.498	.00	.00	.07	.01	.02	.01	.00	.00	.06	.01	.00	.00	.01	.15	.10	.02	.04	.06	.05
6	.038	21.997	.01	.03	.13	.00	.02	.06	.02	.02	.15	.02	.01	.02	.01	.00	.07	.02	.05	.03	.04
7	.033	23.667	.11	.00	.09	.01	.02	.00	.19	.00	.03	.10	.06	.02	.05	.00	.01	.00	.00	.01	.03
8	.030	24.910	.02	.01	.01	.01	.07	.04	.08	.00	.04	.01	.20	.04	.02	.05	.00	.12	.00	.04	.05
9	.026	26.573	.00	.00	.05	.02	.02	.22	.11	.01	.00	.03	.10	.04	.04	.09	.15	.02	.01	.01	.02
10	.025	27.125	.01	.15	.00	.02	.01	.17	.03	.01	.05	.05	.02	.21	.00	.01	.11	.03	.02	.01	.02
11	.022	28.856	.00	.18	.07	.05	.01	.01	.07	.03	.00	.01	.02	.02	.01	.15	.13	.01	.15	.10	.00
12	.020	30.008	.05	.01	.22	.01	.05	.05	.00	.01	.00	.12	.11	.00	.40	.07	.00	.03	.00	.04	.00
13	.019	31.044	.02	.03	.16	.01	.00	.00	.00	.01	.00	.23	.11	.00	.26	.00	.00	.38	.00	.01	.00
14	.017	32.722	.13	.02	.08	.13	.01	.09	.03	.01	.01	.10	.15	.01	.01	.01	.00	.06	.08	.17	.27
15	.015	35.021	.16	.30	.03	.05	.14	.18	.04	.00	.13	.01	.01	.12	.07	.05	.00	.00	.12	.06	.00
16	.014	35.779	.21	.16	.00	.08	.02	.06	.09	.14	.00	.09	.01	.02	.00	.02	.02	.21	.25	.01	.00

17	.012	38.709	.07	.01	.00	.01	.12	.04	.14	.24	.03	.13	.01	.27	.00	.00	.13	.00	.02	.12	.43
18	.012	39.613	.00	.00	.00	.36	.20	.00	.00	.05	.05	.06	.07	.14	.00	.32	.25	.02	.15	.10	.01
19	.010	43.515	.19	.08	.00	.22	.29	.03	.16	.45	.02	.01	.01	.05	.04	.04	.02	.06	.09	.17	.01

Appendix 6-4: The measured variables and constructs for this study

4 constructs	18 variables	Description
Fundamental Resource	SW	The company has a stable number of skillful workers
	QC	This company is able to provide products with satisfactory quality to the customers, and the quality is steady
	CR	The company possesses a stable and high-quality customer relationship
	SR	Good relationship with the suppliers ensures the company can acquire stable inputs
Upgrading Capability	Br	This company has strong capabilities in brand development and brand management
	IT	The productive process in this company is efficient with support of advanced technology and information
Dynamic Capability	HRM	Human resource management in this company is strong enough to ensure coherence of the aim of the organisation with maximized personal development of the employees
	QR	The company is able to meet customers' demands in terms of product design, quality, price, output elasticity, delivery, and placement in a timely manner
	OL	The strong organisational learning capability of the company ensures effective adjustment to the dynamics of external environment
	EN	The entrepreneurs in this company are effective in decision-making, team motivation and effective communication
	IN	The company is consistently improving and innovating in terms of products, design, business management, and process flow
Performance	SG	Since the financial crisis, the sales value has been rather stable and even increased annually
	SPI	Since the financial crisis, the sales profit margin has been rather stable and even increased annually
	SA	Since the financial crisis, the company has been able to effectively adtapt its strategies to the global market recession
	OA	Since the financial crisis, the company has still been able to receive stable orders successfully
	CC	Since the financial crisis, the company has been able to control costs properly, including costs of raw material, labour, and land, etc.
	EC	Since the financial crisis, the company has developed effective external communication channels and has been able to pass sales information smoothly
	IC	Since the financial crisis, the company has developed strong team

		cohesion and all the staff has been confident to the future

Appendix 6-5: Confirmatory Factor Analysis

Appendix 6-5a: Model fit indices (Measurement model 1)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	387.772	129	.000	3.006
Saturated model	171	.000	0		
Independence model	18	2341.113	153	.000	15.301

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.099	.817	.757	.616
Saturated model	.000	1.000		
Independence model	.667	.223	.132	.200

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.834	.804	.883	.860	.882
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.843	.703	.743
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	258.772	203.396	321.779
Saturated model	.000	.000	.000
Independence model	2188.113	2035.192	2348.400

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.864	1.244	.978	1.547
Saturated model	.000	.000	.000	.000
Independence model	11.255	10.520	9.785	11.290

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.098	.087	.110	.000
Independence model	.262	.253	.272	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	471.772	480.217	612.150	654.150
Saturated model	342.000	376.381	913.539	1084.539
Independence model	2377.113	2380.732	2437.275	2455.275

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.268	2.002	2.571	2.309
Saturated model	1.644	1.644	1.644	1.810
Independence model	11.428	10.693	12.199	11.446

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	84	91
Independence model	17	18

Appendix 6-5b: Path estimates of CFA1

			Standard regression weight	Regression weight	S.E.	C.R.	Error variance	S.E.	C.R.
Br	<--	Upgrading Capability	.647	1.000			1.345	.164	8.210
IT	<--	Upgrading Capability	.787	1.030	.129	8.016	.635	.121	5.267
CR	<--	Fundamental Resource	.801	1.300	.129	10.082	.491	.071	6.945
ES	<--	Fundamental Resource	.709	1.120	.126	8.855	.646	.076	8.484
SR	<--	Fundamental Resource	.735	1.084	.123	8.808	.522	.065	7.989
QC	<--	Fundamental Resource	.686	1.000			.586	.068	8.589
En	<--	Dynamic Capability	.793	1.079	.097	11.120	.558	.067	8.307
OL	<--	Dynamic Capability	.770	1.030	.095	10.838	.591	.069	8.600
In	<--	Dynamic Capability	.800	1.216	.108	11.274	.673	.082	8.188
QR	<--	Dynamic Capability	.641	.845	.093	9.046	.826	.088	9.433
SA	<--	Performance	.793	1.133	.096	11.805	.549	.066	8.381
HRM	<--	Dynamic Capability	.736	1.000			.685	.077	8.908
SPI	<--	Performance	.773	1.326	.118	11.283	.874	.104	8.398
SG	<--	Performance	.797	1.358	.116	11.692	.782	.096	8.180
IC	<--	Performance	.760	1.000			.540	.061	8.860
EC	<--	Performance	.723	.963	.090	10.664	.626	.069	9.102
CC	<--	Performance	.716	.963	.091	10.633	.650	.071	9.133
OA	<--	Performance	.743	1.086	.100	10.866	.707	.080	8.872

Appendix 6-5c: Modification indices of CFA1 (highest M.I. values selected)

Covariances			M.I.	Par Change
e13	<-->	Fundamental Resource	40.086	-.251
e12	<-->	Fundamental Resource	25.555	-.192
e12	<-->	e13	42.410	.427
e11	<-->	e8	27.842	.408
Regression weights				
SPI	<---	SW	15.289	-.238
SPI	<---	CR	18.510	-.255
SPI	<---	QC	26.754	-.341
SG	<---	SPI	15.280	.176
In	<---	Br	17.670	.172

Appendix 6-5d: Model fit indices (Measurement model 2)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	38	203.069	98	.000	2.072
Saturated model	136	.000	0		
Independence model	16	1862.806	120	.000	15.523

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.076	.891	.849	.642
Saturated model	.000	1.000		
Independence model	.622	.246	.146	.217

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.891	.867	.940	.926	.940
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.817	.728	.767
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	105.069	68.064	149.841
Saturated model	.000	.000	.000
Independence model	1742.806	1606.773	1886.224

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.976	.505	.327	.720
Saturated model	.000	.000	.000	.000
Independence model	8.956	8.379	7.725	9.068

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.072	.058	.086	.006
Independence model	.264	.254	.275	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	279.069	285.834	406.078	444.078
Saturated model	272.000	296.209	726.557	862.557
Independence model	1894.806	1897.654	1948.283	1964.283

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.342	1.164	1.557	1.374
Saturated model	1.308	1.308	1.308	1.424
Independence model	9.110	8.456	9.799	9.123

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	126	137
Independence model	17	18

Appendix 6-5e: Modification indices of CFA2 (highest M.I. values selected)

Covariances			M.I.	Par Change
e11	<-->	Fundamental Resource	9.113	-.146
e11	<-->	e8	27.768	.408
e6	<-->	e18	9.090	.139
e3	<-->	Upgrading Capability	9.892	.149
Regression weight			M.I.	Par Change
In	<---	Br	17.663	.172
Br	<---	In	8.259	.182
SR	<---	HRM	8.305	.130

Appendix 6-5f: Model fit indices (Measurement model 3)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	39	171.780	97	.000	1.771

Model	NPAR	CMIN	DF	P	CMIN/DF
Saturated model	136	.000	0		
Independence model	16	1862.806	120	.000	15.523

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.066	.904	.865	.645
Saturated model	.000	1.000		
Independence model	.622	.246	.146	.217

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.908	.886	.958	.947	.957
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.808	.734	.774
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	74.780	42.122	115.290
Saturated model	.000	.000	.000
Independence model	1742.806	1606.773	1886.224

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.826	.360	.203	.554
Saturated model	.000	.000	.000	.000
Independence model	8.956	8.379	7.725	9.068

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.061	.046	.076	.114
Independence model	.264	.254	.275	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	249.780	256.723	380.131	419.131
Saturated model	272.000	296.209	726.557	862.557
Independence model	1894.806	1897.654	1948.283	1964.283

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.201	1.044	1.396	1.234
Saturated model	1.308	1.308	1.308	1.424
Independence model	9.110	8.456	9.799	9.123

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	147	161
Independence model	17	18

Appendix 6-5g: Estimates of Measurement model 3

Regression Weights (Measurement model 3)

			Estimate	S.E.	C.R.	P	Label
Br	<---	Upgrading Capability	1.000				
IT	<---	Upgrading Capability	1.173	.158	7.406	***	L10
CR	<---	Fundamental Resource	1.291	.126	10.262	***	L2
ES	<---	Fundamental Resource	1.114	.123	9.024	***	L1
SR	<---	Fundamental Resource	1.059	.119	8.907	***	L3
QC	<---	Fundamental Resource	1.000				
En	<---	Dynamic Capability	1.081	.098	11.081	***	L7
OL	<---	Dynamic Capability	1.026	.095	10.762	***	L6
In	<---	Dynamic Capability	1.191	.108	11.060	***	L8
QR	<---	Dynamic Capability	.844	.094	9.025	***	L5
SA	<---	Performance	1.164	.101	11.580	***	L14
HRM	<---	Dynamic Capability	1.000				
IC	<---	Performance	1.000				
EC	<---	Performance	.988	.093	10.626	***	L17
CC	<---	Performance	.986	.093	10.648	***	L16
OA	<---	Performance	1.127	.104	10.809	***	L15

Standardised Regression Weights (Measurement model 3)

			Estimate
Br	<---	Upgrading Capability	.606
IT	<---	Upgrading Capability	.837
CR	<---	Fundamental Resource	.803
ES	<---	Fundamental Resource	.712
SR	<---	Fundamental Resource	.724
QC	<---	Fundamental Resource	.693
En	<---	Dynamic Capability	.795
OL	<---	Dynamic Capability	.768
In	<---	Dynamic Capability	.786
QR	<---	Dynamic Capability	.642
SA	<---	Performance	.815
HRM	<---	Dynamic Capability	.737

			Estimate
IC	<---	Performance	.758
EC	<---	Performance	.739
CC	<---	Performance	.731
OA	<---	Performance	.769

Covariances (Measurement model 3)

			Estimate	S.E.	C.R.	P	Label
Fundamental Resource	<-->	Dynamic capability	.537	.084	6.422	***	Cov-rd
Fundamental Resource	<-->	Performance	.429	.071	6.024	***	Cov-rp
Upgrading capability	<-->	Fundamental Resource	.435	.084	5.163	***	Cov-ru
Dynamic capability	<-->	Performance	.557	.087	6.412	***	Cov-dp
Upgrading capability	<-->	Performance	.547	.101	5.407	***	Cov-up
Upgrading capability	<-->	Dynamic capability	.656	.119	5.490	***	Cov-du
e11	<-->	e8	.447	.091	4.932	***	Cov-e8e11

Correlations (Measurement model 3)

			Estimate
Fundamental Resource	<-->	Dynamic capability	.818
Fundamental Resource	<-->	Performance	.688
Upgrading capability	<-->	Fundamental Resource	.649
Dynamic capability	<-->	Performance	.722
Upgrading capability	<-->	Performance	.694
Upgrading capability	<-->	Dynamic capability	.791
e11	<-->	e8	.438

Variances (Measurement model 3)

	Estimate	S.E.	C.R.	P	Label
Upgrading capability	.847	.197	4.311	***	par_20
Fundamental Resource	.531	.099	5.352	***	par_21
Dynamic capability	.812	.136	5.964	***	par_22
Performance	.734	.119	6.154	***	par_23
e4	.576	.067	8.636	***	par_24
e3	.539	.065	8.249	***	par_25
e7	.552	.067	8.183	***	par_26
e6	.595	.070	8.518	***	par_27
e5	.825	.088	9.378	***	par_28
e11	1.462	.170	8.597	***	par_29
e10	.500	.128	3.916	***	par_30
e8	.711	.086	8.284	***	par_31
e18	.545	.065	8.404	***	par_32
e16	.621	.072	8.668	***	par_33
e15	.645	.078	8.276	***	par_34
e14	.502	.066	7.550	***	par_35

	Estimate	S.E.	C.R.	P	Label
e2	.486	.069	7.082	***	par_36
e1	.640	.075	8.539	***	par_37
e17	.596	.069	8.660	***	par_38
e9	.683	.078	8.800	***	par_39

Squared Multiple Correlations (Measurement model 3)

	Estimate
HRM	.543
EC	.546
ES	.507
CR	.646
SA	.665
OA	.591
CC	.535
IC	.574
In	.618
IT	.700
Br	.367
QR	.412
OL	.590
En	.632
SR	.525
QC	.480

Appendix 6-6: Structural model statistics

Appendix 6-6a: Model Fit Summary (original structural model)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Original structural model	36	158.243	84	.000	1.884
Saturated model	120	.000	0		
Independence model	15	1645.680	105	.000	15.673

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Original structural model	.066	.906	.865	.634
Saturated model	.000	1.000		
Independence model	.593	.266	.161	.233

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Original structural model	.904	.880	.952	.940	.952

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Original structural model	.800	.723	.761
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Original structural model	74.243	42.621	113.680
Saturated model	.000	.000	.000
Independence model	1540.680	1413.027	1675.729

FMIN

Model	FMIN	F0	LO 90	HI 90
Original structural model	.761	.357	.205	.547
Saturated model	.000	.000	.000	.000
Independence model	7.912	7.407	6.793	8.056

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Original structural model	.065	.049	.081	.056
Independence model	.266	.254	.277	.000

AIC

Model	AIC	BCC	BIC	CAIC
Original structural model	230.243	236.243	350.567	386.567
Saturated model	240.000	260.000	641.080	761.080
Independence model	1675.680	1678.180	1725.815	1740.815

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Original structural model	1.107	.955	1.297	1.136
Saturated model	1.154	1.154	1.154	1.250
Independence model	8.056	7.442	8.705	8.068

HOELTER

Model	HOELTER .05	HOELTER .01
Original structural model	140	154
Independence model	17	18

Appendix 6-6b: Comparison of Goodness-of-fit measures between the measurement model and the structural model

GOF indexes	Structural model	Measurement model
Absolute measures		
CMIN	158.243	158.243
Degree of freedomdom	84	84
Probability	.000	.000
GFI	.906	.906
RMSEA	.065	.065
90% confidence interval of RMSEA	.049-.081	.049-.081
RMR	.066	.066
CMIN/DF	1.884	1.884
Baseline comparisons		
NFI	.904	.904
IFI	.952	.952
CFI	.952	.952
Parsimony measures/ Parsimony-Adjusted measures		
PRATIO	.800	.800
PNFI	.723	.723

Appendx 6-6c: Comparison of standardised factor loadings and construct reliabilities between the measurement model 3 and the original structural model

Construct	Indicator	Standardised factor loading	
		Structural model	Measurement model
Upgrading capability (UC)	Br	.609	.609
	IT	.836	.836
Fundamental resources (FR)	QC	.692	.692
	SW	.708	.708

	SR	.728	.728
	CR	.804	.804
Dynamic capability (DC)	OL	.764	.764
	En	.785	.785
	QR	.645	.645
	HRM	.742	.742
Performance (PF)	IC	.756	.756
	OA	.771	.771
	EC	.738	.738
	CC	.729	.729
	SA	.817	.817
Construct		Construct reliabilities	
UC		0.517	0.517
FR		0.793	0.793
DC		0.762	0.762
PF		0.834	0.834

Appendix 6-6d: Comparison of constructal relationships l between the structural model and the measurement model

Structural model		measurement	
Structural relationship	Standardised parameter estimate	Correlations	Standardised parameter estimate
H_1: FR↔DC	.831***	RC ↔DC	.831***
H_2: FR↔UC	.645***	RC ↔UC	.645***
H_3: DC↔UC	.793***	UC ↔DC	.793***
H_4: FR→PF	.298*	RC ↔PF	.688***
H_5: DC→PF	.207	DC↔PF	.722***
H_6: UC→PF	.337*	UC ↔PF	.693***

Note: *** statistical significance at the 0.001 level; * statistical significance at the 0.05 level.

Appendix 6-6e: Standardised residual covariances of the structural model

	HRM	SW	CR	OA	IC	Br	IT	QR	SR
Br	.310	-1.610	-1.550	-.550	-.238	.000			
QR	.383	.255	-.367	-1.208	-1.107	.479	-.465	.000	
OL	-.124	-.938	-.405	-.168	1.633	.488	.145	-.741	
SR	1.768	.358	-.149	-.197	-1.004	1.114	1.559	1.224	.000
QC	.326	-.167	.614	.314	.178	-1.513	-.448	1.417	-1.049

Note: Columns and rows with values <|1| are not listed here.

Appendix 7-1: Tedelon's main awards and honors, 1995-2011

Year	Award and honor
2000	Shaoxing Famous Trademark with a validity period of 4 years
2002	Zhejiang Famous Trademark (with a validity period of 3 years and regaining the award in 2005, 2008, and 2010 respectively) Among the Top100 National Clothing Enterprises in both sales and total profit for 2001 (the honor kept ever since then)
2004	Among the national top ten sales of the leisure jackets
2005	China Well-known Trademark (awarded by the State Administration for Industry and Commerce)
2006	Among the top 10 most competitive enterprises in THE CHINESE CLOTHING INDUSTRY for 2004-2005
2007	National Inspection-free of Product quality
2009	Among 500 Most Valuable Brands in China (ranked no.339 with brand value of 2.17 billion RMB, which is about 0.35 billion USD, by World Brand Laboratory)
2010	Most competitive brand in China for 2010
2011	Most competitive international brand in China's industries
	500 most valuable brand in China
	Among the top 10 most competitive enterprises in the The Chinese clothing industry for 2010-2011

Source: The author's creation based on data from Tedelon's website, [online] available from <www.tedelon.cn> [24 May 2014].

Appendix 7-2: Tedelon's four stages of development, 1995-2010

Year	Development stage and major event
Stage 1 from 1995: Establishing company and manufacturing with own brand	

1995	Establishment of Zhejiang Taizilong Clothing Limited Company
1997	'Taizilong' trademark registration approved by the State Trademark Office
2000	Huangshan Industry Park is the original specialised manufacturing base with advanced production equipment from Germany and Japan and production technology from Italy
2001	Shareholding system transformation
Stage 2 from 2002: Brand marketing	
2002	Brand image spokesperson project started, marking the formal beginning of the brand marketing campaign
2003	The Yan'an Road image store opened at Hangzhou in May 2003 marking the beginning of the direct selling model in addition to the original agent selling and franchising selling mode
Stage 3 from 2005: Diversifying businesses and developing brand via the culture	
2005	Tedelon Culture Communication Company established formally
	Tedelon signed contracts with three consulting management companies to enhance brand management
2006	Release of the cartoon character "Dragon prince" marking the beginning of the business expansion into the animation industry
	Tedelon Holding Group established with 7 subsidiaries marking the diversified businesses formally (now 8 subsidiaries with the last one set up in 2010)
2007	Opening of Zhuji flagship store marks image improvement of its terminal
	Implementing the marketing management of the direct selling mode all over the country
2008	Tedelon's creative advertising campaign through cultural trains
	The new trademark replacing the old one for building up the image of brand internationalisation
Stage 4 from 2009: Vogue industry and brand design	
2009	Headquarter moved to Jiangdong Tedelon Vogue Industry Park
	Published the theoretic book of *Scientific Development View of Brand*, which guiding the company's sustained development towards a world famous international brand
	Signed contract with the Italian design company Riccardo Rami Studio
2010	The new manufacturing center, Yaohai Industry Park, started to operate at Hefei, capital city of Anhui province
	Signed cooperation agreement again with the famous Italian design company Riccardo Rami Studio, marking a new stage into the brand internationalisation

Source: The author's creation based on data from Tedelon's website, [online] available from <www.tedelon.cn> [24 May 2014].

Appendix 7-3: Youngor's main awards and honors, 1995-2011

Year	Awards and honors
1994	Youngor shirts sales won the largest comprehensive market share in China and remains the top position till now (2012) ever since 1994
1997	Youngor trademark selected as one of "Well-known Chinese Trademarks" by the State Administration Bureau of Industry and Commerce.
2000	Youngor suit sales won the largest comprehensive market share in China and remains the top position till now (2012) ever since 2000
2001	No. 1 of top 100 Chinese clothing enterprises both in the sales and profits in 2001 and keep to be so ever since
2004	Rank no. 66 listed on "500 China's most valuable brands" by the World Brand Lab
2006	Among the list of China's Top 500 Manufacturing Enterprises by the State Statistical Bureau
2007	"Acclaimed Product" distinction awarded successively to Youngor shirts, suits, trousers, jackets, t-shirts and ties by China's Acclaimed Brand Promotion Committee
	Rank no. 52 listed on "500 China's most valuable brands" by the World Brand Lab
2011*	Ranks no. 1 among the top 100 product sales and gross profits in the The Chinese clothing industry

Source: The author created based on data from Youngor website Youngor's website available at http://www.youngor.com/ and from *China Garment Industry Development Report. Beijing: China Textile Publisher, 2011.

Appendix 7-4: Comprehensive market share of Youngor's shirts in China, 1997-2011

Year	1997	1998	1999	2000	2001	2002	2003	2004
MS* (%)	12.7	10.6	15.9	14.1	14.9	12.4	11.0	11.0
Year	2005	2006	2007	2008	2009	2010	2011	2012
MS (%)	11.8	12.3	14.2	13.3	--	--	13.2	13.2

Note: * MS=market share calculated based on average months of each year

Source: CNCIC (China National Commerce and Information Center).

Appendix 7-5: Youngor's development stages, 1979-2011

Year	Development stage and major event
1979	Ningbo Youth Garment factory sets up, the predecessor of Youngor Group
Stage 1: Horizontal cooperation	

1983	The factory starts business relationship with Kaikai Shirts Factory
1986	The factory creates the first brand named ‘Beilun Port’
Stage 2: Joint adventure	
1990	Youngor Clothing Company Limited is established as a joint venture and hence the Youngor brand is born
1992	Youngor Starts property development
Stage3: Establishment of Youngor Group Co., Ltd.	
1993	Youngor Group Co., Ltd. establishes through internal fundraising within the three merged companies
	Youngor starts financial investment
1995	Youngor starts to implement its new marketing network in terms of brand recognition, promotion strategies, and profit maximisation
1998	55 million tradable shares of Youngor Group Co., Ltd are listed on Shanghai Stock Exchange
2001	Youngor International Garment City completes. This is a multi-functional building that integrates design, production, display and sales.
	Youngor starts to set up large flagship stores in Hangzhou, Shanghai, and other Chinese provincial cities and municipals.
2002	Youngor Textile City opens where it is an important production base for high-end textile fabrics and thus Youngor Group further moves towards establishing a vertically integrated industrial value chain from upstream textile and fabric to midstream manufacturing and further to downstream end-user sales.
2004	Youngor Group takes steps to regionaliseits market system and flatten its management.
	Youngor invests 500 million RMB (i.e. 73.5 million USD) to build Youngor West Production Base in Chongqing’s Tea Garden.
Stage 4: International expansion and upgrading towards ODM	
2005	Abolition of MFA allows Youngor to expand further and Youngor Sets up oversea branches for oversea marketing in America
2007	Through brand cooperation with Hartmarx, Youngor gained the brand operation and management in mainland China, Hongkong SAR and Macao SAR.
2008	Shanghai Kaishi Investment Co. sets up for investment management and consultancy
	Acquisition of Smart Shirt Limited at the cost of US$120 million, a menswear business operation under the US Kellwood Company in the hope for the further internationalized development
Stage 5: Transformation and upgrading towards OBM	
2009	Introducing multi-brand strategy and gradually cut down the OEM export business so as to speed up the industrial upgrading and transformation
	Youngor Garments Holding Co. and Youngor Property Holding Co. set up
	Youngor’s Hanp fibre line put into production in 2009

2010	Youngor launches five brands
2011	After sold Smart shares Youngor further minifies the low value-added OEM business and focuses on own brand operation in terms of the design, R&D, manufacturing and management so as to further speed up the industrial upgrading and transformation.

Source: The author's creation based on data from Youngor website, [online] available from <http://en.youngor.com/about.do?cid=200811070246144574> [20th May 2012].

Publications and Research project

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