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Sources of Sustained Competitive Advantage from the Perspective of Strategic Entrepreneurship - An Empirical Study on Manufacturing Enterprises in China

YAN Yewei

Doctor of Management

Supervisors:
PhD Renato Pereira, Assistant Professor,
ISCTE University Institute of Lisbon
PhD LI Yajing, Professor,
University of Electronic Science and Technology of China

December, 2022

BUSINESS
SCHOOL

Marketing, Operations and General Management Department

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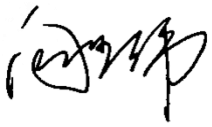
iscte INSTITUTO UNIVERSITÁRIO DE LISBOA	**Sources of Sustained Competitive Advantage from the Perspective of Strategic Entrepreneurship – An Empirical Study on Manufacturing Enterprises in China**	YAN Yewei

Declaration

I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed:  Date: 2022.11.25

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Abstract

The resource-based view (RBV) holds that the important sources for an enterprise to obtain sustained competitive advantage (SCA) is its unique resources and capabilities. In essence, RBV is actually a static view. It does not explain how an enterprise can update its unique resources in a dynamic and changing environment, nor does it discuss how an enterprise can create valuable resources for the future. In the thesis, we deeply discuss the impact of resources on core competencies, and analyze the relevant mechanisms that may enhance these impacts. This study mainly analyzes the moderating effect of resource bundling and opportunity newness from the perspective of strategic entrepreneurship (SE).

This thesis conducted a comprehensive literature study, and designed a conceptual model and put forward six hypotheses. In this study, we distributed and retrieved pilot questionnaires to 100 respondents to adjust the questionnaire questions and sample size. On this basis, we sent a formal questionnaire to 420 respondents and we collected 207 valid questionnaires. Then, we used regression analysis to study the path of knowledge-based resources, opportunity newness, resources bundling and core competencies.

Results show that knowledge-based resources positively affect core competencies and opportunity newness. The degree of opportunity newness positively affects stabilizing and enriching bundling process. Meanwhile, it is found that resource bundling can positively moderate the relationship between core competence and knowledge-based resources. In addition, results show that enriching bundling process has a stronger modulatory effect than stabilizing bundling process and pioneering bundling process.

Keywords: strategic entrepreneurship; knowledge-based resources; opportunity newness; resource bundling; core competencies

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Resumo

A teoria da visão baseada nos recursos (RBV, no acrónimo de língua inglesa) acredita que os recursos e capacidades únicos das empresas são uma fonte importante para estas obterem vantagens competitivas sustentáveis. No entanto, a RBV é uma visão estática. Não explica como as empresas atualizam os seus recursos únicos num ambiente dinâmico e em mudança, nem discute como as empresas podem criar recursos valiosos para o futuro. Nesta tese, exploramos com profundidade o impacto dos recursos na vantagem competitiva sustentável e analisamos os mecanismos relevantes que podem potencializar esses impactos. Essencialmente, este estudo analisa o papel regulador da integração dos recursos e da novidade das oportunidades a partir da perspetiva do empreendedorismo estratégico (SE, no acrónimo de língua inglesa).

Com base numa pesquisa documental, esta tese avança com um modelo concetual comportando seis hipóteses. No processo de implementação da investigação, começámos por aplicar um teste-piloto a 100 entrevistados com base no qual ajustámos as perguntas do questionário. Numa segunda etapa, administrámos o questionário final a 420 participantes tendo obtido 207 respostas válidas. Utilizámos a análise de regressão para estudar os caminhos dos recursos baseados no conhecimento, novidade de oportunidades, agrupamento de recursos e competitividade central.

Os resultados da pesquisa mostram que os recursos baseados no conhecimento têm um impacto positivo na competitividade central e na novidade de oportunidades. A novidade das oportunidades afeta a escolha do processo de agrupamento estável e do processo de agrupamento rico. Ao mesmo tempo, esta investigação permitiu constatar que o processo de agrupamento de recursos tem um efeito regulador na relação entre recursos baseados no conhecimento e competências centrais. Além disso, os resultados da pesquisa também mostram que enriquecer o processo de empacotamento tem um efeito de ajuste mais forte do que estabilizar o processo de empacotamento e desenvolver o processo de embalagem.

Palavras-chave: empreendedorismo estratégico; recursos baseados no conhecimento; novidade de oportunidade; pacote de recursos; competitividade central

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摘要

资源基础观（RBV）认为，企业独特的资源和能力是企业获得持续竞争优势（SCA）的重要来源。从本质上讲，RBV 实际上是一种静态的观点。它没有解释企业如何在动态变化的环境中更新其独特的资源，也没有讨论企业如何创造未来的有价值的资源。在本论文中，我们深入探讨资源对可持续竞争优势的影响，并分析可能增强这些影响的相关机制。本研究主要从战略企业家精神（SE）的视角分析资源整合和机会新颖性的调节作用。

本论文在文献研究的基础上，设计了概念模型，提出了六个假设。在研究实施过程中，我们先对 100 名受访者发放和回收试点问卷，以对问卷问题和样本量进行调整。在此基础上，我们向 420 名参与者发放了正式调查问卷，共回收有效问卷 207 份。我们运用回归分析，研究了基于知识的资源、机会新颖度、资源捆绑与核心竞争力的作用路径。

研究结果表明，基于知识的资源对核心竞争力和机会新颖度有正向影响。机会新颖度影响对稳定捆绑流程和丰富捆绑流程的选择。同时，研究发现，资源捆绑流程对基于知识的资源与核心能力之间的关系具有调节作用。此外，研究结果还表明，丰富捆绑流程比稳定捆绑流程和开拓捆绑流程具有更强的调节作用。

关键词：战略企业家精神；基于知识的资源；机会新颖性；资源捆绑；核心竞争力

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Firstly, I am very grateful to ISCTE and UESTC for giving me this opportunity to study for a doctorate, so that I can experience this painful and enjoyable learning process. What it brings me is not only knowledge, but also profound understanding for research. It allows me to re-examine the growth of a firm from the perspective of theory and practice, which brings great help to my career and benefits me forever.

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Chapter 1: Introduction

1.1 Research background

1.1.1 Practical background

With the emergence of a global economy and the rapid technological changes, globally, in many industries the basic nature of competition has gradually changed, and the boundaries of an industry is also changing (Hitt et al., 2012). For example, some emerging technologies like cloud computing, AI, and big data have provided users with more personalized products and services. Digital technology has completely changed the market competition, the model of creating value, and the nature of products (Cuthbertson & Furseth, 2022). Many emerging Internet enterprises enter the traditional industry with technology and new business models, which makes the traditional enterprises unprepared. In fact, traditional physical stores have shown a trend of continuous decline in sales.

At present, enterprises need to face increasing complexity and uncertainty (Elia et al., 2021; Ghobadian et al., 2020; Hoisl et al., 2017) and all firms of different sizes are facing the challenge of "new competitive landscape" (Bettis & Hitt, 1995) in many industries. In this context, the new industries and markets successfully developed by firms and the competitive advantage (CA) thus established will face great threats. Therefore, firms must constantly develop new CA, meanwhile identify opportunities. Because the negative impact of the core rigidities of existing capabilities (Leonard-Barton, 1992), it is difficult for enterprises to quickly cope with the complex environment that continues to change, which gradually leads to the dilemma of sustainable development of firms. Therefore, the formation and accumulation of resources and capabilities will also act as a drag on the further development of firms. If these problems cannot be effectively solved, it is bound to affect the firms to further discover and exploit new opportunities and create new CA. Effective use of entrepreneurial management can reduce the possibility of failure in the competition.

Entrepreneurial firms are always good at identifying and exploiting opportunities that competitors have not seen or fully exploited. Firms carry out entrepreneurial activities in order to pursue entrepreneurial opportunities through innovation, first-mover and risk-taking, and to survive and develop in a turbulent and complex environment (Shane & Venkataraman, 2000).

However, in the process of entrepreneurial activities, some firms may excessively pursue opportunities and invest significant resources in discovering and exploiting opportunities. Finally, it "burns out" the resources of the firm. Innovation is both positive and negative, which can not only promote the rapid development of firms, but also lead firms into traps. According to the research of Tushman and Anderson (1986), emergence of new alternative technologies can form a “technological discontinuity” between the previous dominant technology and the new technology, which destroys the value chain of the previous dominant technology and intensifies the "creative destruction". Some firms ignore the changes of external environment in their innovation decisions, and their innovation behavior deviates from the current market demand and falls into the "inertia impediments" (Tushman & Anderson, 1986).

For enterprises, their biggest challenge is to effectively manage their existing core competitiveness and effectively develop new core competitiveness on this basis (Jacobides et al., 2012; Stettner & Lavie, 2014). China's economy has transformed from rapid development to high-level development. This provides an opportunity for the development of Chinese enterprises, while these enterprises are also facing unavoidable challenges including rising labor costs, stricter environmental regulations, a saturated domestic market, and a complex and volatile international market. How to balance seeking advantage and seeking opportunities under the circumstance of finite resources is a big challenge for all the Chinese enterprises in the present environment.

1.1.2 Theoretical background

In the research of strategic management, it is very important to deeply explore the source of CA (Barney, 1991; Porter, 1985; Rumelt, 1984). The sources research has experienced a progressive process from focusing on the environmental conditions (Porter, 1980, 1985) to the capabilities and resources of enterprises (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984) to the dynamic matching resources and capabilities inside the enterprise and external opportunities (Teece et al., 1997), and to the effective integration of entrepreneurship and strategy (Hitt et al., 2001; Ireland et al., 2001).

As early as the 1980s, Porter (1980) applied the organizing framework to strategic management field, taking environmental conditions as the important source of CA of firms, and then constructed the so-called "five forces model". However, this approach of focusing primarily on competitive environment means that firm’s opportunities and threats in the SWOT framework are overemphasized while its strengths and weaknesses are ignored, which leads to

the lacking of a comprehensive analysis of firm determinants (Foss, 1996). With placing little emphasis on the idiosyncratic attributes of firms, Porter's competitive strategy theory cannot explain why the CA differ of firms in the industry (Salaman & Asch, 2003).

Since then, in the 1990s, some scholars used the resource-based view (RBV) to deeply study the differences between enterprises, and discussed the main sources of CA (Barney, 1991; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984). RBV has become one of the pillars of management studies (Nason & Wiklund, 2018). RBV focuses on corporate strengths and weaknesses, believing that firms can sustain advantages through efficiency and effectiveness, and emphasizes that unique assets and capabilities are the keys to determining the business performance of a firm. For RBV, it is assumed that strategic resources are heterogeneous. Moreover, these related resources cannot be fully circulated among different enterprises, and thus heterogeneity can last for a long time (Barney, 1991). Therefore, RBV studies the sources of CA of firms from a static perspective, and RBV recognizes but cannot explain the mechanisms of sustaining the CA of firms (Teece et al., 1997).

After entering the late 1990s, some researcher used the dynamic capability perspective to extend RBV and address how the strategic resources can be renewed with the environments. Teece et al. (1997) suggest that dynamic capabilities are dependent on the distinctive processes to a certain extent, which mainly depends on the evolution paths of the company, asset status and other factors. Eisenhardt and Martin (2000) argue that dynamic capabilities of firms are the processes which are unique and identifiable, and they have significant commonalities across firms. Thus, in the long term, firm’s new resource configurations achieved by dynamic capabilities should be important source of CA, but not dynamic capabilities (Eisenhardt & Martin, 2000).

In 1990, Prahalad and Hamel (1990) pointed out in The Core Competence of the Corporation that the main job of an enterprise is to build a business that can give its products an irresistible character, or even better, it can meet the needs of customers. They argue that while short term competitiveness comes from current product prices and performance, long term CA comes from core competencies associated with unexpected products. In other words, in some cases, competition stems from the very nature of the business itself and how it operates. According to the research of Prahalad and Hamel (1990), core competencies are defined as the collective learning activities of organizations, specifically how to effectively coordinate integrate multiple technologies and diverse skills. Building on this view, Grant (1991) pointed out that a firm’s capabilities and resources are a better basis for developing strategies in a rapidly changing environment. However, there are evidences that core

competencies are potential to be core rigidities (Rawley, 2010; Stettner & Lavie, 2014). Therefore, we cannot take the value creation ability of core competencies for granted, nor can we assume that core competence will be always the source of the CA of a firm.

In the 21st century, research on the integration of strategy and entrepreneurship has gained great concerns, and the concept of strategic entrepreneurship (SE) came into being. All the firms are facing the challenges to manage their current core competencies and, on this basis, develop some new ones (Stettner & Lavie, 2014). For the field of entrepreneurship research, an important core issue is how to effectively identify and reasonably utilize some untapped opportunities (Hitt et al., 2002). However, if resources cannot be managed strategically, it is difficult to remain the CA developed. SE is the result of the comprehensive integration of entrepreneurship and strategic management (Hitt et al., 2001; Ireland et al., 2003). Both strategy and entrepreneurship are focusing on wealth creation (Amit & Zott, 2001; Hitt et al., 2001), but they are slightly different. Entrepreneurship involves opportunities discovering and opportunities exploiting, as for strategic management, it is important to maintain and create CA along the path of opportunity exploitation. The nature of SE is how to discover and exploit new opportunities while creating and maintaining CA. SE refers to introduce entrepreneurial thinking into strategic planning and implementation, and use strategic activities to guide how to carry out relevant entrepreneurial activities. For SE, it is necessary to effectively balance the relationship between advantages and opportunities (Hitt et al., 2011). To some extent, the strategic management part of SE seeks stability and predictability, while the entrepreneurial part needs flexibility and novelty. However, the finite firm resources make the firm have to make a trade-off between the allocation to the existing and the future CA, that is, the balance between maintenance and development. Achieving this balance is challenging.

To sum up, it has been agreed that capabilities and resources are sources of sustained CA. However, how to manage resources strategically to produce sustainable CA and avoid core rigidities has become an important issue in RBV research. It leads to a series of research problems worthy of further exploration. This constitutes an important background for this study.

1.2 Research questions, purposes and significance

1.2.1 Core questions and purpose

Although the previous research has made some progress, there are still some seemingly simple but extremely challenging deep research issues.

Firstly, why can some firms adapt to the rapidly changing environment while others miss the opportunities to develop? The mainstream view attributes the adaptability to the dynamic capabilities or entrepreneurship of firms. However, it is undeniable that too many firms have “burnt out” their finite resources to pursue innovative opportunities. At present, most of the studies still remain at the level of explaining "why some firms can adapt to the environment while others cannot", and have not paid enough attention to "what factors drive firms to discover and exploit the opportunities with specific attributes" or "whether firms have capabilities and resources needed to utilize the opportunities". In other words, the theoretical depth of existing research needs to be deepened.

Secondly, what are the mechanisms of resources, opportunities and core competencies? This is a research question that RBV, entrepreneurship and SE have to face. Different from the relatively mature research on RBV and entrepreneurship, SE has not settled the integrative platform (Paek & Lee, 2018). The study to refine SE research framework need to conduct. Such as, how to bundle resources into capabilities, and how to balance exploration and exploitation. Specifically, how does a firm’s resources affect the attributes of opportunities to be explored, how does the opportunity attributes affect the resource integration which exploit the opportunities, and how does the resource integration in turn affect the formation of the core competencies? Empirical studies are needed to explain and understand these research questions (Ireland et al., 2003).

Thirdly, how to identify and evaluate the core competencies of firms and CA relative to competitors? Having the capability with the characteristics of VRIN (valuable, rare, inimitable, and non-substitutable) is the core competence. Core competence, in turn, can give a CA over its competitors. In fact, there is difficulty to clearly identify the core competence because of its imperfect imitability and irreplaceability. Moreover, the cases cited in most of the literature often have the characteristics of retrospective. That is to say, the reason why a firm is successful is that it has been successful, and the reason why a firm has core competencies is that it has achieved CA. It is necessary to explore the identification and evaluation of core competence and CA of firms, so as to build a bridge between theory and practice.

The main objectives of this study are:

1. To reasonably design a theoretical framework system for the relationships between opportunities, resources, and core competencies to understand how core competencies can be sustained.

2. To deeply investigate into the related factors that can drive firms to identify and exploit the opportunities with specific attributes, and further to understand the balance mechanism of

advantage seeking and opportunity seeking.

3. To explore the identification and valuation of core competencies and build a bridge between theory and practice.

1.2.2 Research significance

Research significance of this study embodies the following aspects:

1. Examining the sources of SCA from SE perspective

RBV holds that the source of CA comes from VRIN resources(Barney, 1991, 1995), but RBV does not specify how to refresh current VRIN resources in an evolving environment condition (Ambrosini & Bowman, 2009). The perspective of core competence, knowledge-based view (KBV) (Grant, 1997) and the dynamic capability theory can be seen as the extension of RBV thinking, which are mainly based on the similar assumptions of immobility and heterogeneity of resources (Ambrosini & Bowman, 2009). Different from the static view of RBV, SE provide a new view to effectively maintain their dominant position in market competition in the constantly changing environment. In the current thesis, we will analyze the relevant sources of SCA from the perspective of SE, so as to provide some useful research results. The main reasons include the following:

The first point is SE breaks through the limitations of RBV's static view. An entrepreneurial mindset is necessary for dealing with uncertainty and wealth creation. Traditional management thinking is unlikely to make firms have strategic competitiveness. Managers must attach importance to flexibility, speed, innovation and integration in order to meet the challenges brought by the changing environment (Agypt & Rubin, 2012; Lamberg et al., 2009). In established firms, it is important not only for entrepreneurs but also for other employees to act and think in an entrepreneurial way (Covin & Slevin, 2002). The entrepreneurship dimension of SE is to identify opportunities and exploit through innovations, which is the driving force to refresh the VRIN resources.

Secondly, RBV provides a theoretical basis for SE research. The strategic dimension of SE is to determine the appropriate way to manage the innovation efforts in a competitive way. For the company's CA, unique capabilities and resources are very important sources. However, only when the special capabilities and resources are managed strategically can they produce SCA. In this sense, SE can be seen as an extension of RBV.

Thirdly, SE points the way for opening the black box of managing resources strategically. Only when the heterogeneous resources of firms are strategically managed can they produce

SCA. According to SE, if the deployment of resources is conducive to the simultaneous use of advantage seeking and opportunity seeking, the resources will be strategically managed (Ireland et al., 2003). Under the SE framework, this study will explore the deep research question - the balance mechanism of both advantage and opportunity seeking.

2. Exploring the relationships between resources and opportunities attributes

Opportunity identification is the starting point of wealth creation. There are two views about the source of opportunities- the view of creation and discovery. For the discovery view, it is suggested that entrepreneurs need to systematically scan environmental changes to identify objective opportunities created by exogenous shocks like industry, markets, and technology, while the creation view holds that entrepreneurs gradually identify potential opportunities and shape them through subjective efforts during the practice of interacting with external stakeholders (Alvarez & Barney, 2007). Both the discovery view and creation view face the two important questions: Why can some firms discover or create opportunities and others not? Why can small differences in their initial decisions and choices vary dramatically over time (Arthur, 1989)? In a sense, this is attributed to the importance of information and knowledge generated in discovering or creating opportunities. It is in fact the focus of heterogeneous resources in RBV. Unfortunately, research on the internal relationship between constitutive characteristic of resources and the characteristics of identified opportunities has not received widespread attention.

3. Studying the mechanism of resources, opportunities and core competencies

RBV suggests that "distinctive" capabilities, which are hard to imitate, are important source for the SCA. Moreover, the various ways of resource integration of firms create this uniqueness (Grant, 1991). Unfortunately, there is minimal research to explain how to manage resources to create the CA (Sirmon et al., 2007). Some researchers have contributed to this. The dynamic capabilities framework suggests that discovering the opportunities and using them effectively and efficiently are often more important for wealth creation than developing strategies (Teece et al., 1997). However, ignoring core competencies and gravitating toward exploration makes firms take escalating risks, and finally makes the firm fall into the "failure trap" (Gupta et al., 2006). Paying too much attention to the matching of resources and environment will lead to seeking future opportunities at the expense of today's business (Julian & Cristina, 2004). Likewise, leveraging current capabilities may engender "competency traps" (Gupta et al., 2006) and leave firms vulnerable to environmental changes. Compared with simply studying the impact of resources on opportunities or opportunities on resources, verifying the relationship from resources to opportunities and then back to resources is more helpful to open the black

box of how resources create CA.

4. Identifying and evaluating core competence from its formation process

As an important link in the application of core competence theory to practice, the identification and evaluation of core competence has a special position. It is not only the further deepening and supplement of the definition of core competence, but also the basis and prerequisite for firms to establish and improve core competencies. Griffiths et al. (1998) have clearly put forward that the evaluation of core competence is complex and difficult. Torkkeli and Tuominen (2002) point out that if the core competencies of firms can be properly identified and evaluated, managers can use new technologies to explore possible new products and new markets. However, how to identify and evaluate core competence has not attracted enough attention, which leads to difficulties in its practical application. The existing research focuses on the identification and evaluation of core competence, but ignores the formation process of core competence, which is the essence of evaluation and identification of core competence.

Based on the above analysis, this study believes that SCA mainly derives from the dynamic matching the capabilities and resources to the opportunities. The present work will focus on the frontier research issues of SCA from RBV perspective, and analyze the relation between opportunities and resources, and investigate into the impact mechanism on core competencies from SE perspective. Specifically, this study assumes that firms tend to identify opportunities that match their resources and capabilities more easily than others. Specific opportunities need to be matched by the corresponding bundling resources process to create SCA. This study will explore the following fundamental questions. First, how does resources affect core competencies? Second, how does a firm's resources characteristics determine the attributes of opportunities identified? Third, how does the opportunities attributes affect different resources bundling process which exploit the opportunities? Fourth, how does the resources bundling process affect the relationship between resources and core competencies?

1.3 Contributions

From a theoretical perspective, this study has three important values. Firstly, RBV argues that for enterprises, VRIN resources are an important source for them to continuously maintain their CA (Grant, 1991). But, the mechanism of firm's resources on SCA is still unknown. As an important part of value creation, if we do not identify the inherent law of the interaction between resources and opportunities, it is impossible to explain the complex relationship from resources to sustainable CA, and let alone how to strategically manage resources to seek sustainable value

creation. In response, the present work investigates into the internal relationship between the characteristics of resources and the attributes of the opportunities identified, at the same time, explores the effect mechanism of opportunities attributes and resource bundling on core competencies. This helps to deeply understand the complex interaction relations between resources, opportunities and core competencies, and contributes to RBV.

Secondly, this study could deepen the research of the balance mechanism between the seeking of advantage and opportunity in SE. Too much emphasis on exploitation of current CA prevents firms from identifying and exploiting new opportunities. On the other side, an overemphasis on the exploration of CA for the future makes it hard to effectively maintain its CA. Research on how to maintain a balance between exploitation and exploration is not widely recognized. This work explores the driving force that maintain this balance from the perspective of RBV, furthermore, it explores the intrinsic relationship between SCA and resources integration under different opportunities. This not only helps to reveal the complex interaction between advantage seeking and opportunity seeking, but also helps to deeply understand the mechanism of the effect of opportunities on SCA, and promotes the further expansion and deepening of RBV research and SE research.

Thirdly, this study provides new thoughts to evaluate and identify core competence. Actually, identifying is the premise for building of core competence, and the core competence can further become the CA of firms. Because of the complexity and diversity of core competence, the identification and evaluation become very difficult. Most of the existing studies use factor analysis to find the factors that influence the core competence, and then design a complex index system. As there are many factors that affect the core competencies, on the one hand, it is difficult to exhaust, in addition, it may neglect some core factors that affect the competitiveness. This study reveals the nature of core competencies by exploring the formation mechanism of core competencies, and then provides ideas for the identification and evaluation of core competencies.

In view of practical value, this study may bring implications for the managers of firms to effectively build and renew core competencies. The resources of an enterprise do not necessarily promote its core competitiveness. Firms can obtain and maintain CA under some restraint condition, that is, they need to possess distinctive knowledge resources. Organizational learning is the fundamental way to accumulate the knowledge resources.

While exploiting existing CA, firms should use their knowledge resources to explore new opportunities at the same time. SE has a strong practical significance, which can not only guide new start-ups to grow and gradually establish CA, but also guide mature established

corporations to reform and update CA or create new CA. SE requires firms to achieve a relative balance between both advantage- and opportunity seeking. However, achieving this balance is in fact a challenge for most firms. Because resources are finite, there must be a rational allocation between the resources invested in strategic management activities to exploit existing advantages and the resources invested in entrepreneurial activities to exploit opportunities to gain future CA. Achieving this balance requires the organization to have a two-way capability of exploration and exploitation. This study can provide action ideas and logic for the building and renewal of core competence.

1.4 Research methods and architecture

1.4.1 Research methods

Based on both empirical and theoretical methods, this study discusses the question qualitatively and quantitatively.

Firm growth and value creation have always been one of the core issues concerned by the business and theoretical circles. Many scholars have made a lot of contributions to this. If we want to grasp the research questions that can reflect the essence of firm growth from many seemingly contradictory or even conflicting literatures, and seek research design and research methods that can help explain and predict the phenomenon of firm growth, literature research is of great value. Based on this, we have used three years to search, read, sort out, summarize and evaluate the relevant literature in the mainstream Chinese and English databases, formed the basic theoretical judgment of firm growth, identified the theoretical perspectives and variables that help to excavate the essence of firm growth and explain the relationship between key elements in firm growth. Then, the basic theoretical model framework of the research is constructed.

On this basis, an empirical study is adopted to test the proposed theoretical model. Empirical research helps to test the explanatory power of existing theories, and also helps to explore new issues that have not attracted attention, so as to produce new theories. On the basis of theoretical deduction, empirical research is to analyze and investigate the "quantity" of each relationship, and to verify the hypothesis of each relationship in the theoretical framework by using statistical tools, so as to seek a theory with decision-making significance. In this study, firstly, the theoretical connotation of the concepts and variables involved in the theoretical model is deeply excavated, and the existing literatures are used to identify the matching variable

measurement. Then, based on this, the questionnaire is distributed and collected to the senior managers of enterprises in specific areas, and then the survey data is statistically analyzed to verify the theoretical hypotheses deduced.

During data analysis, we conducted reliability test, correlation analysis and factor analysis for research variables. For hypothesis testing, regression analysis is used, and we use multiple logistics regression and linear regression to verify the specific theoretical hypotheses according to the characteristics of the variables.

1.4.2 Research architecture

In Figure 1.1, the research architecture of this thesis is shown in detail.

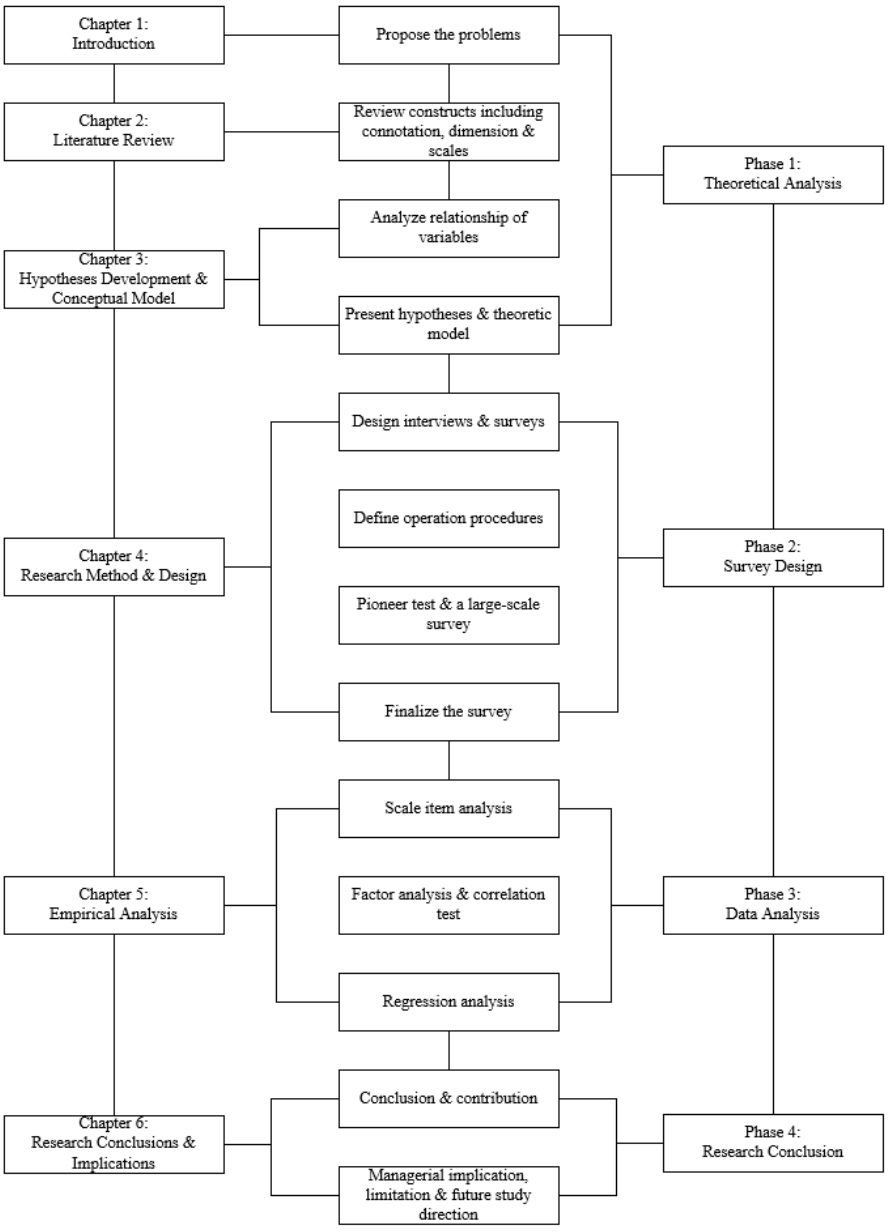

Figure 1.1 Research architecture

1.5 Layout of the thesis

According to the adopted research methods and architecture, the main framework of this thesis is formulated.

Chapter 1: Introduction – Based on the specific research background, this chapter puts forward the logical clues and core issues of this study, and explains the research purpose, research significance and research methods. On this basis, the framework is introduced briefly.

Chapter 2: Literature review –Theoretical basis of the present study is mainly described in this chapter. It systematically reviews related research results of the sources of SCA, and then analyze the literatures from the perspective of RBV, and then identifies the limitations and development directions of the existing research, thus leading to the basic judgment and research questions of this study. On the basis, it further summarizes the SE studies from the perspectives of history, present and future, systematically expounds the applicability and theoretical value of SE perspective to the source of CA, and then discusses the relevant theoretical basis.

Chapter 3: Hypothesis development and conceptual model – RBV was selected as the theoretical basis, and the internal interaction between resources, opportunity attributes, resources bundling and core competencies was elaborated, and the theoretical model based on which this research relies was constructed.

Chapter 4: Research method and design – The basic idea of research design, the design process of questionnaire, the theoretical basis of variables measurement, the basis of sample selection, the process and results of data collection, as well as the main methods of data analysis is detailed introduced in this chapter.

Chapter 5: Empirical analysis – Ground on the analysis of overall survey items and the descriptive analysis of related data, the correlation test, factor analysis and reliability and validity test of each factor were carried out respectively. This chapter presents the regression and moderating test results.

Chapter 6: Conclusions and implications – Research conclusions are drawn and theoretical contributions are proposed. The practical implications and research limitations are pointed out, and possible research directions are discussed.

Chapter 2: Literature Review

2.1 Related theories

2.1.1 Sources of sustained CA

Barney (1991) has given the definitions of both competitive advantage (CA) and sustained competitive advantage (SCA). He argues that if an enterprise implements a value creation strategy that competitors (existing or potential) cannot effectively implement, it can be considered that the enterprise has a certain CA; furthermore, if other enterprises could not simultaneously duplicate this strategic benefit, the firm would have SCA. On the basis of Barney's concept, Hoffman (2011) points out that SCA is the sustaining benefits obtained by the implementation of unique strategies, which can neither be implemented by existing or potential competitors, nor be duplicated by them.

Barney (1991), while putting forward the CA and SCA of firms, also made several explanations: Firstly, CA must consider both existing competitors and potential competitors. Secondly, sustainability is not a concept of "calendar time", but a concept of "logical time", that is, how easy it is for competitors to replicate, imitate and substitute. Thirdly, the sustainability of CA does not mean that it may permanently exist. Actually, it means that it may not be eliminated by competition due to the rapid replication of other firms. The complexity of the competitive structure makes a sustainable source of CA no longer valuable at some point. Barney (1991) further noted that the source of SCA should meet four conditions, namely, value, rareness, imitability (historical dependence, unclear cause and effect, social complexity), and substitutability. This interpretation is consistent with Rumelt’s (1982) viewpoint. However, this is different from Jacobsen (1988) and Porter (1985), who believe that persistence simply lasts for a long period of calendar time. We adopt Barney's view in the study.

There are two theoretical schools about the source of CA: outside origination and inside origination.

2.1.2 Theories of outside origination on CA of a firm

With regard to the theory of external origin is concerned, the CA of an enterprise will be affected by its external factors. This school includes Porter's the five forces competition model and the SCP paradigm of neoclassical economics. Following the assumption of neoclassical

economics, the theory of outside origination regards the firm as a "black box" and a "production function", that is, an input-output system on homogeneous technology. The Structure-Conduct-Performance (abbreviated as SCP) model explained that performance of a firm is mainly depends on market conduct and market structure (Bain, 1956; Mason, 1939). Since they exist outside the firm, it can be inferred that the performance (CA) is exogenous. According to Porter's (1980) theory, the factors that determine super profits in an industry come from five forces, i.e. suppliers, buyers, product substitutes, competitive rivalry, and potential entrants. As long as a firm chooses an attractive industry and occupies a favorable market position, it can gain CA and continuously maintain its CA by restricting those factors that undermine its CA. Porter (1980) believes that the analysis of industrial structure is the basis of establishing competitive strategy, and industrial structure strongly affects the establishment of CA and the formation of corresponding corporate strategy. Porter's five-force competition model is based on the SCP model, which is only the specific application of the SCP model at the corporate level.

However, the introduction of industrial organization theory into the strategic field faces a series of difficulties in the transformation from economics to strategic management. On the one hand, the premise of "black box theory of firms" is obviously inconsistent with the actual characteristics of firms. Neglecting the internal conditions of firms leads to great limitations in the five-force competition model, which may induce firms to enter some industries that seem to be highly profitable but have nothing to do with their own business in the current industries or lack of CA. On the other hand, it does not well explain the fundamental reasons for the profit differences between different enterprises in the same industry sector. Rumelt's (1982) empirical research shows that the degree of dispersion of long-term profit rate within an industry is much greater than that among industries. Studies by Jacobsen (1988) also support this view.

2.1.3 Theories of inside origination on firm's CA

Based on the internal origin theory, for an enterprise, its CA derives from the internal heterogeneous resources and capabilities. It includes the RBV, the core competency perspective and the KBV. A very important theoretical premise is to go deep into the company and comprehensively deconstruct the "black box" of the production function. In this theory, there is a certain heterogeneity in the capabilities and resources owned by each company, and this difference is persistent (Barney, 2001b). In particular, it is emphasized that some resources and capabilities have no supply elasticity (Barney, 1986a, 1991; Peteraf, 1993; Wernerfelt, 1984)

and cannot be obtained through market transactions, but can only be accumulated within the firm.

2.1.3.1 Theories of CA based on RBV

It is well known that the so-called RBV theory is based on “resources approach” proposed by Penrose (1959) and “the resource-base of the firm” which was developed in The Theory of the Growth of the Firm, and marked by A Resource-based View of the Firm by Wernerfelt (1984). It was further developed by Barney (1991) and Peteraf (1993). For this theory, the core is as follows: a firm is a set of resource portfolio, meanwhile the CA mainly stems from the resources owned by the firm, especially some heterogeneous resources. External market structure and market opportunities influence the firms’ CA, but they are not decisive factors. In The Theory of the Growth the Firm, Penrose (1959) argues that an enterprise is composed of various resources with their own purposes, and focus on the CA in the view of inner growing and knowledge accumulation. She believes that for each enterprise, the accumulation of knowledge is a very unique resource. Furthermore, in the process of knowledge internalization and integration, formal and public knowledge is transformed into informal and non-public cumulative resources, and this cumulative knowledge is exclusive to the team where knowledge accumulation takes place. The difference of cumulative knowledge of firms also constitutes the basis of different competitiveness of firms. Penrose's theory provides a pioneering idea for the research of CA based on RBV.

Barney (1986a, 1991) and Wernerfelt (1984) proposed the RBV of resource heterogeneity. This theory defined the connotation of resources and capabilities, and divided resources into organizational resources (e.g., reporting structure, cooperating, controlling and planning systems), human capital resources (e.g., judgment, experience, talent, insight, relationship and training system) and physical capital resources (e.g., technology, plant, equipment, geographical location and purchasing channels). Barney (1991) especially stressed that not all of the above resources are related to strategy, and only those resources that can effectively improve the functional attributes of formulation and successful implementation of the strategy are the resources in the category of this theory. It should be pointed out that the capabilities discussed here mainly refer to the ability of the company to effectively integrate and allocate relevant resources to realize its goals. Capabilities are tangible or intangible, firm-specific and information-based processes. In the process of interaction of enterprise resources, they will continue to develop and accumulate over time, and then they can also be abstractly considered as intermediate products produced by firms to enhance resource utilization efficiency, strategic

flexibility and support end products and services (Amit & Schoemaker, 1993). Makadok (2001) points out the difference between resources and capabilities, and argues that capabilities of firms are a special type of firm-specific resources rooted in the organization and are not transferable. We can use the capacity function to further improve the productivity of resources, and the capabilities of the firm can only be built by itself and cannot be traded. Therefore, the CA of firms does not come from the outside of firms, but from the inside of firms. Based on the assumption that resources are non-transferable and heterogeneous, it can be considered that the CA of enterprises are mainly affected by VRIN resources and capabilities (Barney, 1991; Peteraf, 1993; Rumelt, 1984).

In addition, on the basis of the above analysis framework, the theory further holds that potential value of capabilities and resources may be strengthened by their persistence factors, which make competitors difficult or costly to replicate the CA of enterprises. On this basis, enterprises will have sustainable CA. Some scholars have made an in-depth analysis of persistence factors, and believe that the factors leading to persistence include causal ambiguity, path dependence, and social complexity (Peteraf, 1993; Wernerfelt, 1984).

Finally, the theory argues that the firm's proprietary resources have a specific rental nature and thus bring special value to the firm, which is reflected by comparison with its competitors. Because of the "heterogeneity" attribute, the profit degree of firms is different. A firm with superior resources can obtain above-average returns and then a CA is formed.

It is observed that from the perspective of CA based on RBV, the development of capabilities mainly depends on available resources, and the improvement of productive efficiency of resources depends on the improvement of capabilities, capabilities and resources promote each other and develop together. Resources and capabilities with special attributes jointly form the foundation of CA. Moreover, it is the difference of capabilities and resources of firms that results in the difference of firm performance and CA.

2.1.3.2 Theories of CA based on core competence

Prahalad and Hamel (1990) believe that for an enterprise, its internal "core competence" is the source of CA. Core competencies refer to “the collective learning” in the organization, especially integrating a series of technology flows and coordinating various production skills. Furthermore, it is about involvement, communication, as well as a strong commitment to working across organizational boundaries and delivery of value and organization of work. Besides, it also involves all functions and many levels of people.

This definition has three meanings: firstly, it describes capability in the form of "production

skills and technical knowledge". Capability is a collection of resources that can play a special function, and the development of capability obviously depends on the effective use of resources. Secondly, capability is not only a function of effective use of resources, but also closely related to organizational structure. Organizational capital and social capital are very important for connecting organizational structure and capability. Thirdly, in the process of use, the ability will not decrease, but will continue to increase with the increase of sharing and applications.

The criteria for evaluating core competencies has been proposed by Prahalad and Hamel (1990).That is, potential for extension to wider product markets, contributions to the core values that end customers care about and hard to imitate for competitors. From the three criteria of core competence, we can further see that core competence is not the individual core technology, but the ability to integrate and coordinate various technologies and skills possessed by an organization.

Based on the research of Prahalad and Hamel (1990), the view of “core rigidity" was put forward by Leonard-Barton (1992) from the perspective of technological innovation. They believe that core competence is the knowledge collection to identify and provide CA. In the R&D activities of firms, core competence may hinder the technological innovation and in the meanwhile promote technological innovation. The hindering effect of core competence on R&D activities is core rigidity, which is reflected in management system, technology system, corporate values, and skills and knowledge. In other words, core competencies that are now useful for some things become hindrances for others. Therefore, core competitiveness actually will not only have a positive impact, and as a knowledge set embedded in the firm, it will also bring negative effect on the development of the firm.

2.1.3.3 Theories of CA based on KBV

In recent years, the theory of enterprise core competitiveness has significantly promoted the development of the field of sources of CA. However, this theory does not explain why firms have core competence and why some firms lose core competence because of "core rigidity". According to the KBV, what determines the firm's competence is the knowledge of the firm hidden behind the competence and the cognitive learning which is closely related to knowledge. Also, under certain conditions, it is the inherent nature of knowledge that leads to the core rigidity of the firm. KBV is the further extension of RBV, and some scholars have made key contributions to it, including Kogut and Zander (1992), Nonaka (1994), Grant (1996b) and Nickerson and Zenger (2004). Knowledge, especially tacit knowledge of firms is very important in some aspects including inimitability, innovation ability, sustainability and learning

ability for CA.

The traditional view holds that the utility of resources is objective. In fact, the utility of resources depends on the people who use them. Furthermore, the difference in the effectiveness of various resources in firms is determined by the existing knowledge stocks of firms. Behind the difference in capability is actually the difference in knowledge stocks. The current knowledge stocks and knowledge structure of firms determine the future innovative opportunities attributes and methods of allocating resources.

Inimitability is essentially a monopoly. Tacit knowledge is an important reason that makes it difficult to imitate. The inimitability of tacit knowledge is prominently manifested in the following aspects:

1. Process.

The tacit knowledge of firms is often accompanied by a certain process of knowledge, which is embodied in "doing" or practice. If competitors do not participate in this process, it is very difficult to experience the existence of this knowledge, and it is even more difficult to imitate.

2. Completeness.

Explicit knowledge in the firm works together with tacit knowledge that is not realized. Competitors can only imitate the explicit knowledge they know and cannot imitate the tacit knowledge without recognizing. As a result, the knowledge they acquire is incomplete and cannot really hold the key in the firm.

3. Ambiguity.

In the process of imitation, competitors always hope to find and imitate the core factors, but in fact, a result is a function of a variety of reasons. The tacit knowledge of a certain aspect is often the key factor, but it is often neglected, which leads to the failure of imitation. This is what we call "causal ambiguity" (Lippman & Rumelt, 1982). The uncertainty of causality makes it impossible for those competitors to know exactly what and how to imitate. This uncertainty restricts the imitation activities and thus maintains the conditions for the existence of heterogeneity.

Knowledge is acquired and used through accumulation. This not only shows that the explicit knowledge transferred from outside may not bring special utility to the firm, but also shows that the CA created by knowledge is sustainable. This is because the accumulation of knowledge must be based on a certain amount of knowledge stock. Without relevant knowledge accumulation, firms cannot acquire and absorb the other knowledge. Namely, incremental knowledge is strictly rest on the knowledge stock of firms, which is the path dependence or

historical dependence of knowledge. If a certain stock of knowledge creates a CA, and the advantage will be maintained with the generation of incremental knowledge, reflecting the sustainability of CA.

Generally speaking, one of the prominent manifestations of CA is a learning ability of the company, which is the important base to the formation of the new CA. Moreover, knowledge learning capability of the firms is related to corporate knowledge and determines the knowledge accumulation and CA of the company. Objectively speaking, the external environment faced by firms is exactly the same, Due to the different knowledge structures and cognitive abilities of firms, the opportunities they can exploit are also different (Amit & Schoemaker, 1993).

To sum up, the core of the theory of inside origin of CA is that the unique capabilities and resources within firms are important source of CA. In other words, for the CA, the knowledge behind the capabilities and resources is the main source. This provides an important theoretical basis for firms to attach importance to the construction of their own knowledge resources.

Although the inside origination theory can well interpret the source of CA and to some extent overcome the limitations of outside origination theory, the theory itself also has some limitations. First of all, the theory overemphasizes the internal factors of firms and ignores the objective requirements of the rapidly changing environment for the growth of firms. In addition, it relies too much on static analysis and lacks a clear analytical framework of the formation mechanism of core competencies. Core rigidities of core competence further reflects the lack of theoretical research on the dynamic nature of core competencies.

2.1.4 Theories of dynamic capabilities on firm's CA

Scholars put forward the theory of dynamic capabilities to adapt to the rapidly developing and changing external environment based on the resource view and core competence view of CA. Therefore, its theoretical hypothesis has good consistency with the theory of inside origination on firm's CA. The rapid change of technology and uncertainty cause fierce competition (Peteraf, 1993), which objectively requires firms to adapt to the market environment rapidly. Leonard-Barton (1992) proposed that core competence may have core rigidity, making firms unable to adapt to the dynamically changing and developing market. Limitations of RBV and core competence, as well as the changes of external market environment, make the theory of dynamic capabilities rise and develop.

Dynamic capability refers to the ability of a company to reconfigure, integrate and create its complementary assets, strategic assets, external resources and internal capabilities, so as to

better adapt to the external market competitive environment in the process of dynamic changes. It reflects the organizational ability to successfully obtain innovative CA even under the unfavorable conditions of technological progress, path dependence and core rigidity. "Dynamic" refers to the ability to update its own capabilities in line with environmental changes, and is an innovative response to uncertain market demand, technological changes, and rapid changes in future competition and market patterns. The "capability" here mainly refers to the role that strategic management can play in the process of restructuring and integrating the organizational skills, functions and resources of the company, so as to better meet the relevant requirements put forward by changes in environmental conditions. According to the dynamic capability theory, an enterprise is an organizational form that can carry out organizational activities through its own capabilities. These capabilities cannot be fully organized through market transactions and replication (Teece et al., 1997). Based on this, Teece et al. (1997) proposed a dynamic capability analysis framework.

The basic logic of the dynamic capability model is that the CA comes from the highly effective routines determined by process and location that operate within the firm, and the direction of its evolution is influenced by path dependence and technological opportunities. Organizational capabilities, which are based on organizational routines, skills, and complementary assets, contain a large amount of firm-specific tacit knowledge. In addition, the "soft" assets such as value, culture and organizational experience are difficult to trade. Therefore, the organizational capabilities of firms are difficult to replicate and imitate.

Although the theory of dynamic capabilities comprehensively explains the source of CA, it should be pointed out that this theory cannot effectively answer how to achieve CA with dynamic capabilities for firms. Researchers always try to avoid defining dynamic capability as a definite structure of capability elements. As long as dynamic capability is defined as a certain capability paradigm, it seems that it will inevitably fall into the quagmire of capability paradox (source of advantage and core rigidities). However, as Schreyögg and Kliesch-Eberl (2007) suggested that investigation on dynamic capabilities of firms should not only stay at the level of expanding concepts, but also construct a complete theoretical framework. Barney et al. (2021) argue that the dynamic capability theory of firm is in fact a special case of RBV. Because of the complexity of dynamic capability itself, systematic and thorough empirical research on it is rare.

2.1.5 Comments on the research of sources of SCA

Based on the external origin theory, some external factors (such as industrial structure) will have a serious effect on the CA of enterprises. However, it cannot effectively discuss the difference in profitability between different enterprises in the same industry. In addition, as far as the internal origin theory is concerned, the source of a firm's CA is its own heterogeneous resources and capabilities. On this basis, it can reasonably explain the internal sources related to the enterprise's CA, but it relies too much on static equilibrium analysis and ignores the impact of external dynamic environmental changes on the CA. For the dynamic capability theory, a very important argument is that the CA mainly comes from the dynamic capability accumulated gradually in the historical process of development and the enterprise's integration of internal and external resources. Therefore, it comprehensively describes the main sources of CA for enterprises in a dynamic and changing environment. The theory of CA has experienced the evolution from outside to inside, and then to the integrated dynamic capability. The theories of outside origination, inside origination and integrated dynamic capabilities have inherent theoretical consistency in essence, although they have obvious differences in the era background and theoretical connotation. They are all basic concepts, specific principles and analytical frameworks derived from firms as micro-subjects to conform to the laws of economic development, at the same time adapt to the dynamically evolving market environment.

Under the premise that CA of a firm mainly originates from the inside, theory of exploring the root of firm’s CA has gone through resources, core competencies, and knowledge, and the understanding has gradually deepened. The basic factors that influence the CA are defined as the specific knowledge of the enterprise. An enterprise is a collection of knowledge, and its knowledge stock determines its ability to allocate resources and other innovative activities, so as to finally reflect its CA in its output and market power. At the same time, knowledge is hard to imitate and can only be obtained and played through a path-dependent accumulation process. Existing knowledge becomes an important force for firms to determine the accumulation of knowledge in the future, so that the CA can be sustained. The cognitive learning ability determined by firm’s knowledge is an inexhaustible source for firms to develop new CA. New knowledge is gradually integrated into the formal and informal organizations of firms, and becomes an important force to determine the future knowledge accumulation of firms. The knowledge stock further determines the ability to allocate, develop and protect resources, which ultimately reflects the CA of firms.

RBV argues that if the capabilities of a firm are closer to certain core competencies, then it

will have a greater possibility to gain CA. The dynamic capability view holds that only by constantly breaking the "rigidity" of capability and strengthening the dynamic characteristics can it adapt to the paradigm change. However, it is impossible for any single process to make the rules "stable" and constantly "break" the rules at the same time. The process of capability practice and the process of dynamic adjustment are not independent but complementary. Only by integrating them together can the organizational capability be steadily improved and constantly adjusted. However, at present, there are no creative achievements on the “dynamic” of capabilities or “refresh” of VRIN resources in dynamic capability research and RBV research.

Because the external environment will change to some extent, it is necessary to re-examine the source of sustainable CA of enterprises. In fact, RBV is considered to be the mainstream in this research field. However, in an increasingly dynamic environment, RBV encounters its own theoretical boundaries. SE provides a new perspective for this proposition.

2.1.6 Strategic entrepreneurship

2.1.6.1 Background of SE research

In an increasingly complex business environment, firms often activate their innovation capabilities to cope with environmental changes, but overreaction may fall into the "innovation trap" (Levinthal & March, 1993). Conversely, in relatively stable situations, firms often meet the needs of existing customers through gradual change, but the path dependence and core rigidities formed over a long-time span may make it difficult for firms to effectively identify the relevant potential needs of customers, thus gradually losing some important innovation opportunities. When discussing the relationship between environmental change, organizational adaptability and resource allocation, March (1991) classify the strategy of firms to cope with environmental change into two types: exploitation and exploration. The former focuses on developing and utilizing existing capabilities, while the latter focuses on exploring innovative capabilities. In theory, if firms want to maintain SCA, they must have these two capabilities at the same time, and reasonably allocate finite resources to exploration and exploitation activities. In fact, in today's competitive landscape, the boundaries of the industry are constantly changing, and firms are always facing unpredictable market changes and increasingly frequent challenges of organizational change, as well as increasing operational risks. Therefore, it is extremely difficult to seek a balance between exploration and exploitation. Therefore, a new perspective is needed to cope with these challenges.

For enterprises, entrepreneurship is an important basis for the integration of functional

behavior and strategy. If they want to develop, they must promote the choice of new fields, new products and new markets through entrepreneurship, and they must put this choice under the strategic framework and integrate various functions through strategic planning and management (Schendel & Hofer, 1979). Entrepreneurship is an important topic in strategy research, and strategy management research should take entrepreneurship as the core issue of strategy. Entrepreneurship involves not only issues such as firm creation and entrepreneurship, but also issues such as organizational innovation, change and rebirth, which are very important for the strategy of any firm.

Jarillo and Stevenson (1990) first discovered and pointed out the "intersection" between entrepreneurship and strategy, and they used "entrepreneurial strategy" to refer to the intersection between the two. Sandberg (1992) believes that the "convergence core" of strategy and entrepreneurship is corporate entrepreneurship. Hitt et al. (2002) pointed out six different aspects of the intersection of strategy and entrepreneurship. Meyer et al. (2002) pointed out that the interrelationship between entrepreneurship research and strategic management research could be reflected in the following aspects: First, they intersect with each other, which shows that there are some common elements between strategic management and entrepreneurship. Second, they merge with each other. It means that strategic management and entrepreneurship are no longer independent fields, and they should be a unified whole. Third, they interface with each other. The above two fields may interact and results in the formation of a common boundary. It is found that in the "interface" space, scholars in these two fields can learn from each other and inspire each other. Ireland et al. (2003) clearly pointed out that SE should include both the behavior of seeking opportunities (entrepreneurial dimension) and the behavior of seeking CA (strategic dimension).

Hitt et al. (2002) argue that both strategic and entrepreneurial research contribute to each other, and both the dynamic business environment and the strategic efforts aimed at creating dynamic models are helpful for firms to establish new CA. Accordingly, they propose the view of the so-called ESMI (that is Entrepreneurship-Strategic Management Interface), and suggests that the common factors of entrepreneurship and strategy, such as performance and innovation, should be considered simultaneously in the process of studying and implementing SE.

2.1.6.2 SE is the integration of strategy and entrepreneurship

The research results of integrating strategy and entrepreneurship research were published in the Journal of Strategic Entrepreneurship which is a sister journal of the Journal of Strategic Management in 2007.They put forward and answered a series of questions, such as what is

strategic entrepreneurship, how to integrate strategy and entrepreneurship to create value, what is the value of these two constructs, and what is the value after integration. The launch of the Journal of Strategic Entrepreneurship has stimulated the interest of scholars in strategic and entrepreneurial research fields in studying SE.

As early as the 1990s, some scholars put forward the view that strategic management research and entrepreneurship research should be integrated. For example, Barney (1991) and Peteraf (1993) from the resource perspective and Teece et al. (1997) from the capability perspective respectively explained the intersection of both the entrepreneurship research and the strategic management research. Unfortunately, they did not formally put forward the concept of SE. Ireland et al. (2001) are the scholars to put forward the concept of "strategic entrepreneurship". They proposed six domains of SE from the perspective of intersection of strategic management and entrepreneurship, namely, top management team and growth (ensuring strategy implementation and development), growth (successful change and motivation), organizational learning (developing resources and disseminating knowledge), innovation (new ideas), internationalization (rapid expansion and adaptation), and networks (access to resources). In addition, they argued that in order to create wealth, firms integrate the activities of opportunities seeking and advantages seeking, which is SE. They also believe that the integration of strategy and entrepreneurship is an important event in strategic research and entrepreneurship research, which can not only reflect the pursuit of strategic advantages, but also reflect the grasp of entrepreneurial opportunities, which can reflect not only the strategic entrepreneurial activities of firms, but also the entrepreneurial strategic behavior of firms. All these activities and behaviors are mainly triggered by entrepreneurial orientation.

Furthermore, Ireland et al. (2003) re-analyzed the related structural elements of SE, and divided SE into four structural elements, namely the use of creativity and innovation development, managing resources strategically, entrepreneurial leadership and entrepreneurial culture, and entrepreneurial mindset. They believed that these four structural elements of SE interact with each other. Luke and Verreynne (2006) further elaborated the elements of SE, identified the potential sources of entrepreneurial opportunities and CA, and emphasized that firms must keep a dynamic balance between the elements of SE, so as to identify potential opportunities and establish a CA. They have also divided the related elements into two categories: basic elements and supporting elements. The former includes growth, vision, flexibility, acceptance of risk, innovation and identifying opportunities, while the latter one includes application and transfer of knowledge strategy, cost efficiency, operational excellence, brand and culture. Dess and Lumpkin (2005) studied SE from the perspective of

entrepreneurship, and believed that SE is a series of entrepreneurial behaviors and processes in which firms create value by seeking opportunities, and entrepreneurial orientation is the antecedent of SE. From the perspective of "exploratory activities" of entrepreneurship and "exploitative activities" of strategy, Ireland and Webb (2007) defined SE as exploratory activities such as trying, discovering, risk-taking and innovating in order to seek entrepreneurial opportunities, and exploitative activities such as improving, executing and improving efficiency in order to pursue CA, and they argue that SE has two major goals: one is to seek opportunities, the other is to pursue advantages. Ireland et al. (2009) defined SE from the perspective of corporate entrepreneurship as a series of entrepreneurial behaviors adopted by a company from a strategic perspective in an uncertain environment, and believed that the strategic vision of corporate executives and the entrepreneurial organizational structure of the company (mainly the entrepreneurial team) determined the strategic entrepreneurial behavior of the company.

It can be seen from the above that SE is a strategic entrepreneurial behavior in which firms seek entrepreneurial opportunities by carrying out exploratory activities, seek CA by engaging in exploitive activities, and create value by integrating the two. SE emphasizes the balance between seeking entrepreneurial opportunities and seeking CA.

2.1.6.3 Comments on SE research

Firstly, from the perspective of the integration of strategy and entrepreneurship, SE research explores the nature of the source of SCA of firms. Traditionally, it is believed that strategic activities are oriented to seek advantages, while entrepreneurial activities are oriented to seek opportunities. SE research has attracted attention along with the debate and evolution of the relationship between strategy and entrepreneurship. In lase several years, the relation between entrepreneurship and strategy has been controversial in academic circles. There are three main views: the view of subordination, that is, entrepreneurship research is a part of strategic management research; Interface view, that is, not directly intersected, but closely related; Integration view, that is, mutual integration, mutual complementarity and support. Since the beginning of the 21st century, more and more scholars have begun to focus on the integration of strategic management and entrepreneurship. "Strategic entrepreneurship" gradually emerges as times require, and it is concerned by scholars of entrepreneurship and strategic management. Although scholars still have different views on SE, they mainly define it from the following two aspects: introducing entrepreneurial thinking into the implementation and development of strategy, showing entrepreneurship in the practice of strategic management; emphasizing the guidance of entrepreneurial activities through strategic planning and implementation, and

formulating strategic direction for entrepreneurship.

SE is a parallel activity of advantage seeking and opportunity seeking, to achieve the goals of wealth creation and organizational growth. This view has been widely accepted, and "seeking advantages and opportunities simultaneously" has become the basic meaning of SE. SE is based on RBV, but it breaks through the static limitation of RBV and puts forward a totally new direction for the research on the sources of SCA.

Secondly, SE research well illustrates the balance between seeking opportunities and seeking advantages. Both entrepreneurship and strategic management focus on the wealth creation, but their emphases are different: strategic management focuses on the exploitation of existing CA, while entrepreneurship focuses on the pursuit of opportunities that competitors have not exploited or noticed in order to build future CA. The construct of SE is characterized by duality, which is reflected not only in the integration of "strategy" and "entrepreneurship", but also in the simultaneous pursuit of advantages and opportunities. SE seeks a balance between exploiting existing advantages and exploring new opportunities under resource constraints.

How to sustainably discover and create new opportunities on the basis of sustaining existing advantages depends ultimately on the balance between exploitation and exploration. Then, what is the balance and how to achieve it? Existing studies are still controversial on these key issues.

Some scholars believe that exploration behavior of "seeking opportunities" and exploitation behavior of "seeking advantages" are carried out one after another. Some scholars believe that balance is a process, and exploration behavior and exploitation behavior are not necessarily balanced at a certain point, but the dynamic balance can be achieved in long term. Hitt et al. (2001) proposed that SE is the effective integration of two behaviors in the process of wealth creation, that is, exploration and exploitation are carried out simultaneously, which is also generally recognized by scholars.

Thirdly, SE research explores the internal mechanism of SE. Ireland et al. (2003) argued that SE is a four-stage linear process which consists of successive alternation of strategic and entrepreneurial behaviors: firstly, entrepreneurial mindset and entrepreneurial culture were used to identify opportunities, and then the whole process of SE was promoted through managing resources strategically. In this model, the variables at each stage are divided into several dimensions. The model contains the core elements of SE (opportunity identification, strategic resource management, innovation), which reveals the mechanism of actions between variables and dimensions.

The IPO model divides SE into three stages: Inputs-Processes-Outputs. On the one hand,

The IPO model expands our observation of SE process to the external environment level, specific to the individual level; On the other side, the IPO model match with the related results of the four-stage model. It also emphasizes that entrepreneurial culture and entrepreneurial leadership are unique resources at the organizational level, and emphasizes the important effects of resource management at the organizational level in the process of SE.

Based on the above discussion, we can clearly find that the SE research field has made great progress. The existing research not only focuses on the integration of strategy and entrepreneurship, but also further explores the internal mechanism of different stages in SE, and explored a series of subjects worthy of further research. Among them, the interaction between resources and opportunities, the balance mechanism between advantage seeking and opportunity seeking and their impact on core competencies have become the main direction of future efforts of SE research, which constitutes an important theoretical context for this study.

2.1.7 Relations of RBV, SE and SCA

2.1.7.1 Resources and opportunities

Penrose (1959) described that the growth of an enterprise is the "growth limited by a firm’s production opportunities". The core of this theory includes the following two points: First, firms will accumulate various productive services, namely experience and knowledge, in the management of using both external resources and internal resources of the organization purposefully. Characteristics of specificity, heterogeneity and accumulation of experience and knowledge fundamentally shape the nature and types of opportunities that firms (entrepreneurs) can discover, and then they determine their choice of which product market to enter. Therefore, the growth impetus and expansion direction of firms are derived from the dynamically changing experience and knowledge within firms. Second, the managerial ability and services relied on in the process of effective utilization of resources for production cannot be "purchased" at will from the market, but can only be gradually "learned" and accumulated through organizational training. Therefore, the ability for firms to capitalize on opportunities, as well as the speed of firms’ expansion, depends on the speed at which managerial ability and services are generated in the organization.

However, Penrose's theory has two limitations. First, the theory focuses on the analysis of firms that have established and accumulated certain resources, so it hardly involves the entrepreneurship and origin of firms (Garnsey, 1998). Second, Penrose's theory is also built on the assumption that the "objective" production opportunities that make any firm's investment

profitable are always persistent. However, before a firm begin to grow, it must go through the initial process of starting from scratch. This is the issue of entrepreneurship and entry which must be included in the previously-mentioned theory on the growth of the enterprise. Therefore, only the theory that can analyze both the origin of the firm (entrepreneurship) and its growth is truly complete (Foss & Klein, 2012).

Although entrepreneurship research is developed independently from the theory of resources and capabilities, it is around the related core concept of "opportunity" (Alvarez & Barney, 2007; Shane & Venkataraman, 2000). Process of opportunity exploitation and discovery may constitute the core concept of entrepreneurship research.

Previously, neoclassical economics assumed that all information is open and complete, so that anyone could identify profitable opportunities equally. Who takes advantage of these opportunities depends on personal characteristics, willingness and even luck; psychology suggests that those who pursue a sense of achievement, have strong willpower and dare to take risks are more likely to become entrepreneurs (Shane & Venkataraman, 2000). Entrepreneurial research from the perspective of opportunity points out that both the content and nature of entrepreneurial activities rely on the connection between entrepreneurial opportunities and individuals (groups) who exploit the opportunities.

Specifically, entrepreneurial opportunities generated by technological and social changes are considered to always exist objectively in a disequilibrium market. However, the discovering and exploiting objective opportunities is subjective, that is, relying on the alertness of entrepreneurs (Kirzner, 1997). The degree of alertness depends on the knowledge and information that entrepreneurs have. Different people have different knowledge and information because of their different life, career and education experiences. These prior knowledge and information include market characteristics, user requirements, competitive strategies, sales channels and information, supply relationships, production methods of specific products or services, organizational management models and others. The asymmetric nature of the distribution of knowledge and information determines that only a specific group of people will identify external profitable opportunities and further explore other information and knowledge necessary to exploit specific opportunities (Venkataraman, 1997).

Certainly, opportunities caused by changes outside environment do not always exist objectively and explicitly in the market. Entrepreneurs not only respond to external opportunities, but also actively influence the environment and create change. Therefore, some opportunities are consciously created in the process of entrepreneurial actions (Alvarez & Barney, 2007; Kor et al., 2007). In creating these opportunities, the judgment and view of

opportunities in advance, as well as the resources and means needed to create and exploit opportunities, are the products of human or social construction. Therefore, in reality, there are not only "Kiznerian entrepreneurs" who only discover and exploit arbitrage opportunities, but also "Schumpeterian entrepreneurs" who create new opportunities that did not exist by reintegrating resources.

Entrepreneurship can be defined as the exploitation and identification of the unexploited opportunities (Hitt et al., 2001). Entrepreneurial opportunities are discovered or created in the operation of firms, and only a few firms with corresponding knowledge can identify and exploit these opportunities. Only when these opportunities are effectively matched with the CA of firms will firms exploit the opportunities (Ireland et al., 2003). Based on the strategic (advantage-seeking) behavior, firms can pursue these opportunities only if they have the required capabilities to do so (Carolis, 2003).

Market opportunities or demand are not naturally given and independent, but the product of conscious search, identification and creation, especially inseparable from the productive capacity represented by knowledge, experience and skills mastered by firms. Successful entrepreneurial activity is an effective matching of resources and market opportunities (Helfat & Lieberman, 2002). But it is not random or by luck who has specific capabilities or resources. Whether an entity discovers and exploits entrepreneurial opportunities in a specific industrial field depends mainly on whether the entity has accumulated experience in working in relevant industrial fields or has access to relevant technical knowledge and market information. Only those product producers and product users, or suppliers of equipment, raw materials and components, are likely to understand key information such as the type of technology, requirements, competition rules and supply chains in their industry (Klepper & Simons, 2000).

Whether there are entrepreneurial activities and entrepreneurial groups in specific industrial fields in a certain region or country depends mainly on whether relevant industrial categories and organizations have been established before. Only the continuous existence of corresponding organization-oriented product development and industrial production activities can fully or partially provide technical talents, organizational resources, market demand or supply chain support for entrepreneurial activities. As a result, the technological and industrial specificities of entrepreneurial opportunities lead to structural characteristics of related entrepreneurial activities in the distribution of industrial categories. Moreover, there are obvious barriers to entry that can be reflected (measured) by the type and level of capabilities.

First, the type and level of existing resources of firms or entrepreneurs constrain the industry to entry and even the performance (Delmar & Shane, 2006; Dencker et al., 2009).

Firms or entrepreneurs with relevant industry experience may successfully identify the potential market opportunities and then grasp them, and take advantage of them with sufficient risk-taking spirit and their resources. In reality, there are few entrepreneurial activities that respond to market profits only by entrepreneurship without the knowledge of specific industry and related capabilities. In fact, many successful entrepreneurial ventures benefit directly or indirectly from established firms (Buenstorf, 2015). This is because most of the human resources, experience and skills, supply chain, profitable opportunities and sales channels that entrepreneurship depends on are accumulated in the existing operation, and even the entrepreneur's vision, judgment, motivation and confidence are all products of organization.

Second, due to certain structural restrictions on the resources and capabilities required for entrepreneurial activities, barriers to entry have been formed. Only entrepreneurs with specific resources and capabilities can overcome the barriers. The resources and capabilities necessary to break through barriers are derived from the external industrial resource bases, and the existing knowledge and experience of entrepreneurs. Unlike established corporations, entrepreneurs (whether individuals or teams) start out with only technical knowledge, management experience, marketing judgment, and connections from their previous jobs or education. They also need to continuously interact with equipment and parts suppliers, product distributors, R&D institutions, users and even government agencies to obtain complementary resources and break through the barriers.

Based on the above analysis, from the perspective of advantage seeking or strategic, it is clear that only when the enterprise has the required capabilities can it effectively seize the opportunities (Carolis, 2003). That is, firms will pursue these opportunities only if they are effectively matched with CA. Then, firms need to develop CA to take the opportunities.

2.1.7.2 Opportunities and resources management

According to the traditional theory, it is easier to obtain excellent corporate performance and reduce the failure rate of entrepreneurship by developing opportunities with a high degree of innovation (Rosenbusch et al., 2011). However, there are many cases of failure in exploiting innovative opportunities in entrepreneurship practice. On the contrary, some firms relying on duplication and imitation survive in the market. What is the reason for this? How can entrepreneurial opportunities with different degrees of innovation achieve higher firm performance? Shane and Venkataraman (2000) proposed that the establishment of new enterprises begins with the discovering and evaluation of opportunities, and the successful exploitation of these opportunities requires entrepreneurs or teams to continuously acquire

resources and integrate them efficiently to form the corresponding capabilities required for the exploitation of opportunities. However, it is a pity that subsequent scholars have studied opportunities and resources management from two independent perspectives, ignoring the internal connection and interaction between them and the influence mechanism of entrepreneurial success. Entrepreneurship research based on the opportunity perspective greatly emphasizes the source, evaluation and identification of opportunities, focusing on the early stage of enterprise creation, while the theoretical explanation of opportunity utilization is extremely weak (Davidsson, 2015), so it is difficult to reveal how individuals use the opportunities they identify to generate differentiated value in entrepreneurship practice. In particular, it cannot explain how opportunities with different degrees of innovation lead to differentiated performance. Entrepreneurial research from the perspective of resources focuses on resource characteristics and resource development process, and promoted entrepreneurship theory in terms of how to obtain valuable resources and effectively increase the efficiency of both resource utilization and resource integration. In fact, the existing research from this perspective has not yet come to a convincing conclusion to explain why new firms use different ways of resource integration to produce different results, and how entrepreneurial opportunities with different innovative characteristics are related to different ways of resource integration. Based on this, this study attempts to accept this challenge and integrate the perspective of opportunity and resources management to answer this key theoretical question that needs to be solved urgently.

A firm's recognition of opportunities largely comes from its own knowledge structure and alertness, while the exploitation and utilization of opportunities is very dependent on the ability to manage resources.

For entrepreneurs, only owning resources cannot ensure the development of CA. Furthermore, it should be pointed out that the resources should be effectively combined and matched, and only through effective management can the value of resources created by CA be realized (Hansen et al., 2004). Therefore, the resource bricolage theory holds that entrepreneurs can solve the constraints of entrepreneurial resources by optimization and bricolage (Desa & Basu, 2013). Through entrepreneurial bricolage, the firm combines opportunity identification with resource development, which makes homogeneous resources produce differentiated value and forms CA of firm. To a certain extent, the resource bricolage theory promotes the development of the influence of resource characteristics on the success or failure of entrepreneurship in the RBV, and emphasizes that entrepreneurs can also improve the resource dilemma through resource bricolage in the context of finite resources (Jenssen, 2001). It has

laid the groundwork for the theoretical development and related investigation of resource utilization.

However, with the gradual improvement of the entrepreneurial ecosystem, the resource dilemma faced by entrepreneurs is gradually improved, and the interpretation of the resource bricolage theory on the way entrepreneurs use resources shows some limitations. The perspective of resource orchestration pays more attention to the combination of resources, and analyzes how to structure, bundle and leverage resources so as to improve the synergy effect among resources. Resource orchestration theory is a resource theory developed by combining resource management theory with asset orchestration theory. Resource management theory is a theory developed under the category of RBV, including three main dimensions (structuring, bundling and leveraging). Structuring capability includes the divestiture, accumulation and acquisition of resources to form the resource portfolio of firms. Bundling capability is the integration of various resources, including pioneering, enriching and stabilizing. Moreover, leveraging capability covers the aspects of deploying coordinating, and mobilizing. Sirmon et al. (2008) emphasize that only when each process is synchronized with its subprocesses can value creation and CA be guaranteed. There is a synergistic effect among resources. To achieve this synergistic effect, entrepreneurs need to effectively pool a variety of resources and make use of the complementarity of resources to better play the value of resources to create competitiveness.

Resource orchestration theory covers the following aspects, namely structuring and bundling resources, and leveraging capabilities for value creation, opening the "black box" of the process from resources to SCA, and clearly clarifying the relation between capabilities and resources as well as their roles in achieving SCA. Furthermore, the related thinking promotes the application of the process to construct appropriate resource combination and capabilities allocation and realize dynamic matching with the environment. With many insights in managing resources, resource orchestration theory has been widely used in innovation, entrepreneurship, supply chain operations, strategic change and other fields, providing new insights into many traditional issues based on the perspective of actions.

It is known that the theory of inside origination on CA believes that SCA originates from strategic resources (Barney, 1991; Wernerfelt, 1984) and core competencies (Prahalad & Hamel, 1990). Resource orchestration theory integrates the two views by embedding the dynamic management capabilities of managers (Adner & Helfat, 2003) in the process of resource evolution, capability formation and capability utilization, and points out that SCA of enterprises mainly originates from the combination of manager’s ability, capabilities and resources

(Chadwick et al., 2015). Resources are in fact very important premise for the SCA of firms, and the capabilities bundled by resources are intermediate products, which can promote the utilization efficiency of different resources (Makadok, 2001). Managers' dynamic adjustment of resource portfolio and capability allocation based on internal and external environment is a bridge connecting resources and SCA. It can be seen that resources are fundament for the formation of capabilities, and capabilities originate from the integration process of related resources. Furthermore, the formation and utilization of capabilities are also the direction of resource evolution. Under the role of dynamic management capabilities, they jointly determine the performance of firms.

Entrepreneurship is the exploitation and utilization of opportunities, and for entrepreneurial opportunities, opportunity newness is regarded as an important characteristics (Baron & Shane 2008). Rogers (1995) believes that newness is the novelty degree of the opportunities identified by an individual in the whole industry or market, and its manifestations include target markets, marketing or production methods, the degree of innovation in services or products (Semasinghe et al., 2011). Semasinghe and Davidsson (2009) divide newness into two kinds, one is radical innovation with high degree of innovation that completely introduces a new means-ends relationship into the market, and the other is incremental innovation with low degree of innovation that drives the market process through imitation. The establishment of new enterprises begins with the evaluation and identification of opportunities, and exploitation of opportunities requires entrepreneurs or teams to continuously acquire resources and integrate them efficiently to form the corresponding capabilities required for the exploitation of opportunities (Shane & Venkataraman, 2000). However, the existing research takes opportunity and resources as two independent perspectives, ignoring the internal connection and interaction of the two on the mechanism of entrepreneurial success. Entrepreneurship investigation based on the perspective of opportunity greatly emphasizes source of firms, the evaluation and identification of opportunities, focusing on the early stage of enterprise creation, while the theoretical explanation of opportunity utilization is extremely weak (Davidsson, 2015), so it is difficult to reveal how individuals use the opportunities they identify to generate differentiated value in entrepreneurship practice. In particular, it is not possible to explain how opportunities with different degrees of innovation lead to differentiated performance. However, the existing studies from this perspective still have not reached convincing conclusions to explain how entrepreneurial opportunities with different innovative characteristics are related to different ways of resource integration.

2.2 Related studies on core competencies

2.2.1 Connotation of core competencies

Prahalad and Hamel (1990) firstly put forward the core competence. It was defined by scholars in different terms (see Table 2.1).

Table 2.1 Selected definitions of entrepreneurship

Author	Definition
Prahalad and Hamel (1990)	Core competencies refer to the collective learning process in organizations, especially the integration of multiple technologies and coordination of various production skills.
Winterscheid (1994)	Competencies of a firm refers to its specific intangible and tangible assets clustered in integrated clusters which span both groups and individuals to allow for some unique activities
Kay (1993)	Distinctive capabilities include innovation, architecture and reputation.
(Miyazaki, 1995)	Organizational competencies are the ability of a firm to mobilize their organization and bring people with different skills together to work.
Coyne et al. (1997)	Core competence refers to the relevant combination of knowledge base and complementary skills embedded in the team or team. On this basis, world-class key processes can be effectively implemented.

Since the concept of core competence was proposed, different researchers have studied it from different perspectives, such as technology perspective, knowledge perspective, resource perspective, organization and system perspective.

1. Technology and product innovation perspective

As the important representatives of core competence research from the perspective of technology and product innovation, Prahalad and Hamel (1990) argue that the accumulation of core competencies is accompanied by the development process of core technologies and products of firms. The platform of product and technology can only be established through long-term learning and accumulation, so the core competencies are the firm-specific expertise accumulated by the firm's continuous investment and learning behavior. As the collective learning in the organization, the learning process may involve the following: (1) the integration of various technologies; (2) the coordination of various production skills; (3) the transmission of values in the organization. Moreover, through the accumulation of core competencies and organizational learning, a firm may identify product and market opportunities as early as possible. Therefore, the sustainable development of a firm is closely related to its core competencies.

In addition to Prahalad and Hamel, Meyer and Utterback (1993) are also the typical representative of studying the core competence of firms based on the view of technology and product innovation. They believe that the core competencies refer to the marketing capabilities,

manufacturing capabilities and R&D capabilities. Furthermore, they have four dimensions: product technology, understanding of customer needs, distribution, and manufacturing. They also find that there is a causal relation between core competence and performance, and the competition conditions faced by the firm has an impact on the causal relations.

2. Knowledge perspective

The core competence of a firm is defined from perspective of whether the knowledge can be acquired or imitated externally. They believe that the core competence of a firm is the proprietary information and knowledge that has firm's characteristics and is not easy to be leaked. This school believes that the foundation of core competence is knowledge, learning is important for the improvement of core competence, and learning ability should be regarded as the core element of core competence. Leonard-Barton (1995) is a representative of this school. He believes that core competence is the knowledge system that makes firms unique and brings them CA. For core capability, the four dimensions include values , managerial systems physical systems and skills, and there is a strong interaction among these four dimensions. Leonard-Barton (1995) also argues that core competencies constitute a CA that accumulates over time and is not easily imitated by other firms. Therefore, in order to realize continuous independent innovation, firms must take the continuous accumulation of core competence as the condition.

3. Resources perspective

The resource perspective emphasizes the role of capabilities and resources in achieving SCA and high profit returns (Oliver, 1997). In addition, the "heterogeneity" in the allocation and acquisition of capabilities and resources may determine the possibility of obtaining high economic return. These characteristics mainly depend on the firm's ability to obtain and develop strategic assets in the "defective" and "incomplete" markets. Because the decision-making of firms in selecting and accumulating resources is characterized by the most economical and rational allocation of these resources under the constraints of causal ambiguity, cognitive bias and limited information, the "heterogeneity" in decision-making and process among different firms in obtaining these strategic resources constitutes the core competence of firms. Based on this point of view, resources have become the most basic condition to ensure the firms continue to obtain extraordinary profits. From the perspective of resource types, the resources that constitute core competence have the characteristics of scarcity, uniqueness, sustainability, specificity, inimitability, non-tradability, intangibility and non-substitutability. Only with such resources can a firm have a unique position in the same industry, which comes from its unique ability in the process of resource identification, accumulation, storage and activation. In the view of resources, core competence is the unique ability of firms to acquire and possess these

special resources.

4. Organizational and systematic perspective

The organizational and systematic perspective holds that core competence is the organic integration of operational mechanisms complementary assets and different skills, which are important basis for the firms to achieve the CA in specific operations. The core connotation embodied in this kind of organization is the proprietary knowledge system of the firm, and it is the proprietary knowledge of the firm that makes the core competence unique, different and difficult to imitate. Core competencies are built on the basis of corporate strategy and structure, supported by people with special skills, and involve all functions of personnel and organizations at various levels. Therefore, core competence must have a common vision and recognition of communication, participation and crossing organizational boundaries. Coombs (1996) believes that the core competence of a firm includes the technical competence and the organizational competence that effectively combines the technical competence. Therefore, the core competence of a firm has both technical and organizational characteristics, including the technical expertise of the firm (including products and processes) and the organizational ability to effectively allocate this expertise. Similar to the organization and system view, Raffa and Zollo (1994) argue that a firm's core competencies lie not only in the operational subsystem but also in the firm's cultural subsystem, which is rooted in the complex relationship between people and the environment. The real core competence of a firm is the organic combination of its technological core competence, cultural core competence and organizational core competence. In addition, the accumulation of core competence mainly lies in the culture of the enterprise and then gradually penetrates into the whole organization, and it is precisely the organizational consensus that provides the basis for a comprehensive and inimitable core competence.

It is not difficult to find from the above discussion that, first of all, different researchers study core competence from different perspectives, which fully illustrates that core competence is a construct with rich connotation, which is attached to the management, organization, culture, knowledge, resources, technology as well as the other subsystems of firms or organizations. Therefore, it can be concluded that the study of core competence will shift from a single subsystem to an organic combination of different subsystems. Secondly, the research from different perspectives is interpenetrated. These different views are not antagonistic, but mutually reinforcing. Thirdly, there are also some shortcomings in the existing research, such as many scholars have focused on the technical dimension. They all assume that the advantage of a firm in technology will inevitably lead to its CA in market environment. However, related

study shows that although some firms have advantages in technology, but it is not commensurate with the economic performance in the market competition. In some extreme cases, firms are forced to withdraw from industries where they have strong technological advantages.

Summarizing different perspectives, it can be concluded that the manifestations of core competence of firms are formatted knowledge, values, resources, information, expertise and ability. They exist in various carriers such as people, organizations, environments, and assets. In essence, information, expertise and ability are still the knowledge within the firm or organization, and the unique values and culture of the organization belong to the unique resources of the organization, we can draw such a conclusion that the essence of the core competence of a firm is the unique knowledge of the firm.

2.2.2 Identification and measurement of core competencies

There are different understandings about the connotation of core competence from different perspectives. Though the concept of core competence is still quite different, it should be pointed out that understanding of the characteristics of core competence is similar. Core competence has at least three characteristics: (1) Core competence is especially helpful to realize the value valued by customers; (2) It is hard for the competitors to imitate and then substitute, so it can gain CA; (3) Core competence has persistence, that is, it maintains the persistence of CA, and it makes core competence have certain rigidity.

Accordingly, we can deduce the three core characteristics of core competence: (1) Value characteristics: The value characteristics of core competence are manifested in three aspects: Firstly, core competence plays a core role in creating value and reducing costs for firms, and core competence should be able to significantly improve the operational efficiency of firms. Secondly, core competencies deliver the value that customers particularly value. If a capability is central, the benefits it brings to the consumer should be critical. Thirdly, core competence is the reason why firms are different from their competitors, and also the reason why firms do better than their competitors. Therefore, core competence has unique value for firms and customers, and has special contribution for the enterprises to win and keep the CA. (2) Asset characteristics: Because investment in the core competence of a firm is an irreversible investment, the core competence can be regarded as a special asset of a firm, which has the characteristics of "asset specificity". The specificity of core competence is also reflected in the natural attribute of accumulation, because core competence has historical dependence and is

the result of cumulative learning of firms. The asset specificity of core competence constitutes a barrier to entry for potential entrants and a barrier to exit for the firm itself. (3) Knowledge characteristics: It is well known that knowledge may be categorized into tacit knowledge and explicit knowledge. Explicit knowledge with information characteristics is easy to be imitated, while knowledge with methodological characteristics is relatively difficult to be imitated. If the core competence must be heterogeneous and cannot be imitated and substituted, then the core competence must be based on tacit knowledge. It is because tacit knowledge is not open, vague in content, unable to impart, imperceptible in use, complex and self-contained (Winter, 1987) that the core competence has the characteristics of "ambiguity". Thus, core competencies can be thought of as forms of knowledge about how to coordinate the various uses of resources.

As the core competence of a firm has the above characteristics, the identification and measurement of core competence become very difficult. Moreover, the cases cited in most of the literature often have the characteristics of retrospective. That is to say, the reason why a firm is successful is that it has been successful, and the reason why a firm has core competence is that it has achieved CA. Unlike the existing studies, our study starts from the growth process of firms to find ways to identify core competence, so as to help firms cultivate, consolidate, apply and transform core competence so as to obtain the SCA. Some investigators have put forward measurement methods of core competence from different angles (see Table 2.2).

Table 2.2 Selected measurement of core competencies

Author	Measurement
Prahalad and Hamel (1990)	Core competencies make great contribution to the perceived customer benefit of the final product. They can provide potential access to the markets; thus, it is difficult for the competitors to imitate.
Meyer and Utterback (1993)	Levels of strength relative to existing competitors for capabilities: (1) Product technology capability (2) User needs understanding capability (3) Distribution capability (4) Manufacturing capability
Durand (1997)	"Competence gap" relatively to existing or potential competitors by analyzing each of the main functions (R&D, purchasing, manufacturing, marketing, distribution, general management): (1) Stand-alone assets (2) Cognitive capabilities (3) Processes and Routines (4) The Organizational Structure (5) Behavior and Culture
Henderson and Cockburn (1994)	Component competence (local abilities and knowledge): resources, knowledge and skills Architectural competence includes collective knowledge, capabilities, integrative capabilities, invisible assets, dynamic capabilities, managerial systems, combinative capabilities, values and norms, and organizational architecture.
Hafeez et al. (2002)	A structured framework for identifying key competencies using the

	analytic hierarchy process: Step 1: Identify performance indicators and map company competencies. Step 2: Use AHP to evaluate performance contribution. Step 3: Identify key capabilities

The current identification and measurement of core competencies can be categorized as activity-based and skill-based. Prahalad and Hamel (1990) put forward three criteria for evaluating core competence: (1) Expansibility. Core competence enables firms to get the possibility to enter a broad market. (2) Value, that is, core competence can provide users with the value perceived from the final product. (3) Imitativeness, which means that for the competitors core competence is not easy to imitate.

In addition, the value chain analysis of the core competence of a firm is actually activity-based. A company is a system of activities rather than a simple combination of individual products or services. Activities that are critical to the final product or service and perform better than the competitors can be referred to as core competencies (Acharyulu & Shekbar, 2012). A subtle but important difference between core competence and activity is that the activity is engaged in by the firm, while the core competence is owned by the firm. Value chain analysis is a very useful tool, which can effectively analyze which activities are important for the acquisition of CA in all activities of firms, and explain how to organize a series of activities to build CA (Porter, 1985). We can use value chain analysis to effectively identify the activities that play a key role in the adding value to the products. Core competencies are key value-adding activities that can be carried out at lower cost compared with the other competitors. It should be noted that these unique continuous activities constitute a company's core competencies.

2.3 Studies on resources structure

2.3.1 Connotation of resources structure

Different scholars have different definitions of resources. Wernerfelt (1984) believes that strengths or weaknesses of a firm come from organizational resources, human resources and physical resources. Barney (1986b) made an important contribution to RBV, arguing that not all resources are related to strategy. Some resources will hinder the formulation and implementation of valuable strategies, some resources will reduce the efficiency and effectiveness of strategy formulation and implementation, and some resources may have no impact on the strategy of firms. Therefore, Barney (1991) believes that the resources may include firm attributes, organizational processes, information, knowledge, capabilities, all

assets, and also divides them into different categories, namely organizational resources, human resources and physical resources.

Some scholars define resources in a narrow scope. For example, Daft (1983) considered resources to be the factors controlled by firms. In addition, they can be used in strategies, so as to promote the effectiveness and efficiency. In Grant (1991), resources are actually the input factors of some related production processes. Includes capital equipment, employee skills, patents, brands, and financials. He divided resources into six categories: organizational, human, technical, financial and physical resources and reputation. Furthermore, Grant (1991) argues that there is obvious difference between capabilities and resources. Actually, few resources are productive. Only the coordination and combination of various resources can play the role of production activities. The organizational processes and methods that combine resources to accomplish activities are capabilities. Amit and Schoemaker (1993) also consider that resources are all the input factors controlled or owned by the enterprise, including all the intangible and tangible factors that can effectively participate in the production process of services and products, so as to meet the needs of the customer. They believe that resources may be gradually transformed into the end services or products, through the other assets and mechanisms, like incentive system, management information system, technology, as well as the trust between workers and managers. Different from the definition of resources, Amit and Schoemaker (1993) believe that capability is ability to allocate various resources (generally through the use and combination of processes) to achieve the desired goal, and it is a unique information-based intangible or tangible process formed through long-term complex interaction among resources of firms. From an abstract perspective, it is an "intermediate product" formed by enterprises to promote strategic flexibility and improve resource productivity, and effectively protect their final services and products.

From the above discussion on the concept of resources, it can be seen that strategic resource scholars do not have a unified definition and classification of firm resources, which is reflected in the following four aspects: Firstly, there are differences in the understanding of the essential attributes of resources. For example, Wernerfelt (1984) believes that resources must be owned by the related enterprise, while Amit and Schoemaker (1993) believe that essential properties of resources are not "owned" but "available", that is, the resources is owned or controlled by firms. Secondly, there are differences in the understanding of resource utility. For example, Wernerfelt (1984) believes that firm resources may bring both advantages and disadvantages to firms, while Barney (1991) believes that only those that can promote the effectiveness and efficiency of the implementation and formulation of strategy are resources. Thirdly, there are

differences in the understanding of the category of resources. For example, Amit and Schoemaker (1993) believe that these resources are actually stocks, while other scholars do not emphasize the constraint of stocks. Fourth, there is no unified understanding of the classification of resources. The classification of firm resources is a further refinement of the concept of resources. When there are different definitions of resources, it is almost inevitable that there is no unified classification of resources. Some scholars classify resources according to their uses, and some scholars classify resources according to visibility indicators, classifying them into the intangible and tangible resources.

For traditional RBV, it defines the source of CA as concrete resources, which is completely separated from the human factors in the firm, resulting in the separation between resources and resource allocators. In fact, the effectiveness of physical resources depends entirely on the people who use them. Behind the heterogeneity of resources is the heterogeneity of people. Prahalad and Hamel (1990) put forward the basic concept of the core competence of firm, and then argued that a firm is essentially a collection of capabilities, but not all capabilities can form the CA. It should be noted that only the core competence should be regarded as its source. In the opinion of KBV (Grant, 1997), knowledge of the firm and the cognition closely related to the knowledge determine the capabilities of the firm. Under certain circumstances, it is the inherent nature of knowledge that leads to the core rigidity of firms. Moreover, a firm is actually a collection of knowledge. The social knowledge or collective knowledge contained in the firm's organization constitutes the source of long-term CA (Kogut & Zander, 1992; Spender, 1996).

2.3.2 Measurement of resources structure

The RBV puts forward that the capabilities and resources are fundament to obtain SCA for a firm, but it does not specify what kind of resources and capabilities can fundamentally enhance SCA (Grant, 1996a). KBV further points the source of core competence and CA to the knowledge elements like experience, know-how and skills of firms, and holds that firms are a knowledge-creating entity, which have certain value and are difficult to be substituted and imitated. In addition, they are the key of building core competence and gaining CA (Grant, 1996a).

Because of the invisibility and diversity of knowledge itself and the complexity of human cognitive system, it is not easy to measure the knowledge resources of firms. At present, there is no unified dimension of knowledge resources. Carolis and Deeds (1999) measured

knowledge resources by external knowledge resources and internal knowledge resources. Knowledge resources are classified into knowledge stock and knowledge flow, also are classified into both explicit and tacit knowledge. However, it ignores the role of the related knowledge carriers, and then according to the types of knowledge carriers, Nonaka and Toyama (2003) classified the knowledge resources into group knowledge and individual knowledge.

Gupta and Govindarajan (2000) focus primarily on the procedural types of knowledge transfer (such as distribution know-how and product design) rather than the declarative types of knowledge transfer (such as monthly financial data). Procedural knowledge is the knowledge about skills, cognitive operations and how to do things, that is, the knowledge of "know how", which is often hidden behind actions and difficult to express in words. Procedural knowledge can be represented by the actual action of performing tasks, and it is actually difficult to formalize to organize and articulate the transfer process between the related organizational contexts (Nonaka & Takeuchi, 1995), thus satisfying the RBV requirement of being inimitable and rare. In addition, if it is irreplaceable and valuable, then it may bring a continuously effective CA to the enterprise. Market and technical knowledge are both procedural knowledge because they can accurately identify opportunities and effectively use them, on this basis, significantly affect the final performance (Wiklund & Shepherd, 2003). Following Gupta and Govindarajan (2000), Wiklund and Shepherd (2003) measured the firm's knowledge position relative to its competitors on a 7-point scale (see Table 2.3).

Table 2.3 Selected measurement of knowledge resources position

Author	Measurement
Gupta and Govindarajan (2000)	Knowledge (here refers to the procedural types of knowledge) flow data were collected on the following seven items: (1) distribution know-how (2) marketing know-how (3) packaging design technology (4) product designs (5) purchasing know-how (6) process designs (7) management systems and practices
Wiklund and Shepherd (2003)	Compared to the companies in your industry, the position in terms of: employees who are actively committed to the development of the company (1) highly productive staff (2) technical expertise (3) expertise in product or service development (4) innovative markets (5) expertise in management (6) expertise in customer service (7) expertise in marketing (8) employees received the required good education and can provide (9) satisfactory services to customers

	(10) employees who are willing to provide some creative ideas for new services or products (11) employees who can effectively market the services or products

2.4 Related studies on opportunities

2.4.1 Connotation of opportunities

Opportunity is a key concept in entrepreneurship research, however there is still no common understanding on the measurement, nature and definition of opportunity (Gruber et al., 2012). There are questions that stand out in these controversies: Do entrepreneurial opportunities include profit opportunities? Are entrepreneurial opportunities subjective or objective? Is there any difference in the company's newness in terms of identifying and utilizing opportunities? Is there a difference in the company's ability to identify and utilize opportunities?

Some scholars believe that entrepreneurial opportunities are different from profit opportunities. They emphasize that entrepreneurial opportunities need to discover new ends-means relationships (ways to restructure resources), while profit opportunities only optimize the existing ends-means relationships (Shane & Venkataraman, 2000) and make full use of means to achieve ends (Kirzner, 1973). For example, Casson (1982) pointed out that entrepreneurial opportunities was the related situations in which new goods or services, organizational methods as well as raw materials, could be successfully introduced and sold out at prices higher than the corresponding production costs. In contrast, Gaglio (2004) argues that opportunity is the possibility of introducing innovative processes , services or goods into a market or industry. Different from the above, some scholars believe that entrepreneurial opportunities include profit opportunities. For example, Singh (2001) believes that entrepreneurial opportunity should be defined as a situation in which a viable pursuit of profit is achieved by improving an existing product and service, imitating a profitable product or service in the unsaturated market, or offering a new service or product to the related market. Smith et al. (2009) define entrepreneurial opportunities more specifically as the pursuit of profit situations in less saturated markets by offering innovations, imitating or improving products, and organizing methods to take advantage of market inefficiencies

Some scholars believe that opportunity is subjective or socially constructed, while others believe that perception of opportunity is subjective while opportunity is objective (McMullen et al., 2007). They emphasize that entrepreneurial opportunities are different from business ideas. Entrepreneurial opportunities are objective, while business ideas are subjective. Shane

(2012) argues that an entrepreneurial opportunity is a situation that has the potential to recombine resources in a way that may generate profits, and the business philosophy mainly refers to integrating various resources by pursuing opportunities. Similarly, Smith et al. (2009) argue that entrepreneurial opportunity as information related to the viable profit-seeking market inefficiencies. Since information is a contextual concept, exogenous to the entrepreneur but accessible to the entrepreneur (Gielnik et al., 2012). Here, the objectivity of opportunity is emphasized.

Based on the works of Casson (1982) and Shane and Venkataraman (2000), Eckhardt and Shane (2003) put forward the definition of entrepreneurial opportunities, that is the situations in which, through the formation of new means-ends relationships, new production factors or goods may be introduced. This is actually the most relevant to our study among these different views. By the definition, an entrepreneurial opportunity is essentially a means-ends relationship that leads to new value creation. The "ends" refers to the market to be served or the demand to be satisfied, which is expressed as the final product or service; the "means" refers to the way to serve the market or satisfy the demand, which is expressed as the elements, processes and systems of value creation activities used to supply the final product or service (Eckhardt & Shane, 2003). Opportunities are different in nature and can come from new markets and technologies (Teece, 1998) or from innovative activities (Holcombe, 2003).

Specifically, there are two main forms of changes in the combination of supply and demand in the economic system, which can breed different entrepreneurial opportunities. The first one is creative change. The introduction of exogenous factors such as new technology, new raw materials and new knowledge fundamentally changes the combination of supply and demand, and produces new information about the different methods of resources allocation. In this form of change, those market entities who have early access to new information use the new supply and demand combination, that is, using new means to provide new products or services, thus harvesting the entrepreneurial rent. That is to say, entrepreneurial opportunities come from creative change, which means discovering new "means-ends" relationships. Once entrepreneurs discover and exploit such entrepreneurial opportunities, they will quickly subvert the existing "means-ends" relationship, thus breaking the equilibrium of the economic system and promoting it to restore equilibrium at a higher level through "creative destruction".

The second change is the optimization of resource allocation within the framework of existing supply and demand relationship proposed by the Austrian school. In the market system, any individual has specific knowledge and asymmetric information that is difficult for others to obtain, and thus forms heterogeneous beliefs about resource value. Information asymmetry

and heterogeneity beliefs mean that in any market transaction one must guess others' consciousness and perceptions. Because these guesses may be incorrect, market entities may make wrong decisions, leading to inefficient allocation of resources in the supply-demand combination, thus generating entrepreneurial opportunities. The low efficient entrepreneurial opportunity from the combination of supply and demand is essentially the partial optimization of the existing " means-ends " relationship.

Based on the above discussion, it is not difficult to find that entrepreneurial opportunities are essentially a "means-ends" relationship that can bring new value creation. On the basis of relevant capabilities and resources of enterprises, enterprises can create or find entrepreneurial opportunities. Different entrepreneurial opportunities have different degrees of newness.

2.4.2 Degrees of opportunity newness

Firms that discover and exploit opportunities vary in terms of degree of newness (Dahlqvist & Wiklund, 2012). Most observers do not pay attention to the daily fine-tuning of the economic system (Hayek, 1945). At the same time, some daily fine-tuning is very imaginative (Mises, 1949). The problem about the difference of newness degree rarely appears in the previous research literature (Dahlqvist & Wiklund, 2012).

Until now, consensus on the meaning of "newness" has not yet reached. Some scholars use different terms to mean newness, such as innovativeness (Danneels & Kleinschmidt, 2001) or innovation (Johannessen et al., 2001). Damanpour and Wischnevsky (2006) regard "newness" as an inherent property in all definitions of innovation. Rogers (1995) defines a new product as the degree to which it is divorced from the existing capabilities, resources and systems. Semasinghe and Davidsson (2009) put forward the definition on newness, and they indicate that it was the novelty of risk ideas in the expected market, which is the view adopted in this study.

Choi and Shepherd (2004) argue that newness represents a first-mover advantage that helps a firm differentiate itself from its competitors. Some companies emerge as market imitators, while others bring innovation to market. For the novelty continuum, the two poles include imitation and innovation (Aldrich & Martinez, 2001), and Samuelsson (2004) studied the process differences between innovators and imitators.

The attributes of entrepreneurial opportunities from different changes are different. First, different entrepreneurial opportunities correspond to different degrees of newness in the "means-ends" relationship. To all the market participants, an entrepreneurial opportunity may

be new, or it may be new only to entrepreneurs who exploit it. It may involve creating a market that does not yet exist using an untried means, or introducing better means to produce an existing product; it may simply copy commonly used means to develop market needs that have not yet been fully met. According to the clarity of the "means-end" relationship, entrepreneurial opportunities are divided into replication opportunities (both means and ends are clear), improvement opportunities (one side of the "means-ends" relationship is not clear) and innovative opportunities (both means and ends are not clear). Furthermore, it is pointed out that the newness degree of innovative opportunities (both means and ends are not clear) is the highest, while the newness degree of replicative opportunities is the lowest, and the improved opportunities are randomly distributed between these two types of opportunities.

In addition, the difference in the degree of newness implied by different entrepreneurial opportunities means that the corresponding level of uncertainty is also different. Knight (1921) argue that the real difference between risk and uncertainty is that, in the former case, the distribution of outcomes is known over a set of cases (either through a calculated prior probability or the statistics of past experience), whereas, in the latter case, the distribution of outcomes is unknown because the uniqueness of the situations involved is very high, so the cases are impossible to be classified. In Knight's view, the risk can be measured, quantified and imagined, and the uncertainty is impossible for the decision-making subject to calculate or imagine the possible results. Researchers have found that very few innovative opportunities correspond to Knightian uncertainty. Because it is not only impossible for entrepreneurs to predict where the future market will be, but also impossible for them to predict the future of entrepreneurship without knowing what means to provide products or services.

Influence of opportunity newness on enterprise’s performance has been investigated. Existing studies have pointed out that when the opportunities exploited by new firms are highly innovative, their services or products are distinct from those of the others, which helps them to establish CA, and this new service or product with certain differentiation can help new firms build barriers to avoid being imitated or duplicated by others in order to obtain higher performance returns (Semasinghe et al., 2011). Some scholars have also found that the innovation is helpful to improve the organization's survival (Cefis & Marsili, 2006; Rhee et al., 2010). As the core feature of opportunity, opportunity newness has various forms of expression, among which innovative products or services provided by firms are the most important embodiment of opportunity innovation (Hyytinen et al., 2015). When enterprises provide products or services with high novelty to the market, it is conducive to their rapid market recognition and avoiding direct competition with the existing market. Therefore, if a new

company has more innovation opportunities, it will have higher potential value, which will actively promote the organization to obtain higher performance returns. At the same time, Semasinghe et al. (2011) proposed that opportunity newness can also be reflected through the innovation of marketing mode and production mode. New firms adopt more novel marketing or production mode, can attract more attention of the market and reduce costs to improve the performance; In addition, exploitation of related opportunities with a high degree of innovation, especially creative opportunities, can even create demands for customers, enjoy the market alone and establish a monopoly position, thus creating higher performance for firms (Boyer & Blazy, 2014; Rosenbusch et al., 2011).

2.4.3 Measurement of opportunities

Entrepreneurial opportunities have become the core concept in the research field of entrepreneurship. Understanding of both the source and nature of entrepreneurial opportunities is still in the exploratory stage. Until recently, scholars have gradually realized that not all opportunities are the same, and the differences between entrepreneurial opportunities are rooted in the different levels of newness, and they have begun to explore the measurement methods and index system of the innovative level of entrepreneurial opportunities. Based on the related results, some researchers rely on the objective measurement ideas, attempting to characterize the innovative level of entrepreneurial opportunities by measuring observable indicators like the R&D investment and the number of patents of the new ventures. The reason is that the above factors have become recognized indicators which can measure the actual level of organizational innovation. Other researchers prefer subjective measurement, emphasizing that evaluation of the uniqueness of ventures' services or products from the entrepreneurs and the competitive pressure can measure the level of newness of entrepreneurial opportunity. Because the uniqueness of product or is often used to project the level of innovativeness of non-technical sectors in the organization, the competitive pressure coming from new services or products is correspondingly low.

Unfortunately, although the above two measurement ideas can measure the innovative level of entrepreneurial opportunities from their own perspectives, any single measurement idea cannot reveal the whole picture of the innovative level of entrepreneurial opportunities. The reason is that, since entrepreneurial opportunity is a "means-ends" relationship with potential value creation, the difference of innovative level of entrepreneurial opportunity should show inherent consistency in both means dimension and ends dimension. Only measures of means

characteristics (number of patents, research and development investment) or ends characteristics (uniqueness of product or service, competitive pressure) cannot fully reflect the connotation of the concept of entrepreneurial opportunity. Correspondingly, Samuelsson (2004) took the lead in trying a comprehensive index measurement method combining objective measurement and subjective measurement in his doctoral dissertation. Specifically, he measures the innovative level of entrepreneurial opportunities by the following dimensions, namely the level of competitive pressure, the uniqueness of products or services, the importance of patents and the R&D intensity priority. By statistically analyzing of the related survey data, Samuelsson (2004) finally realized the classification of entrepreneurial opportunities, and found that 88% in his sample were replicative opportunities with low innovative level, and the remaining 12% were innovative opportunities with high innovative level, which achieved a good measurement effect.

2.5 Related studies on resources bundling

2.5.1 Connotation of resources bundling

The so-called resource management mainly refers to a complete process of gradually building a resource portfolio, bundling resources, building relevant capabilities, creating corresponding value for owners and customers, and continuously maintaining it (Sirmon et al., 2007). Throughout the process of resource management, bundling refers to the formation process of capabilities, and bundling is at the heart of resource management.

Resource bundling is a process the firms obtain the needed resources and then bund the related resources to form capabilities. The resources are integrated to form capabilities, and each capability is formed by the integration of specific resources. In the integration process, the firm takes specific actions (such as marketing, R&D) to create value for the customers. Actually, the integrating process of various resources means that firms achieve their strategic objectives by allocating and adjusting resources, which bunds the complementary resources of the organization together. After a very complex interaction between intangible resources and tangible resources, resource bundling will form a certain capability. In addition, the specific capability created by this is beneficial for firms to maintain SCA.

Different scholars have made different dimensions of resource bundling in different terms for different research purposes. Some scholars divide resource bundling into two dimensions. Kogut and Zander (1992) thought that combinative capabilities could be divided into two

dimensions by examining the reasons for the existence of firms: On the one hand, based on existing knowledge to develop new uses; On the other hand, effectively identify and develop some potential knowledge or technologies based on the company's capability portfolio. Iansiti and Clark (1994) analyzed the capability building process of firms in the context of product development, and believed that technology integration capability was related to two main factors. One is the ability to generate and capture specific knowledge of the interaction between existing systems and new technologies, and the other refers to the ability of using specific knowledge to select some new possibilities and adapting existing resources to well support the future products and production systems. Cheng and Kesner (1997) divided resource allocation into two types: the one that can enhance external market effectiveness and the another one that can enhance internal efficiency, and pointed out that whether a firm emphasizes the development of external market opportunities or the improvement of internal operation efficiency, both can be the basis for its participation in the competition. Zhang et al. (2011) divided resource allocation into resource selection and resource sequencing based on the process perspective. The resource allocation through multi-objective decision-making aims at allocating the appropriate resources to the subtasks of the supply chain, so the two subproblems of selecting alternative resources to complete the subtasks of the supply chain and making resource allocation plans according to the sequencing of resources should be solved successively or simultaneously. Some scholars divide resource integration into three or more dimensions. For example, Kraaijenbrink et al. (2007) divided knowledge integration into three dimensions: knowledge identification, knowledge acquisition and knowledge utilization. According to Wiklund and Shepherd (2009), resource combination activities include resource acquisition, development, accumulation and usage. The more firms pay attention to resource combination activities, the more they can enhance the ability of resource bundling, so that they are likely to achieve greater resource synergies.

Following the research of Sirmon et al. (2007), in some research literature, the resource bundling process is divided into the following aspects, namely, stabilization, pioneering and enrichment. For this process, the most important thing is to gradually and slightly improve the current capabilities, and at the same time, effectively maintain the existing capabilities, so that the CA can be fully maintained on this basis. The enriching bundling process requires restructuring the present resources (i.e., skills and knowledge), not just to maintain, but to expand and elaborate the firm's existing capabilities. The pioneering bundling process integrate new resources into existing resources, recombine resources in some novel ways, as well as create and develop some capabilities. This classification is generally accepted and is the one

used in this study.

2.5.2 Influence factors on resources bundling

Entrepreneurial activities cannot take place in a vacuum and are bound to be disturbed by the external environment, so many scholars try to explore how the external environment affects the resources bundling of entrepreneurial firms. From the existing research, some researchers have gradually attached importance to the important role played by environmental characteristics in resource integration.

Most scholars in the research on environmental characteristics pay attention to environmental uncertainty and environmental munificence (Stoel & Muhanna, 2009), where the former refers actually to the unexpected environmental changes, including the entry or exit of competitors, changes in customer demand and technological upgrading (Boyne & Meier, 2009). Environmental munificence refers to both the degrees of competition and resources in the environment, and the support for the growth of the firm (Stoel & Muhanna, 2009).

On the basis of the level of environmental munificence and environmental uncertainty, we can divide the environment into four situations: high munificence and high uncertainty (quadrant I); High munificence and low uncertainty (quadrant II); Low munificence, low uncertainty (quadrant III) and low munificence, high uncertainty (quadrant IV).

According to RBV, the environment with high munificence provides firms with sufficient resources and more opportunities (Boyne & Meier, 2009). the environment with low uncertainty indicates that the market demand changes slowly, the technology updates slowly, and firms can easily predict the behavior of competitors (Stoel & Muhanna, 2009). It can be seen that this kind of environmental situation is an ideal environment, no matter what way firms take to integrate resources, they can give full play to the value of resources, and then improve the performance of the firm. In addition, in such an environment, firms often establish long-term strategic goals, which can be matched by stable resource integration. By fine-tuning existing resources and maintaining existing capabilities, firms can achieve lasting profits through stable development. On the other hand, in such an environment, enriching and pioneering resource bundling can also help firms improve their performance. Creating new capabilities, introducing new resources or innovatively integrating existing resources can enable firms to capture market opportunities ahead of their competitors and thus improve their performance (Sirmon et al., 2007).

The environment with low munificence indicates insufficient resource supply in the

environment, or fewer ways for firms to obtain resources from the environment, and fierce competition in the environment makes it difficult for firms to grasp opportunities (Boyne & Meier, 2009). The environment with high uncertainty is characterized by rapid market changes and frequent technological updates, which makes it difficult for firms to obtain relevant information (Stoel & Muhanna, 2009). It can be seen that the environment with low munificence and high uncertainty is a very unsatisfactory environment for firms. In such an environment, if a firm adjusts its resources steadily, it can only maintain its existing capabilities, but it is difficult to quickly form new capabilities to better cope with changes in ambient conditions, nor can it flexibly respond to the behavior of competitors (Sirmon et al., 2007), thus it may ultimately result in a decline in the performance of firm. In addition, under such environmental conditions, the firm will not be able to effectively obtain relevant resources, and the resources they owned will gradually be exhausted, so in the long run, stable resource integration is likely to lead to a decline in firm performance (Aldrich & Wiedenmayer, 1993). According to the above analysis, the creative integration of resources in this environment is conducive to the success of entrepreneurship and the improvement of firm performance (Aldrich & Wiedenmayer, 1993). Faced with the rapidly changing market environment and the rapid upgrading of technology, firms need to create new capabilities to cope with adverse environmental situations, which requires firms to innovatively integrate existing resources or acquire some new resources (Sirmon et al., 2007). Studies have found that enriching or pioneering bundling process can give full play to the maximum value of resources, which is conducive to firms to seize opportunities in time, thereby improving firm performance (Denrell et al., 2003).

For different firms, their environments will be different in terms of uncertainty and richness. Moreover, the external environment will have a certain degree of impact on the potential value of their capabilities and resources. According to the above analysis, the value creation based on resource management will be affected by external environmental conditions.

In addition, in the real business environment, firms generally face resource constraints and high uncertainty of the internal and external environment, only through uncertainty and munificence cannot accurately reflect the actual business environment of firms. The innovative opportunity is always the core issue for the growing process of the firms, and it is very important factor that affects the way of resource integration, but there is little theoretical research on it. This study tries to make some contribution in this area.

2.5.3 Measurement of resources bundling

Tsai and Ghoshal (1998) believe that resource integration can be measured by examining the degree of exchange and combination of information, products, personnel and support within firm's operations. Zahra and Nielsen (2002) argue that integration can be measured from both formal and informal aspects, including the coordination of R&D, marketing and production departments, the maintenance of formal communication channel, encouragement of free exchange of operational and financial information, involvement of marketing and production departments in development of new technologies or products, the focus on building informal relationships to accomplish a task, and the maintaining of open lines of communication during operations.

On the basis of Sirmon et al. (2007), Yi et al. (2016) devised a scale to measure enriching, stabilizing and pioneering the bundling process (see Table 2.4).

Table 2.4 Items for resource bundling measurement

Factors	Items
Stabilizing bundling	Our firm maintains proficiency in its existing capabilities by: (1) Slightly adjusting the resources mix. (2) Restoring weakened resources. (3) Investing in the resources supported. (4) Maintain the original basic resources.
Enriching bundling	Our firm promotes the proficiency of the existing capabilities in the following ways: (1) Improving its resources, such as machines, employees. (2) Replacing resources with gradually higher quality resources. (3) Using the dynamic resource mix to add more high-quality resources. (4) Using the resources in a more efficient way.
Pioneering bundling	Our firm expands some new capabilities in the following ways: (1) Bundling complementary, new resources together. (2) Recombine resources in novel ways. (3) Effectively combine current resources with other valuable new resources.

Source: Sirmon et al. (2007) and Yi et al. (2016)

2.6 Studies on SE

2.6.1 Connotation of SE

For entrepreneurship and strategic management, they both emphasize that enterprises create wealth by taking advantage of the uncertainty of external environmental conditions. Generally, enterprises can use the external environment to effectively identify some opportunities, and gradually form a certain CA on this basis, thus creating wealth. Thus, SE is the result of the effective integration of strategic management and entrepreneurship (Ireland et al., 2003).

Hitt et al. (2001) define SE as following: the so-called strategic entrepreneurship refers to the entrepreneurial process with a certain strategic vision. They further explain that, according to Venkataraman and Sarasvathy (2000), the entrepreneurial action refers to the "Romeo of the balcony". We can consider that it must be the strategic actions with entrepreneurial thinking. As a result, we can see that SE is a combination of strategy (such as advantage-seeking behavior) and entrepreneurship (such as opportunity-seeking behavior) to take actions aimed at the creation of wealth.

Based on the two important wealth creating activities of entrepreneurship and strategy, Ireland et al. (2001) proposed 6 domains of SE from the perspective of intersection of strategic management and entrepreneurship, including top management team and growth, internationalization, networks, organizational learning, innovation, and growth.

Of these six, Hitt et al. (2001) comprehensively examined and analyzed a series of fields directly related to their research (mainly involving internationalization, innovation, resource and organizational learning, and external networks

1. External networks

They involve relationships with customers, suppliers, and competitors. External networks can provide enterprises with important access to technology, market, resources and information. In addition, they can also enable participants to obtain the necessary legitimacy and credibility and are a source of information for entrepreneurial firms to identify potential opportunities.

2. Resources and organizational learning

Following Penrose (1959), many strategic management scholars, such as Wernerfelt (1984), Barney (1986a, 1991), and Rumelt et al. (1991), emphasized the important role of resources and capabilities. Furthermore, they also pointed out that these factors are indispensable sources of CA. Among them, knowledge resources and human resources are particularly obvious (Grant, 1996b). Knowledge can be obtained through organizational learning, which is found to be important for the performance of firm.

3. Innovation

When enterprises compete effectively in domestic or foreign markets, innovation is a very critical factor. In addition, it is also the most important component of enterprise strategy (Hamel, 2000). Successful innovation can provide a firm direction for the evolution of an industry. Innovation has close relationship with entrepreneurship. In addition, it is also very important dimension of entrepreneurship orientation.

4. Internationalization

In the 21st century, internationalization has gradually become an important driver of CA.

With the development of transnational economy and trade, the degree of internationalization will continue to improve. While globalization has increased business complexity, it has also enhanced entrepreneurial opportunities. Internationalization can improve firm performance, suitable for both the SMEs and the large corporations.

The research field of SE clarified the intersection trend of strategy and entrepreneurship, and proposed that whether new ventures or established firms want to achieve sustainable growth, they should also lay emphasis on the importance of strategy and entrepreneurship.

2.6.2 Structural dimensions of SE

SE originates mainly from the integration of strategic management and entrepreneurship knowledge. It is both a strategic activity and an entrepreneurial activity. Therefore, it has the characteristics and elements of both entrepreneurial and strategic activities. On the basis of chaos management, Eisenhardt et al. (2000) proposed that through the six important processes, that is, time pacing, experimentation, regeneration, patching, coadaptation and improvisation, it can make entrepreneurship a standard process of strategic practice. On the basis of previous research, Ireland et al. (2003) further constructed a SE conceptual model (as shown in Figure 2.1) to illustrate the way that related dimensions integrate each other to create wealth.

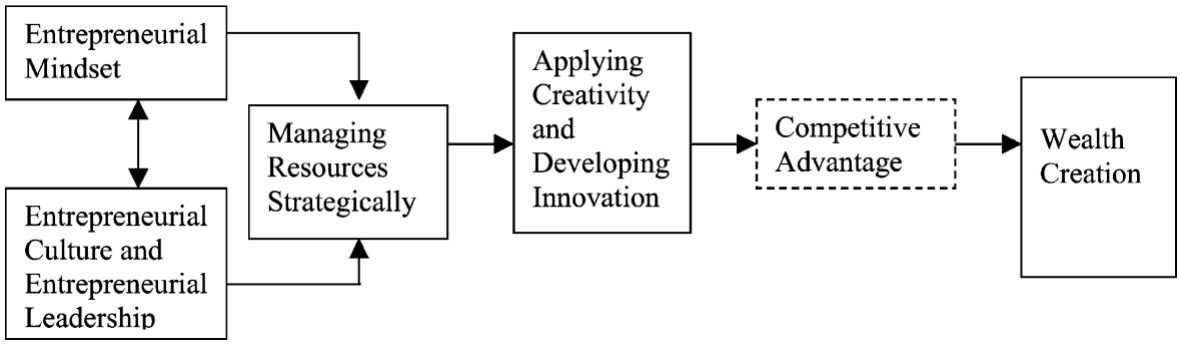

Figure 2.1 The four stages model of strategic entrepreneurship

The important dimensions of SE include developing innovation and applying creativity, managing resources strategically, entrepreneurial leadership, entrepreneurial culture, and entrepreneurial mindset. They interact to explain how the advantage-seeking behavior and opportunity-seeking behavior combine with each other, then synthesize and finally result in wealth creation.

1. Entrepreneurial mindset

Entrepreneurial mind is the sense of gaining profit from uncertainty, representing the behavior of pursuing interests and uncertainty, and also the way individuals or all personnel of firms think and act with entrepreneurial thinking (Covin & Slevin, 2002). It includes

entrepreneurial alertness, real options, entrepreneurial framework and entrepreneurial opportunity. Among them, the entrepreneurship framework consists of many activities like establishing an opportunity register, setting goals, and deciding when to launch a strategy to exploit entrepreneurship opportunities.

2. Entrepreneurial leadership and culture

Organizational culture is actually a common system of both beliefs and values, which forms the behavior norms of firms and affects the cognitive framework of how organizational members view the competitive landscape of the firm and how they perceive problems (Johnson, 2002). Effective entrepreneurial cultures encourage risk-taking, expect creativity and new ideas, promote learning, tolerate failure, and promote innovation in products, processes, and management. As a result, an entrepreneurial culture can foster and support a continuous exploration for opportunities to build a SCA (McGrath & MacMillan, 2000). Leadership has a responsibility to develop and nurture a corporate culture that enables the successful use of SE. Entrepreneurship focuses on finding opportunities and advantages, including six aspects: developing entrepreneurial capabilities, protecting innovation, understanding opportunities, questioning the dominant logic, re-examining "surface problems", and combining entrepreneurship and strategic management.

3. Managing resources strategically

There is evidence that the differences in the performance of firm are affected by the resources controlled or owned by firms, and how firms manage those resources. Strategic management of resources involves the following aspects, namely building portfolios of resources, bundling resources into capabilities, and subsequently making good use of the related capabilities. Previous research indicates that the effective construction of resource pool, resource integration and leveraged use of resources are helpful to achieve high performance. Therefore, according to SE, when the utilization and allocation of resources promote the integration of advantage seeking and opportunity seeking, it is the strategic management of resources (Ireland et al., 2003).

4. Applying and developing innovation

Innovation includes sustaining innovation and disruptive innovation. It is the process by which enterprises react or act in the exploration of new opportunities in the free market. Creativity is increasingly important as the basis for innovation, affecting the quantity and quality of disruptive and sustaining innovations, and is supported by strategic management resources. The integration and balance between sustaining innovation and disruptive innovation is an important feature of SE (Ireland et al., 2003).

Luke and Verreynne (2006) further distinguished the six supporting elements (namely, application and transfer of knowledge, operational excellence, cost efficiency, branding, strategy and culture) and six central elements of SE (namely, innovation, vision, flexibility, acceptance of risk, opportunity identification, and growth). It is believed that the set of these core elements represents a relatively independent concept of SE, and that SE requires a dynamic balance among various elements, so that CA can be established and maintained. It can be seen that the dimensions of SE are centered on the two main lines of advantage seeking and opportunity seeking, which are the dynamic combination of different elements in these two aspects.

2.6.3 Influence factors on SE

Since SE effectively integrates strategic management and entrepreneurship, the factors that affect these two factors may undoubtedly affect the related process of SE. The main influencing factors on SE are as follows.

1. Environmental factors

Environmental uncertainty not only brings threats to strategic entrepreneurial activities, but also generates a lot of opportunities. Entrepreneurial opportunities come from uncertainty, so they can be identified and pursued through entrepreneurial activities (Hitt et al., 2002). However, Timmons (1999) believes that the entrepreneurship is full of risks and uncertainties. Therefore, if we start a business from a strategic perspective and grasp the environmental uncertainty, it is of great benefit to find and utilize most suitable opportunities. Because potential opportunities may persist for a relatively reasonable period of time, entrepreneurship can help an organization build a CA by strategically exploiting opportunities after identifying them.

2. Resource factors

The research results show that although firm performance varies with different industries, compared with industry characteristics, the utilization of heterogeneous resources may have greater impact on the performance of firm. Therefore, heterogeneous resources which are hard to substitutable and imitate , rare and valuable, are the source of establishing and maintaining the CA (Barney, 2001a). Although entrepreneurship is the act of pursuing entrepreneurial opportunities without being limited to current resource conditions (Stevenson & Jarillo, 2007), it is impossible to engage in entrepreneurial activities without sufficient resources.

3. Entrepreneurs and teams

Entrepreneurship is a micro-behavior process dominated by entrepreneurs, and the

heterogeneity of entrepreneurs naturally determines the differences of entrepreneurial behavior to a certain extent. The resource endowment of entrepreneurs is the key factor throughout the whole process of entrepreneurship, and even determines the resource attributes of new ventures to a large extent. Therefore, entrepreneurship is also an opportunity-driven behavior process based on the evolution of entrepreneurs' resource endowments. Entrepreneurs and the team are the organizers and executors of the entrepreneurial activities. In addition, the willpower or intention of entrepreneurs acts as the catalyst to promote entrepreneurial activities (Bygrave & Hofer, 1992). In the process of SE, they provide strategic vision and entrepreneurial mental for entrepreneurship, create entrepreneurial culture, implement entrepreneurial leadership, combine entrepreneurship with strategic management organically, make strategic activities more entrepreneurial spirit, and make entrepreneurial activities more directional and sequential. The quality of entrepreneurs and teams determines the level and effect of SE.

4. Life cycle of enterprises

From the perspective of enterprise life cycle, Holt (1992) believes that the entrepreneurial process will go through four stages, and the activities and priorities of each stage are different. In the pre-entrepreneurial stage, the entrepreneur should do a good job of business planning and preliminary work, including raising funds and establishing the enterprise; in the entrepreneurial stage, the entrepreneur needs to confirm the market position of the enterprise and make appropriate adjustments to assure the survival of the new ventures; in the early growth stage, the entrepreneurs need to cope with changes in the market, capital and resources needed; In the late growth stage, entrepreneurs should build a professional managerial system to improve the effectiveness and efficiency of new business activities. In short, according to the stage of entrepreneurial activity cycle, SE can be clear about the purpose and direction of entrepreneurship, as well as when and how to carry out entrepreneurial activities and choose which potential opportunities to develop to form new CA.

2.6.4 Perspectives on SE research

In recent years, scholars have further expanded the SE research, improved the understanding of SE, and made many new achievements worthy of attention. This thesis reviews the existing research on SE from different perspectives.

1. Entrepreneurship perspective

The perspective of entrepreneurship mainly studies the relationship between various factors in the process of entrepreneurship and SE. Ireland et al. (2009) argue that knowledge in the

field of corporate entrepreneurship is fragmented and inadequate. They summarize and integrate the key factors of corporate entrepreneurial strategy, and construct a new conceptual model for corporate entrepreneurial strategy. This model includes: (1) the premise of corporate entrepreneurial strategy, which refers to the individual entrepreneurial cognition of employees and the external environmental conditions affecting their entrepreneurial behavior; (2) the components of corporate entrepreneurial strategy, which refers to the entrepreneurial strategic vision proposed by executives, the organizational structure supporting entrepreneurial process and behavior, and the shared mode of entrepreneurial process embodied in employees' entrepreneurial behavior; (3) the results of corporate entrepreneurial strategy, which refers to the organizational results produced by entrepreneurial behavior, including the promotion of competitiveness and the repositioning of strategy.

Lumpkin et al. (2009) found that autonomy is an important component of entrepreneurial orientation. They first emphasize the important theoretical significance of autonomy as an element of entrepreneurial behavior at the company level, and believe that in the context of SE, only by emphasizing autonomy can we accurately explain the dynamic behavior of seeking opportunities and advantages. On the basis of evaluating the existing measurement indicators of autonomy, they put forward their own measurement indicators of autonomy, and through two empirical studies, they verified that autonomous decision-making process and autonomous action are important ways for enterprises to gain CA and achieve entrepreneurial success.

Monsen and Boss (2009) conducted a department-level survey of 1,975 managers and employees in 110 departments of multiple health care organizations on entrepreneurial orientation (such as risk taking, action advance and innovation), job role ambiguity and resignation intention intensity. The empirical study using structural equation model shows that managers and ordinary employees will make different responses to SE, and SE will have different effects on managers and ordinary employees, so enterprises should design a "tailor-made" SE system for them.

2. Strategic perspective

The strategic perspective mainly centers on the performance of SE and the growth of enterprises in SE. Shepherd and Wiklund (2009) tracked the development path of 68,830 limited liability companies registered in Switzerland from 1994 to 1998, studied the relevant measurement indicators, and found that some measurement indicators had high or moderate collinearity. In this regard, they point out the direction of improving the measurement indicators, which is of profound significance to determine the boundaries of enterprise growth research.

According to Steffens et al. (2009), SE is a combination of searching for opportunities and

seeking advantages. However, the existing research does not explain the evolution of the two performance dimensions of growth and profit in different stages of the enterprise. They construct a new dynamic model of enterprise development based on the theory of the relationship between profitability and capability improvement, points out different development paths for new ventures, and warns new ventures not to excessively pursue growth, but to carefully analyze how to achieve growth and profitability at the same time.

Corporate governance is one of the key contents in enterprise theory. Audretsch et al. (2009) studied SE in the framework of modern enterprise theory with the theme of agency and governance in SE. They believe that for new ventures, the principal and agent should establish a basic relationship between the control of key resources and the fair distribution of rights and interests. According to agency theory, the ownership (equity) allocation of executives should be consistent with the incentives provided by the owners of the enterprise. For start-ups, the role of managers is different from that of large enterprises. In addition to providing necessary management and organizational knowledge, managers of new ventures will also play an important additional role in gaining CA and improving performance, that is, providing knowledge capital and human capital. Therefore, in the context of SE, agency theory has a special importance. The relationship capital and human capital of top managers in new ventures play a special role in the process of enterprise operation. They make an empirical study on these two kinds of capital by using patent rights as a substitute variable, and the results show that the patent rights held by executives can significantly increase the proportion of equity held by them, while the patent rights held by start-ups can significantly reduce the proportion of equity held by executives. Therefore, they believe that agency theory should have a place in the field of SE research, because this theory can tell us how to control the resources that enterprises have not yet mastered in order to achieve their SE goals.

Holcomb et al. (2009) developed existing theories of entrepreneurial learning, focusing on the role of intuitive inference in two different learning contexts: experiential learning and vicarious learning. By studying the relationship between intuitive inference, knowledge and action, they construct a model of entrepreneurial learning. The entrepreneurial learning model tells us that the extent to which the intuitive inference of entrepreneurs affects learning changes over time and evolves with the increase of knowledge accumulation, thus revealing the conditions for entrepreneurs to take favorable actions and restrict unfavorable actions in the context of SE.

Wiklund and Shepherd (2009) extended their research to the study of special organizations and found that resource complementarity can improve the potential value of alliances and M&A

(mergers and acquisitions), but depends on the ability of enterprises to discover and implement productive resource combinations. They distinguish domestic alliances and M&A from international alliances and M&A, pointing out that only by preparing for the combination of resources in advance, can enterprises seize opportunities and create values through alliances and M&A. This conclusion links the study of SE with domestic and international alliances and M&A, thus greatly expanding the scope of SE research, and also helps to solve the controversy about alliances and M&A in the RBV. In addition, Meuleman et al. (2009) studied leveraged buyouts from the perspective of SE, pointed out the complementarity between agency theory and SE theory, and examined the performance implications of different types of leveraged buyouts.

3. Economic Policy Perspective

From the perspective of economic policy, it mainly studies the role of policy in promoting SE. Fernhaber and McDougall-Covin (2009) explained the mechanism that venture capitalists have an important impact on the strategic orientation of the enterprises they invest in, and revealed that venture capitalists can play a catalytic role in the internationalization of new ventures by providing knowledge and reputation capital. Moreover, the internationalization knowledge of venture capitalists with good reputation is positively related to the internationalization progress of new ventures. The important finding of this study is that by introducing external stakeholders, such as venture capitalists, entrepreneurs can jointly develop intangible assets with venture capitalists, thus greatly improving the utilization efficiency of intangible assets. In this way, new ventures can make use of both internal and external resources and add value to enterprises by combining resources. Their research also overcomes the limitations of the traditional RBV, which only focuses on internal resources, and deepens the understanding of RBV. Its policy implications are mainly embodied in two aspects: one is to promote the combination of internal and external resources to play a greater role; the other is to use the policy to promote the internationalization of enterprises.

Patzelt and Shepherd (2009) used goal-setting theory to analyze what and how policies aimed at promoting the development of academic ventures. Through empirical research, they find that the key to the success of academic ventures is to obtain policy funds provided by the government. With financial support, entrepreneurs can further perceive the benefits of other policies (such as the platform built to facilitate academic entrepreneurs to access non-economic resources such as network relations and business knowledge), and also reduce the administrative burden. In addition, sufficient funds will weaken the incentive effect of tax on new ventures. They suggest that policy makers should formulate comprehensive policy

measures to promote the development of new ventures according to the perceived situation of academic entrepreneurs. This finding reveals the importance of government policies on academic ventures and entrepreneurs, and its policy implications lie in how to formulate comprehensive policies to help entrepreneurs with academic background achieve entrepreneurial success and promote the development of spin-off enterprises of academic institutions.

4. Complexity Science Perspective

Schindehutte and Morris (2009) realized that strategy and entrepreneurial are essentially very complex socio-economic phenomena, and complexity science provides a new perspective to understand these complex phenomena. They believe that SE is carried out in an environment full of volatility, irreversibility, nonlinearity and instability, and that five aspects of exploration and development, opportunity, novelty, interaction between micro and macro factors and driving factors should be studied in depth in order to improve the existing SE theory. They summarize the existing research and points out five shortcomings: (1) there is no clear explanation of how enterprises should balance development behavior and exploration behavior; (2) the understanding of opportunity and entrepreneurship is still vague; (3) there is no consensus on the source of innovation and novelty and its nature; (4) most researchers do not recognize the multifaceted nature of multi-level dynamic systems; (5) The research on the process of change is insufficient. In view of these problems, the author points out that we should focus on the causes of innovation and its discontinuity, the unit and level of analysis, the core role of chaos and uncertainty, in order to enhance the understanding of the generation mechanism of SE.

5. Network perspective

Social network can provide information and resources for entrepreneurship and strategy, which is one of the key points of entrepreneurship research and strategy research. The results of SE research have shown that social networks are central to all aspects of the entrepreneurial process and the strategy implementation process. Social network plays an important role in shaping new ventures and promoting the development of enterprises. Whether it is the creation of new enterprises or the entry of existing enterprises into new business areas, they need to establish new networks or expand existing social networks. The personal networks of business founders and the networks of the firms themselves not only influence innovation and the identification of opportunities, but also enhance the mobility of resources. However, the existing studies regard the network as an exogenous variable, which means that the network is given and unchanged, and entrepreneurs and enterprises cannot actively pursue valuable

network, which is obviously inconsistent with reality. Stuart and Sorenson (2007) pointed out five limitations in the existing research and put forward the view of network endogenies. Firstly, the existing research ignores the endogeneity of network, which affects the evaluation of network performance. Therefore, the authors point out that new research designs and statistical methods must be developed to solve the endogeneity problem. Second, the existing research on the generation and evolution of the network is not deep enough. The author believes that it is necessary to study how new ventures enter existing networks and how entrepreneurs establish effective new networks, so as to deepen the understanding of network generation mechanism. Thirdly, because entrepreneurs always spontaneously look for favorable network relationships, make full use of the different network relationships owned by team members, and try to prevent competitors from surviving and developing, the process of relationship formation at the entrepreneur level is very complex, and the existing research seldom considers this issue. Therefore, the author believes that it is necessary to better explore how team membership and competitive exclusion processes open channels for enterprises to access network-based resources. Fourth, compared with the enterprise network, the existing research does not explicitly focus on the role of the personal network of enterprise founders and key employees. The author points out that it is necessary to distinguish between the personal network of the founder and the network of the enterprise in order to study the impact of the personal network and the enterprise network on the enterprise performance. Fifthly, because most of the existing studies regard the relationship network as exogenous, they tend to ignore the interaction between entrepreneurs and others in building and maintaining the relationship network. In the real entrepreneurial process, the behavior of entrepreneurs is dynamic, and their behavior aimed at achieving their own goals will inevitably be influenced by the behavior of others. Stuart and Sorenson (2007) believe that only by deeply exploring the interaction between entrepreneurs and others can we correctly understand the dynamic process of entrepreneurs' effective use of networks. Their research makes a pioneering contribution to exploring the role of networks in SE.

6. Effectual logic perspective

Entrepreneurs and others engaged in creative activities often face uncertainties. The existing theoretical research mainly focuses on two uncertain situations in the process of entrepreneurship: one is the uncertain situation in which the future is relatively predictable. In this case, the probability distribution of future events is known and the value is unknown, which is suitable for classical classification analysis. Entrepreneurs must adopt a decision-making approach based on the systematic collection and analysis of information. The other is the

uncertainty that the future will be affected by unpredictable events. In this case, the probability distribution and value of future events are unknown. In order to find the basic probability distribution of future events, entrepreneurs can collect information, accumulate experience and deepen their understanding of events through experiments, consultation with experts and repeated learning. On this basis, they can use Bayesian estimation method to make corresponding decisions (Sarasvathy, 2007a).

Most entrepreneurial research assumes that the future is more or less predictable, that the external environment is exogenous to individual behavior, and that entrepreneurial decision makers know what they need. However, when entrepreneurs are faced with future situations that do not yet exist, the above two decision-making methods under uncertain conditions lose their effectiveness. Sarasvathy (2007b)calls this situation Knightian uncertainty and uses a new concept, the effectual logic, to describe decision-making in this situation. The effectual logic focuses on the dynamic behavior and interactive process of entrepreneurs who create new opportunities and new markets. Sarasvathy (2007b) used the effectual logic to study SE and made the following four new findings.

First, people can not only discover markets, but also create new opportunities and new markets. Entrepreneurs can play a dynamic role in finding and designing appropriate principles and standards, and it is possible to construct valuable opportunities at different social levels in the process of entrepreneurship. Because technology, facilities and even organizations are created by people's active behavior, they are all endogenous variables.

Secondly, Schumpeter (1934) has discussed the driving force of social and economic development from the macro level, and found that entrepreneurs achieve innovation through new combinations, thus promoting social and economic development. This view is supported by empirical research and widely accepted by the academic community. In this regard, Sarasvathy (2007b) gave her own views. First, she argues that the rational choice hypothesis is inconsistent with reality and exaggerates the ability of human beings to search, select and combine innovative ideas. Secondly, because people are bounded rational, potential innovative ideas are not necessarily correct. Even if they are correct, because of the large number, it is difficult for entrepreneurs to select an operational innovation portfolio through search. Thirdly, entrepreneurs always search, choose and innovate from the familiar environment around them. Fourthly, the search of entrepreneurs has a certain purpose and direction, and its goal is based on the existing resources of entrepreneurs or enterprises. Path dependence, asset specificity and other factors will affect or even determine their search and choice.

Based on the analysis of many constraints, Sarasvathy (2007b) proposed a new theoretical

framework. In reality, the search and selection of entrepreneurs are completed under specific space-time conditions, in the interaction with others in the process of market competition and on a specific basis, so the real feasible innovation is achieved through specific transformation rather than new combination. The empirical research confirms that expert entrepreneurs achieve innovation through some specific forms of transformation. Transformation is a subset of new combination, and its significance lies in two aspects: one is that it eliminates many incorrect and unrealistic elements in potential innovative ideas, and the other is that it emphasizes the space-time conditions, the heterogeneity of entrepreneurs, and the basic conditions of search. From this, we can deduce the limitation of the way of transformation and the feasibility of innovation transformation.

Furthermore, resources and capabilities are defined. Traditional definitions of resources and capabilities are tautological. "Valuable" is a very important concept in the definition of resources defined by the strategic management. On the one hand, with the help of this concept, a series of measurable value relationships and indicators in the field of strategic management have been formed, so that strategic performance can be tested; on the other hand, strategic management theory has not clearly explained the value source of resources. Specifically, strategic management needs to assess the ex-post value of resources, but in practice it is often ex ante valuation, so it cannot explain how resources become valuable. When studying the growth of firms, Penrose (1959) once pointed out that it is the management services provided by managers that realize the value of resources. This important idea is also applicable in the field of SE. The reality is full of uncertainty. Managers' different understanding of resources and different ways of using resources will cause changes in the value of the same resource, which means that the value of resources cannot be defined and evaluated in advance. Therefore, the effectual logic holds that resources and capabilities should be distinguished and regarded as the starting point for developing new markets and new opportunities, emphasizing that in the process of SE, the realization of resource value is determined by the management services provided by entrepreneurs, rather than by the sum of resource value and capability value given in advance.

Finally, there is no ultimate CA. The pursuit of sustainable competitiveness or advantage has always been the goal of strategic management. For this reason, strategic management theory has gone through many paradigms, including the classical study of competitiveness, the game analysis of strategic conflict, the RBV, the core competence theory and the dynamic capability view. These theories or viewpoints have a common feature: they all believe that as long as enterprises have VRIN resources, they can attain a special organizational capability-the source

of SCA. However, some scholars are critical of the pursuit of universal SCA, because the above special organizational capabilities may be replaced by the higher-level capabilities of "learning how to learn to change". This shows that there may be endless regression in the explanation and prediction of SCA, that is, enterprises lacking CA can accumulate resources, enhance organizational capabilities and gain CA through learning, while enterprises that have gained CA cannot obtain corresponding adaptability through learning because of changes in environment, technology and other factors. Therefore, they may lose their CA in the competition.

The effectual logic emphasizes the dynamic role of market participants, seeks the "satisfactory" method to obtain and maintain CA, and holds that there is no ultimate CA in the philosophical sense. Generally speaking, the effectual logic provides a unique perspective for the study of SE and opens up a new direction.

2.7 Comments on existing research and its implications for this study

RBV and SE research contribute to the understanding of creating wealth and sustaining CA of firms.

First, VRIN resources are an important source for the company to obtain SCA. In fact, there is no permanent CA. The sustainability of CA is mainly determined by the speed at which competitors obtain the ability to replicate strategic benefits. If enterprises can effectively take advantage of entrepreneurial opportunities, they can gain SCA and create wealth on this basis. SE is related to the implementation of entrepreneurial actions from a strategic perspective, and it also discusses the main sources of SCA from different perspectives.

The non-substitutable, imperfectly imitable, rare and valuable capabilities are the core competencies. Moreover, the core competencies can lead to CA over the competitors. The core competencies are refreshed with entrepreneurial opportunities to avoid core rigidities, and then the core competencies can become the sources of a SCA of firm. It is why the present work chooses core competence as the dependent variable rather than SCA.

This study takes RBV and entrepreneurship as the theoretical basis and SE as the framework to explore the source and formation mechanism of SCA. While breaking through the static limitations of RBV, the study explores the source and exploitation of opportunities in entrepreneurship research.

Secondly, both research on entrepreneurship (origin of firm) and the growth of firms must essentially answer similar questions: (1) where do opportunities come from? What factors influence the type and change of opportunities? (2) What is the process of exploiting

opportunities? Where do the resources and capabilities come from? What factors determine the difference and performance of the exploitation activities?

In essence, both entrepreneurship and growth research discuss the sources, contents, exploitation and changes of "capabilities" and "opportunities". It should even be said that the growth process of a firm is a process in which the capabilities and dynamic resources combine with each other, and it continuously discover, create and exploit opportunities so as to gain CA and grow of firms. However, the existing studies on entrepreneurship and growth have been separated, leading to their own theoretical boundaries.

From SE perspective, resources are bundled to form capabilities to help identify and exploit opportunities; only when these opportunities are effectively matched with CA will firms pursue these opportunities; and then resources are managed strategically to achieve CA. Thus, both advantage-seeking behaviors (strategic management) and opportunity-seeking behaviors (entrepreneurship) of SE can be realized. SE research, which integrates strategy and entrepreneurship, helps to solve the problem that current entrepreneurship research does not fully understand the source of opportunities and the process of exploitation, and also makes up for the lack of entrepreneurs and entrepreneurship process in RBV research.

As a result, the present work explores the matching relation between the structural characteristics of firm’s resources and the identified opportunities. On this basis, the effects of resource bundling on the relationship between core competencies and resources are explored. We also deeply explore the mechanism of actions among resources, opportunities and core competencies.

Third, SE allows firms to effectively apply their capabilities and knowledge in the context of the current environment while they explore new opportunities for future development through the application of new capabilities and related knowledge. It requires enterprises to achieve a good balance between the advantages of "strategic management" and the pursuit of "entrepreneurial" opportunities. For the entrepreneurship part, it should be novel and flexible, while for the strategic management part, it should be predictable and stable. It should be pointed out that in order to achieve the above balance, certain challenges need to be faced. The main reason is that the company has limited resources, so it is necessary to make a reasonable balance between how to reasonably allocate the resources used to explore opportunities and new sources of advantage and how to allocate the resources used to take advantage of the current CA.

To sum up, core competence is important basis for the CA, and the sustainability of CA mainly depends on the renewal and maintenance of core competence. In addition, maintenance of core competence is the strategic dimension of SE, and the renewal of core competence is the

entrepreneurial dimension of SE. Formation of core competence is a continuous learning process, and knowledge is expansible. Therefore, firms take core competence as the core, invest finite resources into the knowledge needed by core competence, and then gradually achieve the balance state between opportunity seeking and advantage seeking in SE, and finally the CA of firm can be sustained.

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Chapter 3: Hypothesis Development and Conceptual Model

3.1 Theoretical foundations

According to the RBV, the differences in the performance of firm over time mainly depend on the distinctive capabilities and resources, but not the industry structure. RBV argues that firms may develop some unique capabilities and obtain various resources on the basis of the way they integrate them. Capabilities that are non-substitutable, costly imitable, rare and valuable are core competencies, which in turn, can bring firms CA over competitors. No CA are permanent. The speed at which competitors need to acquire relevant skills in order to replicate strategic interests will significantly affect the sustainability of CA. Capability building is " time-path-dependent " and cumulative. Therefore, all the core competencies are likely to become core rigidities while bringing CA to firms.

Exploring opportunities is a key activity in wealth creation. Opportunities are found or created in the market, and are different for every person and every firm. In addition, firms can create or build temporary CA by identifying and exploiting opportunities, which will be difficult to maintain if firms fail to manage resources strategically. Thus, both opportunity-seeking (such as entrepreneurship) and advantage-seeking (such as strategic management) behaviors are very important for the creation of wealth, but it should be pointed out that if any one of them is independent, it will be insufficient. SE mainly takes entrepreneurial actions from the strategic perspective. From the perspective of SE analysis, when intangible resources and tangible resources are bundled together, various entrepreneurial opportunities can be better identified and reasonably used. On this basis, more significant CA will be obtained. The SE structure helps us understand how firms create wealth. All firms, new or established, large or small, all need to implement behaviors related to seeking advantages and opportunities (Ireland et al., 2003).

3.2 Hypothesis development

3.2.1 Resources, opportunities and core competencies

The assumption of "heterogeneity" is the foundation of the RBV. Peteraf (1993) argues that the heterogeneity of resources is reflected in the finite resources, at least the supply cannot be

rapidly expanded, so these firms can earn rent in excess of the average profit due to their "monopoly" over these resources. Helfat and Raubitschek (2000) further expanded the concept of resource. They regarded the management of knowledge as an important strategic resource, and believed that the basic source of competitive differences was the core knowledge accumulated in the process of interaction between organizational capabilities and specific assets of firms. The endogenous capabilities and knowledge and the product development of the firm are in a co-evolution model. The essence of the core competitiveness of firms lies in the ability to obtain such scarce resources.

The core competence of a firm was defined by Prahalad and Hamel (1990) as the collective learning of the organization, and the most important is to effectively integrate and coordinate various production technologies. Therefore, connotation of core competence may reflect the entity (skills and technologies), integration (coordinate) and accumulation (collective learning) of knowledge. Leonard-Barton (1992) pointed out that the core competence should be defined as a knowledge system that can provide and identify advantages. It has the following dimensions, namely values, management system, the technical system, and skills and knowledge of employees. The last two constitute an important repository of knowledge, while the latter two constitute a system of collating and controlling knowledge. Thus, it can be seen that the concept of core competence of firms has been deeply imprinted with "knowledge" since its birth. It is actually a coordinated growth system formed in the long-term operation and production process, which takes knowledge as the basic constituent element and unifies the entity and process. The entity of knowledge can be embodied in the knowledge bases composed of the skills and knowledge of employees in the firm and the physical technology system. In addition, the process of knowledge can be embodied in knowledge management mechanism composed of the management system and values.

In addition, the characteristics of core competitiveness also have very rich knowledge characteristics. It is found that its main characteristics include scalability, uniqueness and user value. This is often used as a basis for evaluating or identifying whether an enterprise has the core competence.

1. User value

The core competence mainly refers to the competitiveness that can provide users with fundamental benefits (Hamel & Prahalad, 1994). User demand is very important for the cultivation of the core competitiveness of firms. Users are regarded as the most important external knowledge sources of firms, and users are the final judges to decide who has the core competence. Amidon (1997) also believes that users are not only sales targets, but also the real

source of learning and knowledge.

2. Uniqueness

The core competence of firms is the organic unity of both tacit knowledge and explicit knowledge. The former refers to the highly personal knowledge which is not easy to be imitated and perceived. That is, for the competitors, it is difficult to imitate, and the endogenous power that makes the core competitiveness of a firm is important source of its CA. It is found that the related characteristics of tacit knowledge as non-public goods make the core competitiveness of firms unique and different from competitors, and naturally become the "firewall" of firms.

3. Extensibility

On the basis of the knowledge sharing of all employees, firms' core competence is integrated through the internal relationship of cross-department and cross-product. It is not the unique asset of an employee or department, and it has strong permeability and extensibility. This is mainly because the core competence of firms represents the core knowledge of firms, which integrates the skills and technologies of firms and has strong radiation. Therefore, the core competence of firms can be decomposed into various departments and employees, and materialized into core products and final products.

The metabolism of knowledge determines that the core competence of knowledge system must be constantly updated. Otherwise, the core rigidities accompanied by the cultivation of core competence will hinder the innovation and transfer of knowledge, result in lead the gradual aging of knowledge and then loss of CA. Furthermore, renewal of core competence is a knowledge innovation learning based on the customer value orientation of the original core competence. Through the absorption of external technical knowledge and acquisition of related market knowledge, the innovation of core competence is implemented by using the trial methods. The renewal of core competence is actually to cultivate a special core competence. After overcoming the core rigidity and generating new core competence, it begins the process of identification, deployment, protection and renewal. It can be seen that knowledge can promote the spiral rise and cycle of the core competencies of firms

Kogut and Zander (1992) also believe that organizational learning has the uniqueness of path dependence. A large part of the knowledge generated by organizational learning is tacit knowledge, which has the characteristics of specific organizational specificity, difficult to trade and difficult to imitate. The knowledge becomes the core competence of the organization and source of SCA. Especially when organizations are highly involved in organizational learning, they often form new knowledge and new core competencies that are difficult to identify and imitate. According to the above arguments, this thesis gives some assumptions, as follows:

H1: A bundle of knowledge-based resources may have a positive effect on core competencies.

In the rapidly changing and turbulent business environmental condition, to effectively maintain their CA, firms should fully grasp the opportunities with high degree of newness, so firms need to improve the ability to identify, evaluate and utilize the opportunities, form the core competencies, and maintain SCA of firms. The ability of opportunity identification and exploitation largely depends on the resources owned or controlled by firms, especially knowledge resources.

The essence of entrepreneurial opportunity is to form a new means-ends relations. In the existing literature, there are different opinions on whether opportunities have been found or created. This study agrees with DeTienne and Chandler (2007), that is, opportunity identification should be the synthesis of opportunity creation and opportunity discovery.

According to the KBV and RBV, knowledge is regarded as an important capital for the CA and also the main resource to achieve favorable entrepreneurial results (Sullivan & Marvel, 2011). Research shows that accumulated knowledge helps entrepreneurs identify opportunities. For example, prior knowledge is the accumulation of entrepreneurs' empirical knowledge on specific topics, creating a unique "knowledge corridor" for entrepreneurs, which can enhance entrepreneurs' value perception of new information and help entrepreneurs identify opportunities that others cannot identify (Shane & Venkataraman, 2000). Organizational learning is the strategic planning ability of entrepreneurs to utilize knowledge acquired in the business by allocating resources. Organizational learning may effectively improve the chance for entrepreneurs to find opportunities and then create organizations to practice (Lumpkin & Lichtenstein, 2005).

Polanyi (1967) believes that human beings have roughly two kinds of knowledge: one is the explicit knowledge that may be clearly expressed in charts, numbers, words, language, and the other one is the knowledge that we have in the action of doing things, which is called tacit knowledge. Tacit knowledge is highly personalized, practice-based, situational and non-systematic. Transformation and acquisition of tacit knowledge may be achieved through informal communication and learning actions (Koskinen et al., 2003). Improvement of the ability to exploit and identify opportunities is based on knowledge acquisition, especially tacit knowledge acquisition. The difference of opportunity in ability of entrepreneurs is mainly caused by the difference of tacit knowledge. Entrepreneurs discover and exploit new market opportunities by acquiring tacit knowledge, or learn how others successfully exploit opportunities, and apply them in practice (Mulder et al., 2007; Rae & Carswell, 2001).

The ability to identify and use opportunities is not the innate ability of entrepreneurs, but needs to be gradually formed and improved through continuous knowledge acquisition, especially tacit knowledge acquisition. In the complex and dynamic entrepreneurial environment, entrepreneurs can help themselves better grasp and make use of various opportunities and improve their opportunity ability by constantly contacting and communicating with the outside world, learning and summarizing, and actively acquiring tacit knowledge. The improvement of opportunity ability is helpful to the survival and development of firms, and can promote the improvement of firm performance.

The study by Dess et al. (2003) of knowledge-based resources and capabilities involved in entrepreneurship research focuses on procedural knowledge (the knowledge applied in performing tasks). It involves the knowledge of how to work, in particular how to best accomplish some tasks (West & Noel, 2009). This knowledge involves implicit dimensions and is not easily expressed (Gupta & Govindarajan, 2000). Market knowledge and technical knowledge are two aspects of knowledge that procedural knowledge emphasizes in creating CA and identifying and developing new opportunities (Thorpe et al., 2005; Wiklund & Shepherd, 2003). The potential to identify opportunities can be increased by understanding the customer's tendencies, needs and problems. Identification of the value of new technologies may also help to evaluate and exploit these opportunities. By increasing functionality and reliability, reducing costs, and optimizing processes and design, technical knowledge may result in technological breakthroughs and improve the ability to identify and exploit opportunities (Shane, 2000).

Market knowledge is essential for entrepreneurship and innovation (Danneels, 2002; Shane & Venkataraman, 2000). Market knowledge can clearly reflect an entrepreneur's understanding of market functions, potential customers and distribution channels in the business field. Fast-paced, dynamic, and disruptive market environments require entrepreneurs to respond appropriately. Burgers et al. (2008) found that new firms often ignore market knowledge, which may negatively affect the successful commercialization of related new ventures. Market knowledge may promote the ability of entrepreneurs to meet the needs of serving customers as it helps to deeply understand the customer preferences, effective distribution channels, and manufacturing processes (Burgers et al., 2008). Technical knowledge reflects the extent to which entrepreneurs have knowledge of products, technologies, or processes relevant to their business (Burgers et al., 2008). Utilization and acquisition of technological knowledge are very important as they have relationship with the entrepreneurs' ability to create products which can meet the market demands well (Danneels, 2002), to help them cope with changing markets

through rapid product development (Burgers et al., 2008), and quickly grasp the technical changes in risk performance (Neves et al., 2014). Entrepreneurs with more technical knowledge may have better ability to use technical knowledge to attract customers and meet the market needs, and implement actions in response to competitors more quickly.

The above analysis shows that market and technical knowledge are necessary to identify and utilize new entrepreneurial opportunities (Shane, 2000), and knowledge-based resources are important conditions for effectively transforming the entrepreneurial activities of firm into excellent performance (Walter et al., 2006; Wiklund & Shepherd, 2003). It is found that there are a large number of knowledge-based resources can be reasonably used to identify entrepreneurial opportunities (Wiklund & Shepherd, 2003), and enterprises that have high level of prior knowledge may discover more relevant opportunities and effectively exploit them (Shepherd & DeTienne, 2005). Because knowledge acquisition will affect the ability of firms to cope with environmental changes (Liao et al., 2003). Knowledge acquisition may result in the flexibility in resource deployment (Zahra & George, 2002), thus it favors high degrees of opportunity newness, new sources of entrepreneurial opportunities, new means-ends frameworks, and new combinations of resources. Therefore, the following hypothesis is proposed:

H2: The level of knowledge-based resources will positively affect the level of opportunity newness.

3.2.2 Moderating role of opportunity newness and resources bundling

Davidsson and Tonelli (2013, August 9-13) argue that the characteristics of entrepreneurial opportunities include novelty, appropriability, diffusibility, scalability, among which novelty is the core feature of entrepreneurial opportunities. As for the definition of novelty (or newness), researchers generally adopt the view of Rogers (1995), which holds that “newness is the novelty degree of the opportunities identified”. Its manifestations include the degree of novelty in services or products, target markets, and marketing or production methods (Semasinghe et al., 2011). Semasinghe and Davidsson (2009) classify newness into two kinds, one is radical innovation with high degree of innovation that completely introduces a new means-ends relationship into the market, and the other is incremental innovation with low degree of innovation that drives the market through imitation.

Effects of innovation in the process of economic growth have been widely recognized by academia. Innovation is a new combination to achieve economic development, and also a kind

of creative destruction, which leads to the elimination of backward enterprises by the times and the rapid growth of new and creative enterprises. This dynamic development process reflects the mechanism of survival of the fittest, which is also a complete process of sustainable economic development. Schumpeter (1942) pointed out in his innovation theory that once innovation comes into being, it will attract the imitation of other firms, which makes the innovative firms have the effect of technology diffusion and the loss of firm income. Imitation is the main reason for leading firms to lose their CA (Barney, 1991).

In the 1960s, Levitt (1966) pointed out that the effect of innovation in the society and economy had been exaggerated, in addition, the reality of economic development reminded us that imitation was becoming a common way for firms to develop and earn profit, and its contribution to the improvement of firm competitiveness and economic growth was becoming increasingly obvious. Miller (1994) believes that imitation is a more common market behavior than innovation, and is the important source of CA and innovation information of firms. It is known from the new growth theory that the non-competitive and non-exclusive nature of technological knowledge makes it easy to produce technological diffusion effect. The initial invention and creation of a firm often become the common technology in the industry through mutual imitation and learning among firms, and ultimately promote the progress of the whole industry (Lucas, 2002). Organizational learning theory holds that imitation among firms is a process of learning practice. By learning new technologies and knowledge from other organizations, the organization can save the cost of experiment and development (Dutton & Freedman, 1985; Haunschild & Miner, 1997). The organizational system theory holds that the motivation for firms to imitate is to obtain "rationality" and reduce uncertainty. Firms with large scale and good performance will send out rationality signals, which will lead to the imitation of other firms (Haveman, 1993).

Some scholars divide imitation into two categories: general imitation and innovative imitation. The former is a complete duplication of advanced knowledge and technology, which generally does not bring CA to imitators. The latter refers to making certain improvements on the basis of the leader, so that the original technology or knowledge can be further improved and perfected (Bolton, 1993). Aghion et al. (2001) found that moderate imitation can provide firms with equal competitive opportunities, increase the total amount of innovation activities, and promote the progress of enterprises. Miller (1994) believes that imitators have the following three advantages: lower cost, more mature technology and more abundant market channels. Compared with innovators, imitators can reduce uncertainties in technology, market and government regulation policies (Schewe, 1996), and can also improve products and expand

sales channels on the basis of innovators to meet the consumers' needs well.

According to the research results of Shane and Venkataraman (2000), opportunity identification and opportunity exploitation have gradually developed into the two most important theoretical constructs in entrepreneurship research. Opportunities, whether imitative or innovative, are valuable only if they are exploited. Opportunity exploitation has been defined as the full-scale, efficient production and operation of services and products derived from business opportunities. It is the process of investing all resources to create effective business systems and production systems (Choi & Shepherd, 2004). Whether the opportunity is exploited or not is only the starting point of opportunity exploitation research. As a process variable, the internal mechanism of opportunity exploitation should be revealed by theory (Eckhardt & Shane, 2003), in which the exploitation method is an important theoretical perspective to examine the mechanism (Grégoire & Shepherd, 2012).

Among the few studies on opportunity exploitation, an important topic is the way opportunity is exploited (Samuelsson & Davidsson, 2009). This kind of literature is mainly from two perspectives. First, if we analyze from the perspective of competitive strategy, then it indirectly describes the opportunity exploitation mode of new ventures by examining what strategies they adopt. Second, we may use the degree of opportunity newness to assess the way of opportunity development and the type of new venture creation.

March's (1991) pioneering research on organizational learning inspired entrepreneurship scholars to examine the way of opportunity development from the perspective of opportunity types. It is believed that opportunity types may determine the decisions of opportunity development. Innovative opportunities and imitative opportunities are necessarily developed in different ways, and opportunity development is a "tailored" answer to the type of opportunity. On this basis, according to the novelty of entrepreneurial opportunities, opportunity development can be divided into innovative opportunity development and imitative opportunity development. Innovative opportunity development can be defined as the opportunity development mode in which the entrepreneurs adopt some new technologies and then develop related new products, leading to significant changes in the industrial structure within a certain period, in addition, the entrepreneurial results take a relatively longer time to emerge (Becker et al., 2006; McGrath, 2001). Imitative opportunity development refers to the way to explore existing market opportunities, improve existing production methods or technologies, and expand product functions and market attractiveness in order to obtain entrepreneurial rent (Katila & Ahuja, 2002). Different from the opportunity development research based on competitive strategy, it is found that the opportunity development from the perspective of

entrepreneurial opportunity is closely linked to the two most important theoretical constructs of entrepreneurship research, revealing the mechanism and process of opportunity development, and reflecting the essence of entrepreneurship research.

The research of Semasinghe and Davidsson (2009) points out that opportunity newness itself does not directly produce performance, which requires new ventures or entrepreneurs to continuously invest resources in the developing of opportunities and acquire relevant knowledge to cope with environmental uncertainty. For value creation, one premise is the existence of opportunities. Moreover, the successful development of opportunities, especially the development of highly innovative opportunities, requires the integration of human, physical, and financial resources needed by organizations (Shane & Venkataraman, 2000). In addition, the RBV also emphasizes that resources are the important foundation of firms. Through the efficient integration of resources, firms can successfully make good use of related business opportunities and then create some new businesses, and ultimately create value for firms. Therefore, whether opportunities with different degrees of innovation can successfully create value still needs to be realized through a series of resource integration processes (Shane & Venkataraman, 2000).

Resource integration is an important process for firms to combine and allocate all kinds of resources, so as to successfully create value for firms. With regard to the connotation of resource integration, Wiklund and Shepherd (2009) pointed out that resource integration is a process in which a firm acquires resources from outside according to its needs and coordinates them with its existing capabilities and resource, thus creating value for the firm. Sirmon and Hitt (2003) argue that resource integration is a process in which a firm adjusts and allocates its internal resources to form capabilities, thereby successfully developing the opportunities. For the research on resource integration, Sirmon et al. (2007) classified resource integration into stabilizing bundling process, enriching bundling process and pioneering bundling process, which were recognized by many scholars.

3.2.2.1 Opportunity newness and resources bundling

The level of opportunity newness leads to the choice of resources bundling:

1. Stabilizing bundling process

A stabilizing bundling process is a small incremental improvement to the firm's current capability that can be effectively used to expand the market share and production scale for the current products (Sirmon et al., 2007). Stabilizing bundling process focus on the maintenance of current strategies and capabilities (Sirmon et al., 2007), and for stabilizing activities, the

main purpose is to continuously keep the current CA. In addition, the stabilizing bundling approach emphasizes that activities should be carried out based on the traditional resource structure without changing the basic resource attributes such as manpower and technology, and firms that emphasize the stabilizing bundling process can usually keep the consistency of related operation (Kelly & Amburgey, 1991; Nelson & Winter, 1982) to improve the efficiency. Firms that adopt stabilizing bundling process use traditional resource structure through "practice makes perfect", and pay little attention to forming new capabilities and introducing new resources (Sirmon et al., 2007).

Customers are more willing to make incremental improvements to existing products. Then, they will have good satisfaction with the value obtained. Therefore, if the firm can better identify the existing customers' needs, and provide the customers with better value than its market competitors (i.e., with CA), the firm tends to maintain this advantage. Understanding and meeting the current needs of customers is generally considered more practical and less risky than changing strategies according to the potential needs held by customers (March, 1991).

Amit and Zott (2001) point out that firm's strategy and business model are based on resources, and firms can create value through continuous integration of resources and capabilities. Mangematin et al. (2003) believe that each business and strategy model have the corresponding development logic, which is consistent with the necessary resources, including the relationships of supplier and customer, firm's capabilities, financing models, and ownership structure. When a firm does not want to make major changes or is in a resource disadvantage, its goal is usually to minimize resource costs, pay attention to the lowest level of performance satisfaction standards, and create value through creative use of cheap resources within the firm (Desa & Basu, 2013), that is, "play whatever cards you have". Therefore, some firms choose low level of opportunity newness to effectively keep the existing CA and reduce risks,, that is, to imitate others to develop existing opportunities in the market, which match their own resources and capabilities. The opportunities can be exploited in a timely manner and at a low cost by using a stabilizing bundling process. Therefore, these arguments make the following assumptions:

H3: When exploiting low level of opportunity newness, firms tend to choose stabilizing bundling process.

2. Enriching bundling process

On the one hand, stabilizing bundling process focuses on the efficient use of traditional resource structure, but the high efficiency is mostly at the cost of innovation, which will reduce the number and possibility of new products created by new ventures in the absence of new

resource supplementation (Rezazade Mehrizi & Lashkarbolouki, 2016), resulting in a decline in the potential of innovation. On the other hand, according to the RBV, when resources are no longer valuable, unique, scarce, and inimitable, they will not be able to provide competitive protection for firms (Barney, 1991).

Enriching bundling processes aim to add new skills, expand and improve current capabilities, and focus on development of firm capabilities and adaptation to changing market competition (Sirmon et al., 2007). The firms that focus on enriching bundling processes usually tend to promote the existing capabilities so as to compete better in the new market environment (Day, 1994). New ventures that adopt an enriching bundling approach are committed to "robust innovation" on the traditional resource structure, which can not only form new capabilities for value creation, but also reduce the resistance of stakeholders (Hargadon & Douglas, 2001). Unlike stabilizing and pioneering that maintain existing capabilities, enriching extends new functions based on existing capabilities. Enriching bundling process on the one hand to meet changes in market demand, on the other hand to maintain incremental changes in capabilities and has less risk.

With the change of market and technology, the demand of customers is also changing constantly. Firms need to add new resources to the current resource portfolio and then re-bundling them to form some new capabilities, so as to better meet the potential or current need of the customers, f. The new or potential needs of customers require firms to adopt new resource combinations to form capabilities, which mean the development of higher level of opportunity newness for firms and the formation of new means-ends relationships.

When a new opportunity is highly innovative, it is difficult to successfully exploit the potential value of the opportunity simply by relying on a patchwork of available or cheap resources. At this time, the quantity, quality or exclusivity of the required resources have changed, which requires firms to actively search for all kinds of matching resources and integrate with existing resources. This is the advantage of enriching bundling process. Enriching bundling process helps firms to rationally plan high-quality resources and form a series of capabilities that are difficult to be imitated by other organizations, thus promoting efficient production and operation of firms and developing the opportunities with high level of newness (Baert et al., 2016; Garud & Karnøe, 2003). Therefore:

H4: When exploiting high level of opportunity newness, firms tend to choose enriching bundling process.

3. Pioneering bundling process

The pioneering bundling process integrates new resources derived from strategic factor

markets and, through exploratory learning, rather than building on existing knowledge (March, 1991), may generate entirely new capabilities (Ahuja & Lampert, 2001) and then create new CA. Thus, The binding process of innovation based on Schumpeter's logic will form relevant capabilities that can promote the implementation of entrepreneurial strategies (Sirmon et al., 2007).

Technological enterprises are facing a fierce competitive environment. Because of the rapid development of industry technology, the degree of opportunity newness will greatly influence the success of enterprises. Moreover, radical innovation can help enterprises reshape existing markets or create new markets, thus helping enterprises achieve better performance (Benner & Tushman, 2003). Early studies suggest that breakthrough innovation needs to depend on the own high-intensity R & D accumulation to succeed, and the lack of internal knowledge search is the fatal shortcoming for enterprises to carry out breakthrough innovation. However, under the background that information technology constantly affects the industry boundary, enterprises gradually find that external knowledge search has become the key path to make up for this shortcoming. Chesbrough (2003) further clarifies theoretically that in an open environment, enterprises can not only accumulate knowledge through internal R & D, but also use a large number of new external knowledge across enterprise boundaries.

Firms that adopt the pioneering bundling process may be easy to avoid historical path-dependent learning and core rigidities (Leonard-Barton, 1992). Therefore, enterprises pursuing opportunities with radical innovation are more inclined to choose the pioneering bundling process. Therefore:

H5: When exploiting high level of opportunity newness, firms tend to choose pioneering bundling process.

3.2.2.2 Moderating role of resources bundling

The formation of core competence is moderated by resources bundling, and the moderating effect of different bundling process are different.

1. Stabilizing bundling process

The stabilizing bundling process improves the firm's knowledge of the existing business domain. Thus, ability of firm may be enhanced to cope with organizational problems through cost-effective methods, and promote the improvement of the firm’s existing capabilities. In addition, the stabilizing bundling process meets the existing needs of customers by gaining experience through path-dependent learning (Katila & Ahuja, 2002; Zott, 2003). Therefore, it is difficult for firms to make major adjustments in strategy and only adopt incremental

changes. This approach causes path dependencies and inertia in resource composition in the long run. Therefore, there will be some resistance in the implementation of strategic change, which will slow down the process. This approach of just "refreshing" and incrementally improving existing functionality won't work in a dynamic environment. Though firms have financial and the other capacities to keep their flexibility over resources in the short term (Sanchez, 1995), degree of flexibility may be limited in a certain extent by their management capabilities contained in various bundling process. Therefore, a stabilizing bundling process of continuous improvement of existing functions can support the existing strategy, and there is difficulty for the implementation and development of new strategy. Therefore, the accumulation of the core competence is promoted by the stabilizing bundling process. However, the latter cannot promote the "renewal" of core competencies.

2. Enriching bundling process

Chesbrough (2003) states that in an open environment, firms can not only accumulate knowledge through internal R&D, but also make use of a large amount of new external knowledge across firm boundaries. According to the knowledge absorptive capacity, both external knowledge and inside knowledge of firms are complementary, and internal R&D of firms promote the acquisition process of the external knowledge (Cohen & Levinthal, 1990). RBV argues that resources need to be dynamically integrated to enable firms to obtain the CA (Sirmon et al., 2007), and integration ability of the knowledge resources affects the promotion of knowledge itself on performance (Gardner et al., 2012), and the way of resource bundling affects the relationship between innovation and resources (Carnes & Ireland, 2013).

In the process of promoting innovation, there exists a complementary relationship between the external knowledge and internal knowledge. Firstly, knowledge absorptive capacity theory holds that, to some extent, the absorptive capacity of firm should be considered as the by-product of internal R&D. It is important for the evaluation and absorption of external knowledge (Cohen & Levinthal, 1990). Therefore, internal knowledge search will improve the utilization efficiency of the external knowledge search, in addition, it may weaken the negative effects of excessive external knowledge search. Secondly, internal knowledge search enables firms to acquire unique knowledge in some areas and increase the depth of firm’s knowledge base, which not only makes up for the lack of knowledge depth caused by excessive external knowledge search, but also provides a direction for extensive external knowledge search. To a large extent, external knowledge search is consistent with the direction of internal knowledge search, and combine to form unique knowledge of the firm to promote breakthrough innovation. At the same time, external knowledge search will also improve the marginal utility of internal

knowledge search in promoting radical innovation. First of all, internal knowledge search can enable firms to obtain unique and in-depth knowledge in a certain field, which is conducive to the generation of creativity. However, in the process of applying creativity, when firms face some uncommon and complex problems, it may be difficult for firms to solve them without extensive external knowledge (Katz & Preez, 2008). Secondly, external knowledge search helps firms to create a competitive atmosphere to stimulate internal knowledge search, overcome the internal resistance of firm innovation, and effectively increase the efficiency of internal knowledge search (Grimpe & Kaiser, 2010).

Under the enriching bundling process, firms are more inclined to integrate new knowledge with existing technology or market knowledge, and generate new capabilities on the basis of improving and perfecting existing capabilities. The process of enriching bundling process is also a process of continuous knowledge search and innovation. It can enhance the diversity of knowledge owned by firms and the heterogeneity of knowledge (Zahra & George, 2002). Especially for the SMEs which mainly depend on the external knowledge acquisition to make up for their lack of internal innovation capability, external knowledge search is an indispensable path for firms to accumulate innovation power. Firms integrate both the existing and acquired new knowledge, and then form some new capabilities by enriching bundling, to make capabilities spiral up, thus finally result in the formation of the core competencies.

3. Pioneering bundling process

Unlike stabilizing and enriching, which are based on existing knowledge, pioneering bundling is not building on existing knowledge, but search new knowledge from the outside.

On the one hand, external knowledge search will promote radical innovation. Firstly, according to the knowledge-based perspective, external knowledge search enables firms to search for knowledge in a wider range, thus increasing the breadth of knowledge, enabling firms to better understand new information and opportunities, and helping to provide new ideas for radical innovation (Chesbrough, 2003). Secondly, under the conditions of R & D funds constraint, firms can acquire more knowledge which is conducive to radical innovation through external knowledge search.

However, excessive external knowledge search may hinder radical innovation. First of all, according to the organizational inertia theory, excessive external knowledge search will lead to the path dependence of firms on external search, squeeze out the internal search activities and lead to the loss of absorptive capacity of firms, which counts against the utilization and absorption of external knowledge (Finney et al., 2005), and then hinder the radical innovation of firms. Secondly, although external knowledge search is helpful to stimulate more creative

ideas, if enterprises rely too much on external knowledge search, it will have a certain impact on their deeper knowledge accumulation. To make radical innovation, firms must first generate new ideas and then put them into practice (Zahra & George, 2002). The deep knowledge of firms helps to solve complex problems in some specific fields, which is conducive to the realization of radical innovation. Therefore, pioneering bundling process lacks the accumulation of related core competencies and mainly focuses on the "refresh" of core competencies of firms.

Summarizing the above analysis, stabilizing, enriching and pioneering all contribute to the formation of core competencies. Stabilizing bundling process cannot cope with the rapidly changing external environment condition; in addition, it may result in the formation of core rigidities. Pioneering bundling process has limitations in the accumulation of core competencies. Therefore, both these two processes are not conducive to the simultaneous maintenance and renewal of core competencies in the long run. Enriching bundling process expands new capabilities on the basis of existing capabilities, and adapts to changes in the external environment while maintaining existing CA, so it is conducive to the maintenance and renewal of core capabilities. Therefore:

H6: Resources bundling can moderate the relation between core competencies and knowledge-based resources, and enriching bundling process can stronger positively influence the core competencies than stabilizing bundling process and pioneering bundling process.

3.3 Conceptual model

Based on the above theoretical and logical reasoning, this study analyzes factors such as knowledge resources, opportunity newness, resource bundling process, and core competencies, and gives relevant assumptions. Figure 3.1 is the basic conceptual framework of this research work.

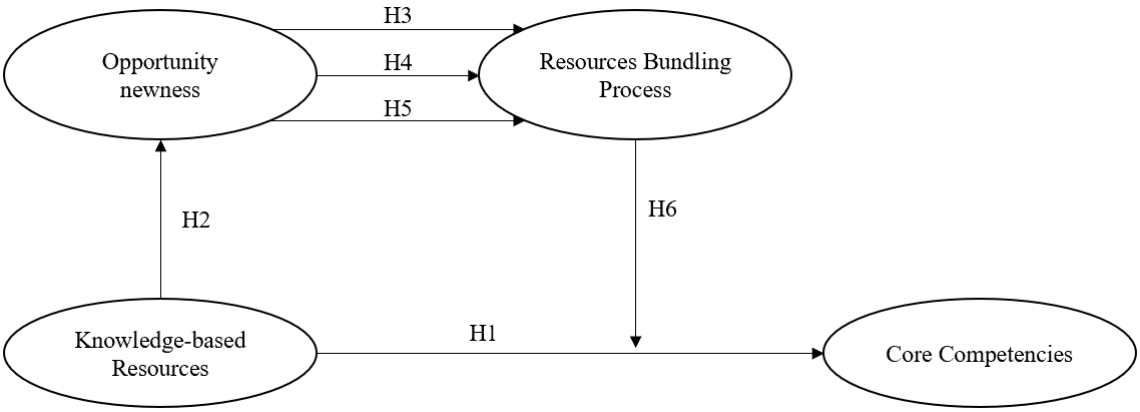

Figure 3.1 Basic conceptual framework of the research

Chapter 4: Research Design and Method

4.1 Research design

4.1.1 The basis of research design

Research design refers to the fundamental framework of an investigation. It can provide basic guiding principles for both data collection and data analysis, and is essentially an externalization of the relationship between adopted theories and research questions (Robson, 1993). At present, researchers generally divide research design into two paradigms, namely quantitative research and qualitative research. Among them, the latter mainly describes the concept, connotation, definition and characteristics of the phenomenon, while quantitative research involves the measurement and test of the causal relationship between the internal elements of the phenomenon (Dabbs, 1982).

The purpose of qualitative research is to create new knowledge through the inductive reasoning process of the characteristics of the phenomenon itself, which is helpful to discover the new direction of theoretical development. Quantitative research aims to deduce the relationship between the elements in the phenomenon from the perspective of specific theories, and then construct specific hypotheses, and test the hypotheses by means of statistical analysis, so as to test the applicability and explanatory power of specific theories to the phenomenon. More importantly, according to research method, although quantitative research mainly depends on deductive logic, it does not mean that quantitative research cannot use inductive logic to create knowledge. In fact, researchers have further distinguished two kinds of design ideas of quantitative research for exploring unknown areas to achieve knowledge creation: technology-oriented and theory-oriented. Technology-oriented focuses on systematically and scientifically describing the characteristics and attributes of the research object, excavating the essence of the research object and the uniqueness of other related fields, and is essentially phenomenon description research under the guidance of inductive logic. Theoretical orientation aims to form new knowledge through theoretical deduction and hypothesis testing, focusing on understanding, explaining and even predicting the future reaction of the research object, which is essentially theory-driven research under the guidance of deductive logic.

In fact, there are various research design ideas, and there is no one-size-fits-all research design. Research design depends on the theoretical perspective adopted and the major

characteristics of the research problem. The present work adopts the theory-driven quantitative research design to plan the research process for the following reasons: First, this study focuses on deductive logic to explore the nature of the object of study. Specifically, this study adopts the RBV and entrepreneur theory, SE perspective as required theoretical basis to deeply discuss the relationship between the key elements in the generation of the core competence of firm. It further deduces the specific hypotheses to be tested. Furthermore, the primary data reflecting the characteristics of the subjects are collected through questionnaire survey, and related hypotheses are tested by statistical analysis of the obtained questionnaire survey results. Secondly, investigation of the core competence has shifted from focusing on phenomenon description to focusing on theory-driven, emphasizing the use of deductive logic rather than inductive logic to create knowledge.

Based on this, this study uses the theory to deduce and summarize the specific hypotheses to be tested, and chooses the cross-sectional questionnaire design to test the hypotheses. Specifically, based on the perspective of SE, RBV and entrepreneur theory as required theoretical fundament to elaborate the inner relation between the key elements, and then deduce the specific assumptions. Then, questionnaire design and questionnaire survey are carried out, and based on this, statistical analysis is further used to test the specific assumptions. The purpose is to deepen the understanding of the complex phenomenon of core competence and to enhance the prediction of the internal mechanism of core competence activities.

Here, it must be pointed out that although tracking research is a very popular paradigm for entrepreneurship, the high cost of tracking research has prompted this study to adopt an interface design on the basis of the retrospective research. To reduce the lack of survey accuracy caused by retrospective survey as much as possible, this study sought to make the questionnaire design process as scientific and normative as possible, with emphasis on the identification ability of questionnaire contents.

4.1.2 Questionnaire design

Questionnaire design relies on the attributes and characteristics of the related variables in the model; furthermore, it mainly focuses on the adoption of optimal items as far as possible to measure the concepts, constructs or variables. In short, questionnaire design is essentially a process of selecting, testing, and determining the construction of measurement items. Correspondingly, following a scientific questionnaire design process has become a key factor in determining the quality of the questionnaire, because it helps to avoid random errors caused

by the lack of measurement reliability and systematic errors caused by the lack of measurement validity. Churchill (1979) argues that the development of measurement items should be carried out in the following three steps: (1) conceptualizing constructs and specifying domains by literature review; (2) conducting focus group discussions with experts from academia and business circles; (3) optimizing the measurement items through exploratory research, so as to finally determine the content and format of the questionnaire.

Following Churchill (1979), in terms of questionnaire design, the main stages are as follows: (1) Building the related conceptual model according to the results of literature review. Based on systematic literature review from March 2019 to February 2022, the research questions were introduced, the conceptual research model was created, and then the theoretical construction to be measured was clearly defined; (2) Designing the measurement items. Based on the literature review, from February 2022 to May 2022, the measurement items for theoretical construction were designed, and a preliminary questionnaire was designed; (3) Seeking advice from the academic team and external experts. In May 2022, the supervisors and some doctoral students were asked for the opinions. In addition, we asked experts and scholars around us for revision opinions. On the basis of summarizing these opinions, the questionnaire was revised for the first time; (4) Conducting field interviews with some industry experts. We had an in-depth discussion with five entrepreneurs, which focused on the face validity of the research model and sought their opinions on both the model and research questions. (5) Exploratory research. From May to June 2022, exploratory research and in-depth interviews were conducted with more than 10 entrepreneurs and top managers in firms. According to their feedback and suggestions, the expressions of some items were further modified, and the final questionnaire was formed.

4.2 Measurement of variables

4.2.1 A bundle of knowledge-based resources

According to the results of Wiklund and Shepherd (2003), knowledge position vis-`a-vis competitors is measured on 7- point scales with 11 items related to technological and market knowledge. After discussion with some professors on management, items with similar meanings are merged. The revised scale with 10 items is shown in Table 4.1. Compared with the competitors in the industry three years ago, what are the advantages of your company:

Table 4.1 A bundle of knowledge-based resources scale

No.	Items	Sources
KBR01	Technical expertise	Wiklund and Shepherd (2003)
KBR02	Expertise in service or product development	
KBR03	Special expertise in marketing	
KBR04	Knowledge of customer service	
KBR05	Knowledge of innovation and management	
KBR06	Employees who strive to promote enterprise development	
KBR07	Employees with high productivity	
KBR08	Employees who provide creative ideas for new services or products	
KBR09	Staff educated in giving superior customer service	
KBR10	Employees who can effectively market the company's services or products	

4.2.2 Levels of opportunity newness

This study adopts the scale used by Samuelsson (2004) to measure the levels of opportunity newness. In the scale of Samuelsson, the first three questions adopt the positive item design, that is, the higher the score, the higher level of opportunity newness; the last question about competitive pressure adopts the reverse item design, that is, the higher the score, the lower level of opportunity newness.

Because the last question "competitive pressure" did not pass the item discrimination test, that is, it did not effectively identify the degree of response of different respondents. Therefore, this study redesigned this item into a positive item (see Table 4.2). Meanwhile, in order to correspond with the scale "a bundle of knowledge-based resources", the 5-point scale was changed into a 7-point scale – In the past three years, your company:

Table 4.2 Levels of opportunity newness scale

No.	Items	Sources
LON1	The Research and Development intensity priority	Samuelsson (2004)
LON2	The importance of related patents	
LON3	The uniqueness of products or services	
LON4	The leading position in the industry	

4.2.3 Resources bundling

Stabilizing, enriching and pioneering bundling process are measured according to the investigation of Sirmon et al. (2007) and Yi et al. (2016) (see table 4.3).

Table 4.3 Resources bundling scale

Items	Sources
Stabilizing bundling Our firm maintains proficiency in its existing capabilities by: (1) Slightly changing its resources mix. (2) Making investments in some related supporting resources. (3) Properly restoring the weakened resources. (4) Maintaining the basic resources	Sirmon et al. (2007) and Yi et al. (2016)

Enriching bundling Our firm strongly improves proficiency of current capabilities by: (1) Improving the resources, like employees and machines. (2) Adding some better resources from the dynamic resource mix. (3) Replacing the resources with the ones of higher quality. (4) More efficient use of resources. Pioneering bundling We strongly pioneer some new capabilities by: (1) Innovatively re-combining the resources. (2) Bundling the complementary and new resources together. (3) Effectively combining existing resources with valuable new resources in a unique way.

In the item's discrimination test, these items were not effective in differentiating respondents' perceptions and evaluations of the bundling process. We have changed the above scale into a single-choice question，to improve the validity of the measurement items, as follows: Your company has adopted the business model that is closest to the following in the past three years (see Table 4.4):

Table 4.4 Resources bundling scale

No.	Items	Sources
SB	Our company maintains the current capabilities' level of proficiency	Sirmon et al. (2007) and Yi et al. (2016)
EB	Our company improves its current capabilities' level of proficiency	
PB	Our company pioneers new capabilities	

4.2.4 Core competencies

R&D, manufacturing and marketing capabilities are the core capabilities for manufacturing enterprises. In this study, a 5-point scale (best in class - industry leadership, above par, on par, below par, worst in class) developed by Meyer and Utterback (1993) has been applied to the measurement of core competencies (see Table 4.5).

Table 4.5 Core competencies scale

No.	Items	Sources
	Levels of strength relative to existing competitors for capabilities:	Meyer and Utterback (1993)
CC1	Product technology capability	
CC2	User needs understanding capability	
CC3	Distribution capability	
CC4	Manufacturing capability	

4.3 Sample selection and data collection

4.3.1 Sample selection standards

Sampling selected is only applicable to the manufacturing enterprises in the Pearl River Delta regions and Yangtze River Delta of China, so as to make the selected samples meet the related requirements.

The main object of the present work is to deeply investigate the inner connection between opportunities, resources and the core competence of firm. It should be pointed out that the uncertainty and munificence of the environment are different. Because the above situation will have an impact on the potential value of capabilities and resources, and the value creation of the firm depends to a certain extent on the external environment of the firm (Sirmon et al., 2007). This study selects the manufacturing enterprises in Pearl River Delta and Yangtze River Delta as the research object to reduce their impact on this research. It is well-known that the above two regions are the most innovative, open and dynamic regions in P.R. China. Integrated development has been achieved in science and technology industries, infrastructure, the ecological environment, and public services. Enterprises in the two regions basically face similar external environment.

Moreover, manufacturing enterprises play a crucial part in the economic development of China. The essential characteristic of manufacturing enterprises is to produce specific products and sell them to realize their value added. Therefore, products are the carrier of manufacturing enterprises to achieve all goals, and product competitiveness is very important to the core competitiveness of manufacturing firms. It is indicated that formation of innovative products usually goes through product conception, design, trial production, production and market. To realize the above-mentioned process, enterprises should take strong organizational ability and capital investment as the premise. With rapidly changing technology and the change of consumer demand, the speed of product iteration and update is getting faster and faster. Therefore, it is important for manufacturing enterprises to balance advantage seeking (current products) and opportunity seeking (new products) through SE. Essentially, the resources and capabilities internalized in the long-term R&D, production, marketing and management model of manufacturing enterprises are cumulative and complex, which can better reveal the mechanism of relationship between resources, opportunities and core competencies.

4.3.2 Data collection

Questionnaire of the present work involves the competitive position of enterprises and the level of opportunity newness, which requires the respondents to understand the operation of enterprises and the industry in which enterprises are located. Therefore, the respondents need to work in the enterprise for more than three years and should be involved in the firm's operation decision-making (above the head of the department). In addition, according to our tests, entrepreneurs tend to exaggerate the competitive position of their enterprise when it comes to issues such as competitive position, while other top managers are relatively objective. Therefore, we prefer to send questionnaires to senior managers other than entrepreneurs.

During the period of June to July 2022, 420 electronic questionnaires have been distributed through local entrepreneurs' associations, and 344 have been collected (the response rate is 81.9%). After the filtering process is completed, we firstly excluded 137 invalid surveys and then obtained 207 valid surveys. As a result, the final response rate can be calculated to be 60.17%. Not meeting sample selection standard, such as non-manufacturing enterprises and lower position of respondents, was the main causes for invalid responses.

In theory, the larger the number of samples, the more helpful it is to eliminate the random errors that are difficult to avoid by means of measurement, so as to enhance the persuasion of research results. However, the sample size is always limited because there are limitations of actual conditions, especially in firm research. Rea and Parker (1992) proposed a criterion that 10% should be acceptable or tolerable as the maximum sampling error, but the sample size should not be less than 5 times higher than the total number of variables in the related model, and the total number should be at least 100. According to this criterion, the sample size in the present work is higher than 100 (up to 207). It is higher than five times of variables number (up to nearly 10 times). The results are acceptable.

4.3.3 Descriptive analysis

The statistics of sample is shown in Table 4.6. In terms of the firm age, only 6.76% of the samples have been established for less than 5 years, 29.47% for between 5 and 10 years, 43.48% for between 10 and 20 years and 20.29% for more than 20 years. From the perspective of firm size, enterprises with less than 100 employees accounted for 12.56%, 101-500 accounted for 41.06%, 501-1000 accounted for 32.37%, and more than 1000 accounted for 14.01%. From the above analysis, we can see that in the present work, sample distribution is quite representative and realistic.

Table 4.6 Statistics of samples

Items	Classification	Frequency	Percentage
Firm age	<5 years	14	6.76%
	5-10 years	61	29.47%
	10-20 years	90	43.48%
	>20 years	42	20.29%
Firm size	<100 employees	26	12.56%
	101-500 employees	85	41.06%
	501-1000 employees	67	32.37%
	>1000 employees	29	14.01%
Firm location	Pearl River Delta	36	17.39%
	Yangtze River Delta	171	82.61%
Position of respondents	Head of department or BU	143	69.08%
	GM or above	64	30.92%
Service years of respondents in the firm	<5 years	46	22.22%
	5-10 years	95	45.89%
	>10 years	66	31.88%

From the perspective of sample source, the Yangtze River Delta is the main source of samples, accounting for 82.61%, and the Pearl River Delta for 17.39%. In terms of the positions of the respondents, 69.08% were department heads and 30.92% were general managers or above. The respondents' years of service in the enterprise accounted for 22.22% within 5 years, 45.89% for 5-10 years, and 31.88% for more than 10 years. From the above analysis, it can be seen that the sample sources and respondents meet the sample requirements.

4.4 Research method

According to the above discussion, the sample size of this study meets the requirements of sample quantity, the sample characteristics are representative, and the sample test shows that the item measurement also has good validity. Therefore, the survey data can be used to enter the statistical analysis process for hypothesis verification. This study uses SPSS as the main analysis tool. Different questions often mean analysis variables with different attributes. It is very meaningful to select the most appropriate analysis techniques according to the characteristics of the questions and variables, so as to answer the proposed questions and achieve specific research purposes. The analysis method, such as Factor analysis, correlation analysis, reliability test, linear regression, multinominal logistics regression, and moderated multiple regression are used in the study.

Chapter 5: Empirical Analysis

5.1 Scale item analysis

Item discrimination can evaluate the results of distinguishing the responses with different levels of items. The extreme groups approach is commonly used to calculate the discrimination. After summarizing the scores of each respondent, based on their scores the subjects were classified into high and low groups, and the average scores of each item in the high and low groups were analyzed by independent sample t-test, and the test result was called critical value (CR). If the test result is not significant, indicating that the item cannot distinguish the responses of different subjects, it should be deleted.

We calculated the total scores of 18 test items, ranked the total scores of the questionnaire, and found that the scores of high and low 27% were 98 and 82. If the total score of the questionnaire was higher than 98, it was regarded as the high score group (group 3), and if the total score of the questionnaire was lower than 82, it was regarded as the low score group (group 1). The grout statistics is shown in the Appendix, which shows that there is a valid difference between the low groups and the high groups as the number of different groups is different.

Both groups and the independent sample difference significance t test of the two groups were performed. In Appendix of this thesis, the specific results have been clearly illustrated.

Results of statistical test indicate that the 18 items of the questionnaire are statistically significant, which indicates that these items have high discrimination ability and can be factored into the next factor analysis procedure.

5.2 Validity test

A factor analysis is conducted, after we have analyzed the scale item, so as to obtain the construct validity of the scale. After that, common factors can be extracted from different variables, thereby reducing the description of the original, complex data structure.

KMO (Kaiser-Meyer-Olkin) is a method used to test whether a variable can meet the need of factor analysis. For KMO statistic, the basic principle is mainly based on the coefficient of partial correlation between different variables. If there is certain correlation between the variables, then the correlation will be high. However, the coefficient of partial correlation between different variables will be low. If the net correlation coefficient between two variables

is smaller (approach to 0), then there should be more common factors between the variables. In factor analysis, if the net correlation coefficient of each variable is larger, it means that there are fewer common factors between variables, and it is more unsuitable for factor analysis. The KMO statistic value lies in the range from 0 to 1. When the value is less than 0.50, it indicates that the factor analysis is not suitable for the variables. In contrast, if the KMO statistic value of the variable is greater than 0.80, it means that the relation between different variables is meritorious, and the variables are suitable for the related factor analysis. In addition, when the value is higher than 0.90, it indicates that the relationship between variables is marvelous and that the variables are well suited for factor analysis (Spicer, 2005).

Bartlett test is similar to KMO test, which is also a method to evaluate whether factor analysis is suitable by testing the correlation between variables. The Bartlett test is performed by constructing an approximate chi-square test. For Bartlett's test, the original assumption is that the correlation coefficient matrix between variables is the identity matrix. In other words, different variables are independent of each other. If the chi-square test result is significant, then the related null hypothesis of the Bartlett test should be rejected, and it is considered that correlation coefficient matrix is not an identity matrix and the variables are not independent of each other, then the process of the social survey and its data are valid. On the contrary, if the chi-square test result is not significant, then the related null hypothesis that the correlation coefficient matrix between variables is an identity matrix and the variables are independent cannot be rejected, and the process and data of the social survey cannot be considered valid.

The validity of 18 indicators was analyzed by KMO method and Bartlett method. The results are shown in Table 5.1. Bartlett sphericity test χ^2 = 1877.138, df=153 (p=0.000<0.05), indicating that the null hypothesis should be rejected. That is, the hypothesis that the net correlation matrix is a unit matrix should be accepted, while the hypothesis that the net correlation matrix is not a unit matrix should be rejected. As the KMO value amounts to 0. 925, which clearly indicates that related results of factor analysis can well explain the relationship between variables. Therefore, this questionnaire can meet the requirements of exploratory factor analysis.

Table 5.1 KMO and Bartlett's test result

KMO		0.925
Bartlett sphericity test	Approximate chi square distribution	1877.138
	df	153.000
	Sig.	0.000

In factor analysis, orthogonal rotation is used to construct a new linear combination to represent the original variables according to the principle of varimax. The number of main

linear combinations is determined according to the standard that the eigenvalue is greater than 1, so that the main part of the variation of the original variable is reflected by fewer main linear combinations, and the main linear combinations with the eigenvalue greater than 1 are the main factors. Factor analysis uses the cumulative variance contribution rate to reflect the efficiency of factor analysis. The cumulative variance contribution rate is the corresponding proportion of the total variation reflected by main factors to total variation of the original variables. This cumulative variance contribution rate measures the efficiency of factor analysis from based on the proportion of information.

Related results show that there are three factors whose eigenvalues are greater than 1, which can explain 58.857% of the variation (see Appendix).

The factor matrix after the rotation axis is shown in Appendix. The varimax method is used for the orthogonal rotation axis, and we use the default Kaiser normalization method to process the rotation axis. It should be noted that the rotation axis has been iterated for 6 times. A factor load selection criterion with a value of 0.45 was used to carry out the relevant inspection. Factor one contains ten items: KBR01- KBR10. This factor name is “a bundle of knowledge-based resources”. Factor two includes LON1, LON2, LON3, and LON4. The four items can be named “levels of opportunity newness”. The third factor that includes CC1, CC2, CC3, and CC4 can be named “core competencies”.

5.3 Reliability test

The reliability represents the consistency or stability of the scale. It is defined that the reliability is the proportion of variance of true score to the measured score. In general, when a scale measures the same construct, the greater the number of items, then the higher the reliability of scale. For the reliability test, the purpose is to examine the change of the reliability coefficient of the whole scale after item deletion. If the items are deleted, the overall reliability coefficient of the scale is significantly higher than the original reliability coefficient (internal consistency α coefficient), the attributes to be measured for this item and other items may be different, which means that the homogeneity of this item and other items is not high, and this item can be considered to be deleted in the item analysis.

In this work, reliability analysis was conducted by using Cronbach’s α to evaluate the internal consistency of the scale. It is considered by some scholars that a Cronbach’s α higher than 0.7 should be the minimum acceptable reliability value (DeVellis, 1994; Nunnally, 1978). The higher the α coefficient of the scale, the lower the measurement error and the higher the

reliability of the scale.

From Table 5.2, it can be seen that this value of "A bundle of knowledge-based resources" is 0.912, indicating that internal consistency of the item is excellent. The values of "Core competencies" and "Levels of opportunity newness" are 0.775 and 0.784, respectively, both of which are greater than the acceptable minimum reliability value. As a result, the questionnaire is reliable on the whole.

Table 5.2 Reliability results of all variables

Variable	Cronbach's α
Core competencies	0.775
A bundle of knowledge-based resources	0.912
Levels of opportunity newness	0.784

5.4 Correlation and multicollinearity test

Before the multiple regression analysis, the correlation coefficients of variables in the model need to be comprehensively analyzed to obtain the correlation of different variables on this basis. At the same time, it can also be clear whether there is a significant multicollinearity between different variables.

The related results of variable correlation analysis are shown in Appendix. It can be seen that at the level of 0.05, the correlation coefficients between a knowledge-based resources, core competencies and levels of opportunity newness are all significant. This result shows that there is a significant correlation between variables.

Multicollinearity means that if one explanatory variable changes, the other will change. When there is serious multicollinearity problem, the analysis results will be unstable, and the regression coefficient will be completely opposite to the actual situation.

In order to diagnose multicollinearity between variables, variance inflation factor (VIF) was used in this study. It is generally believed that when VIF is greater than 5, the model has a serious multicollinearity problem. Table 5.3 shows that the VIF of the variables is 1.660, indicating that the correlation between different variables will not cause significant multicollinearity.

Table 5.3 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.857	0.252		7.375	0.000		
	KBR	0.497	0.059	0.527	8.357	0.000	0.603	1.660
	LON	0.266	0.066	0.255	4.047	0.000	0.603	1.660

a. Dependent Variable: CC

5.5 Hypothesis test

5.5.1 A bundle of knowledge-based resources and core competencies

Table 5.4 shows that the correlation coefficient is 0.687, R^2 is 0.473, Adjusted R^2 is 0.470, Std, Error of the Estimate is 0.531.

Table 5.4 Model summary

Model	R	R^2	Adjusted R^2	Evaluated SE
1	.687[a]	0.473	0.470	0.531

a. Predictors: (Constant), KBR

Table 5.5 shows that F=183.726 (p<0.001), indicating that the regression model explained the variation to reach the significance level.

Table 5.5 Anova[a]

Model		Sum of squares	df	Average square	F	Sig.
1	regression	51.853	1	51.853	183.726	<.001[b]
	residual	57.857	205	0.282		
	Sum	109.711	206			

a. Dependent Variable: CC

b. Predictors: (Constant), KBR

Table 5.6 shows that β=0.687, F=13.555 (p<0.001), indicating that the regression model explained the variation to reach the significance level.

Table 5.6 Parameter[a]

Model		Non-standardized parameter		Standardized parameter	t	Sig.
		B	SE	Beta		
1	(constant)	2.027	0.257		7.876	<.001
	KBR	0.649	0.048	0.687	13.555	<.001

a. Dependent Variable: CC

From these tables, H1 which assumes that a bundle of knowledge-based resources positively affects core competencies should not be rejected.

5.5.2 Moderating role of entrepreneurial opportunities and resources bundling

The moderating mechanism of the study consists of three parts: the impact of the levels of opportunity newness on resources bundling, the impact of a bundle of knowledge-based resources on the levels of opportunity newness, and the moderating effect of resources bundling on the relationship between core competencies and a bundle of knowledge-based resources.

General linear regression analysis can only be used to deeply discuss the relation between a set of independent variables and a continuous dependent variable. However, because the resource bundling process in this study is a multi-category variable (including pioneering bundling, enriching bundling and stabilizing bundling), the multi-category variable is

disordered. In addition, the method of using grouping to test the moderating variable has the problems that the statistical power is reduced due to sample splitting and the coefficient in the grout is not statistically significant in the strict sense after grouping. For the above reasons, this study used the most common moderated multiple regression to test the moderating effect. Resource bundling is the moderator of the relationship between the core competencies and knowledge resources of firm, and it is also the dependent variable in the relationship between opportunity newness and resource bundling.

Moderated multiple regression model is to explain under what conditions the dependent variable is influenced by the independent variable. In other words, if the correlation between these two types of variables or the negative and positive directions is affected by other factors, the factors are the moderating variable between the dependent variables and the independent variables. Schoonhoven (1981) argue that the moderated regression model is a proper way for evaluating contingent relationship hypotheses. For the moderated multiple regression model, the fundamental principle is to determine the moderating effect of contingency variable on original bivariate by testing the interaction between the moderator and the main variables. In moderated regression analysis, the dependent variable may be regressed on not less than two main variables and the interaction terms of these main variables to obtain statistically significant results on the interaction effects, and thus the existence and nature of the interaction relationship can be judged. In simple terms, X, Y and Z are used for the independent variable, the dependent variable and the moderator variable, respectively. As for the regression analysis results of the full model equation, if the added interaction term can obviously promote the ability of regression equation to elaborate the variance of the dependent variable, it indicates that interaction or contingency effect exists. Moreover, if the regression coefficient is significantly non-zero, then it means that independent variable and moderator have an interactive effect and affect the dependent variable. Moreover, a positive and significant full model interaction coefficient means that Z (moderator variable) affects the relationship between X (independent variable) and Y (dependent variable) in a positive moderating way. This means that the positive relationship between Y and X is enhanced when Z is at a high level. Conversely, the meaning of the negative significant full model interaction coefficient is the opposite.

Statistically, the interaction of two variables and the effect of the moderating variable are represented by the product of these two variables. The formula is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 \tag{5.1}$$

The influence coefficient of X_1 on Y is β_1, and the influence coefficient of X_2 on Y is β_2. β_1 and β_2 reflect the size of the main effect. β_3 (Coefficient of $X_1 X_2$) reflects the

magnitude of interaction and moderation. Why can the interaction and moderating effects be represented by the product of X_1 and X_2? In formula 5.1, we can take the partial derivative of Y with respect to X, then:

$$\frac{\partial Y}{\partial X_2} = \beta_2 + \beta_3 X_1 \tag{5.2}$$

That is, the value of X_1 influence the related effect of X_2 on Y. This is actually the definition of moderation and interaction. Therefore, both moderating and interacting effects are statistically tested in the same way. When β_3 of the product term is very significant, then it means that the moderating effect or the interacting effect exists. In general, interactions can be categorized as interference interaction effect and reinforcement interaction effect. From formula 5.2, we can see that the slope of the linear relationship between X_2 and Y is $\beta_2 + \beta_3 X_1$. Therefore, the positive, negative and magnitude of β_2 and β_3 determine whether the interaction is reinforcement or interference.

The specific steps to test the moderating effect with moderated multiple regression model include: (1) transforming the category variables into dummy variables. The number of dummy variables required is equal to the number of category variables minus one. (2) Centralization of continuous variables. That is, the mean value is subtracted from each data measured in this variable, so that the mean value of the new data sample is 0 (Aiken & West, 1991). This is because predictors and moderators tend to be highly correlated with their product terms. The purpose of centralization is to reduce the multicollinearity between variables in the regression equation. (3) Constructing the product term. To construct the product term, it is only necessary to multiply the independent variable and the moderating variable after encoding or centralizing. If dummy variables are used, each dummy variable should have a corresponding product variable. (4) Constructing the equation. After constructing the product term, the interaction can be tested by putting the product term, the dependent variable and the independent variable into then related multiple regression equation. If the product term's coefficient is significant, it indicates the existence of a regulatory effect. (5) Analysis and interpretation of moderating effect. When a significant moderating effect is found in the test, the next important step is to analyze its mode of effect. The method used is to examine the slope of the regression of independent variable on dependent variable in different groups of moderating variables, and then to plot the resulting values to visually represent the mode of the moderating effect.

1. Knowledge-based resource and levels of opportunity newness

Regression analysis results of levels of opportunity newness and a bundle of knowledge-based resources are listed in Table 5.7, Table 5.8 and Table 5.9. From these tables, H2 which

assumes that a bundle of knowledge-based resources affects levels of opportunity newness is not rejected.

Table 5.7 Model summary[a]

Model	R	R^2	Adjusted R^2	Evaluated SE
2	.630 [a]	0.397	0.395	0.54434

a. Predictors: (Constant), KBR

Table 5.8 Anova[a]

Model		Sum of squares	df	Average square	F	Sig.
2	regression	40.070	1	40.070	135.232	<.001[b]
	residual	60.742	205	0.296		
	Sum	100.812	206			

a. Dependent Variable: LON

b. Predictors: (Constant), KBR

Table 5.9 Anova[a]

Model		Non-standardized parameter		Standardized parameter	t	Sig.
		B	SE	Beta		
2	(constant)	0.640	0.264		2.429	0.016
	KBR	0.570	0.049	0.630	11.629	<.001

a. Dependent Variable: LON

2. Levels of opportunity newness and resources bundling

Resources bundling is a multicategory nominal (unordered) variable including pioneering bundling, enriching bundling and stabilizing bundling. In Table 5.10, Table 5.11 and Table 5.12, multinomial logistic regression analyses of levels of opportunity newness and resources bundling are listed. In the multinomial logistic regression, West et al. (1996) suggest that the choice of the comparison group should be considered: the group which is expected to have the highest or lowest score on the dependent variable and the comparison group ideally should not have a relatively smaller sample size. Following this guide, enriching bundling is selected as the comparison group.

Table 5.10 shows that a total of 207 samples participated in the analysis, and 42.0% of them chose stabilizing bundling, 43.0% of them chose enriching bundling, and 15.0% of them chose pioneering bundling.

Table 5.10 Case processing summary

		N	Marginal Percentage
Resources bundling	Stabilizing bundling	87	42.0%
	Enriching bundling	89	43.0%
	Pioneering bundling	31	15.0%
	Valid	207	100.0%
	Missing	0	
	Total	207	

Table 5.11 shows that the variance between the initial model without independent variables and the final model with independent variables is statistically significant ($p<0.001$), which

indicate that the independent variables have validity.

Table 5.11 Information on model fitting

Model	Model Fitting Criteria -2 Log Likelihood	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept Only	128.723			
Final	96.413	32.31	2	<.001

Table 5.12 shows that when choosing between enriching bundling and stabilizing bundling, levels of opportunity newness may greatly influence the choice preference (p=0 < 0.05). Regression coefficient of opportunity newness level is -1.132. This means that the lower the level of opportunity newness, the more inclined firms are to choose stabilizing bundling process. After improving the opportunity freshness level of a unit, the log odds of individuals choosing stabilizing bundling process compared with enriching bundling process will decrease by 1.132.

Table 5.12 shows that when choosing between enriching bundling and pioneering bundling, levels of opportunity newness have not a statistically significant effect on choice preference (p =0.195> 0.05).

Table 5.12 Parameter estimates

Resources bundling[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI	
								Lower Bound	Upper Bound
SB	Intercept	4.092	0.976	17.591	1	0.000			
	LON	-1.132	0.263	18.546	1	0.000	0.322	0.192	0.540
PB	Intercept	-3.052	1.571	3.775	1	0.052			
	LON	0.508	0.392	1.680	1	0.195	1.661	0.771	3.579

a. The reference category is: EB

From the above analysis, H3 which assumes that levels of opportunity newness affect resources bundling is not rejected partially.

3. Moderating effect of resources bundling

Following the guidance of West et al. (1996), we convert the categorical variable “resources bundling” to a dummy variable with “enriching bundling” as the comparison group.

Table 5.13, Table 5.14 and Table 5.15 are the results of moderated multiple regression analyses. Table 5.13 shows that ΔR^2=0.016 (p=0.039<0.05), Table 5.15 shows that SB * $\overline{\text{KBR}}$ B=-0.231 (p=0.032<0.05) and PB * $\overline{\text{KBR}}$ B=-0.308 (p=0.031<0.05). The analysis results show that for the moderating effect, both the regression coefficient and ΔR^2 are significant, which indicates that the moderating effect exists.

Table 5.13 Summary of the model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.697[a]	0.486	0.478	0.52718	0.486	63.919	3	203	0.000
2	.709[b]	0.502	0.490	0.52131	0.016	3.299	2	201	0.039

a. Predictors: (Constant), KBR, SB, PB

b. Predictors: (Constant), KBR, SB, PB, SB * $\overline{\text{KBR}}$, PB * $\overline{\text{KBR}}$

Table 5.14 Anova[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.293	3	17.764	63.919	<.001[b]
	Residual	56.418	203	0.278		
	Total	109.711	206			
2	Regression	55.086	5	11.017	40.54	<.001[c]
	Residual	54.624	201	0.272		

a. Dependent variable: CC

b. Predictors: (Constant), KBR, SB, PB

c. Predictors: (Constant), KBR, SB, PB, SB * $\overline{\text{KBR}}$, PB * $\overline{\text{KBR}}$

Table 5.15 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.040	0.274		7.437	0.000
	KBR	0.641	0.049	0.679	13.114	0.000
	SB	-0.013	0.082	-0.009	-0.156	0.877
	PB	0.227	0.110	0.111	2.068	0.040
2	(Constant)	1.160	0.443		2.616	0.010
	KBR	0.801	0.080	0.849	10.001	0.000
	SB	0.000	0.081	0.000	-0.004	0.997
	PB	0.270	0.110	0.132	2.450	0.015
	SB * $\overline{\text{KBR}}$	-0.231	0.107	-0.166	-2.163	0.032
	PB * $\overline{\text{KBR}}$	-0.308	0.142	-0.132	-2.169	0.031

a. Dependent variable: CC

To better verify and show the moderating effect, we test the slope of the regression of independent variable to dependent variable in various groups, and simulate the moderating effect of the resource bundling process with a two-dimensional coordinate chart. As shown in Figure 5.1, knowledge-based resources can significantly predict core competencies for pioneering bundling process, enriching bundling process and stabilizing bundling process. Compared with stabilizing and pioneering, enriching bundling process has steeper slope and more significant influence. Therefore, H6 is not rejected.

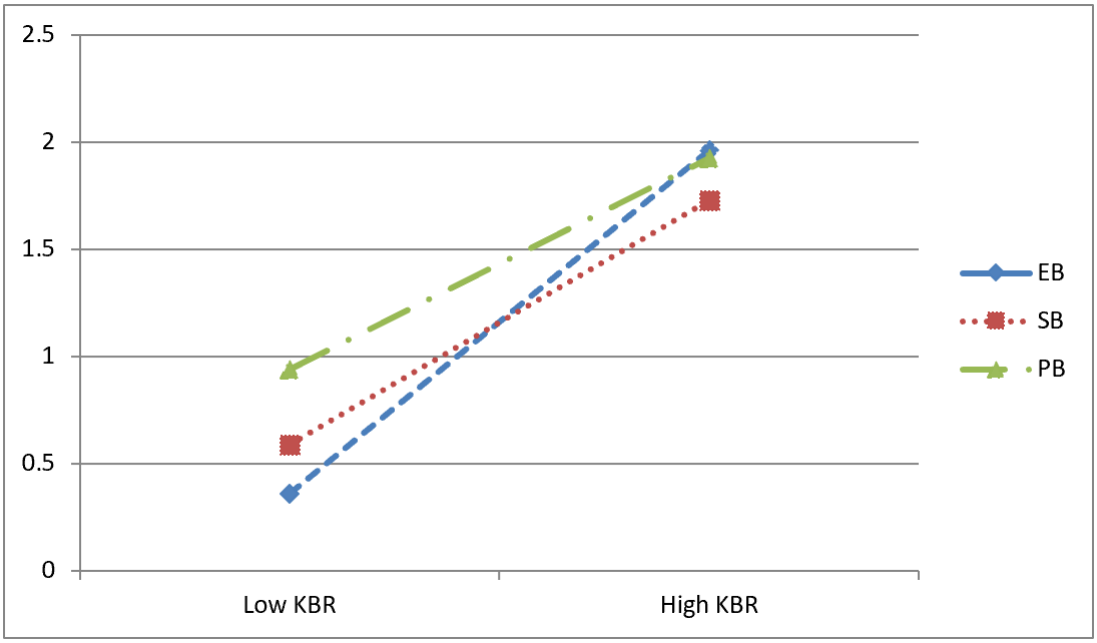

Figure 5.1 Moderating effect of resources bundling

5.5.3 Hypothesis test results

Summarizing the above hypothesis test results, it is clear that all the hypotheses are supported except H5 (in Table 5.16).

Table 5.16 Hypothesis test results

No.	Hypothesis	Results
H1	A bundle of knowledge-based resources affects the core competencies in a positive way	Not rejected
H2	Level of knowledge-based resources positively affects the level of opportunity newness	Not rejected
H3	When exploiting low level of opportunity newness, firms tend to choose stabilizing bundling process	Not rejected
H4	When exploiting high level of opportunity newness, firms tend to choose enriching bundling process	Not rejected
H5	When exploiting high level of opportunity newness, firms tend to choose pioneering bundling process	Rejected
H6	Resources bundling moderates the relationship between core competencies and knowledge-based resources of firm, and compared with stabilizing bundling process and pioneering bundling process, enriching bundling process may have a stronger positive effect on core competencies	Not rejected

For the formation of core competencies, knowledge-based resources are the basis; in addition, the level of knowledge-based resources owned by firms determines the level of newness of opportunities identified and exploited by firms, which confirms the hypotheses H1 and H2. The level of opportunity newness affects the choice of resource bundling process. When exploiting opportunities with low level of newness, firms tend to choose stabilizing bundling process, and when exploiting opportunities with high level of newness, firms tend to

choose enriching bundling process, which confirms the hypotheses H3 and H4. However, the hypothesis H5 that firms tend to choose the pioneering bundling process when exploiting opportunities with high level of newness is not supported. Resource bundling can moderate the relationship between core competencies and knowledge-based resources; in addition, enriching bundling process may have much stronger positive effect on the core competencies of firm, which confirms hypotheses H6.

Chapter 6: Discussion, Conclusions and Implications

6.1 Discussion and conclusions

6.1.1 Knowledge-based resources are the main sources of core competencies

For the production and management of firms, resources are the inputs, and it can be categorized into two types, namely non-knowledge resources and knowledge resources. This study confirms that knowledge resources are more important for the formation of core competence and the construction of SCA. If the analysis is conducted formally, then the knowledge resources of firms include tacit knowledge and explicit knowledge. The latter is not affected by people's subjective cognition and can be encoded and easily transmitted; while the former is not easy to encode and share, and is highly personalized, because of the subjective cognition. Nonaka (1994) believes that the information transmitted by the objective world can only reveal the static characteristics of knowledge, while the subjective cognition of human beings can reveal the dynamic process of knowledge generation.

In recent years, science and technology have made remarkable progress, and competition in various fields has become more intense, the key factors for the success of firms are constantly changing, and the factors which promote success in the past may become obstacles to the current development of firms, and the existing knowledge resources of firms may also become obstacles to their growth. Therefore, firms must constantly obtain the knowledge resources they need and innovate by absorption, so as to create knowledge resources that others are difficult to imitate. The acquisition of knowledge resources from the outside is affected by many factors, e.g. the ability to absorb knowledge, the ability to evaluate and identify knowledge, and the existing knowledge. Therefore, firms should constantly learn to enrich their knowledge stock and gradually improve their ability to evaluate, identify and absorb knowledge through the way of "learning by doing", so as to continuously improve their ability to acquire knowledge.

To successfully overcome the constraints of knowledge resources, firms must obtain a large number of knowledge resources from outside. The internal creation of knowledge can be regarded as another source of knowledge resources. The knowledge resources obtained from the outside cannot fully meet the needs of firms. Only by absorbing the knowledge resources obtained from the outside and constantly creating more targeted knowledge inside, can firms achieve continuous innovation. Innovation is the essential characteristic of entrepreneurship,

and knowledge resource is the important input variable of innovation process. From the perspective of knowledge resources, innovation is actually knowledge innovation, that is, internal creation of knowledge resources. By creating knowledge resources internally, firms can build a first-mover advantage over competitors and improve the learning and innovative capabilities of employees. Knowledge resources have the characteristics of situational specificity, so the knowledge resources created by "learning by doing" according to the needs of practice are more difficult to duplicate and imitate, so they are more valuable. As a result, creation and acquisition of knowledge resources may greatly influence the construction of core competence and CA.

6.1.2 The level of knowledge resources determines the level of opportunity newness

This study found that the level of knowledge-based resources of firms determines the level of newness in identifying and exploiting opportunities. Entrepreneurial-oriented enterprises will actively identify and exploit entrepreneurial opportunities, and knowledge resources will guide the whole process of identifying entrepreneurial opportunities and integrating resources to develop opportunities. In the stage of opportunity identification, enterprises must use knowledge resources to find, screen and evaluate opportunities; in the stage of opportunity exploitation, enterprises must use various knowledge resources (such as management knowledge, industry knowledge, market knowledge) to improve the efficiency of exploiting opportunities.

The newness of opportunities has a more profound impact on market development than simply the number of opportunities (Dahlqvist & Wiklund, 2012). Innovative opportunity is a possibility to realize potential economic value, which arises from the new combination of resources and markets in response to changes in relationships between economic agents, customer preferences or technical knowledge (Holmén et al., 2007). From the micro perspective, the newness of opportunity not only affects the entrepreneurial intention of entrepreneurs, but also improves the resource allocation and entrepreneurial performance of firms. The opportunity with newness means that there exists a context for creating new products or production modes, which involves at least some elements of novelty (Shepherd & DeTienne, 2005).

Whether an entrepreneur can discover and take advantage of entrepreneurial opportunities in specific industries depends mainly on whether he has accumulated experience in related industries or whether he has acquired relevant technical knowledge and market information.

Rich industry experience makes entrepreneurs more likely to be exposed to external environment information including customers, technology and competition, and entrepreneurs are more likely to understand the fields and practices that are completely different from the existing business of firms, and thus better identify the innovative opportunities that are different from the existing processes and business. Diversified information can also overcome the cognitive solidification caused by narrow personal knowledge and experience to a certain extent, and help entrepreneurs to think innovatively.

The integration of existing knowledge and new knowledge also strengthens the knowledge accumulation of entrepreneurs in a specific field. With the increase of knowledge in a certain field, entrepreneurs get more information, which not only helps to improve the depth of knowledge of entrepreneurs, but also facilitates their identification of valuable information, thus helping entrepreneurs to make breakthrough innovations in this field. In addition, high-level knowledge accumulation also helps to promote the absorptive capacity of knowledge of the entrepreneurs. Improvement of this capacity is conducive to identify opportunities for breakthrough innovation.

6.1.3 The level of opportunity newness affects the choice of resources bundling process

Innovation has been regarded by more and more scholars as the core feature of measuring opportunities and the main variable used to distinguish the differences between entrepreneurial opportunities (Baron & Shane 2008; Dahlqvist & Wiklund, 2012; Semasinghe & Davidsson, 2009), opportunities with different degrees of newness improve firm performance by choosing the right way to integrate resources. Resource bundling is classified into three types, namely pioneering, enriching and stabilizing (Sirmon et al., 2007).

Among them, the stabilizing process emphasizes carrying out activities based on the traditional resource structure without changing the basic resource attributes such as human resources and technology. The enriching process emphasizes creatively linking traditional resources by exploring the attributes of traditional resources in depth, so as to form a new resource structure and enhance the value creation capability of traditional resources. The pioneering process is based on Schumpeter's innovation logic, which emphasizes the introduction of new resources and the creative bundling of resources to generate new capabilities of value creation (Sirmon et al., 2007).

If the opportunity newness level is low, which means that the level of knowledge-based resources owned by firms is low, firms have to imitate others to exploit existing opportunities

in the market, their services or products may be less different from those of the same industry, and there is no obvious difference in resource demand. At this time, the use of stabilizing process to integrate resources can make use of this opportunity in a timely way and at low cost. Therefore, if the opportunity newness level is low, the firms may tend to choose stabilizing bundling process, which has been confirmed by this study.

On the contrary, when the opportunity exploited by a firm is high in newness, it is difficult to successfully develop the potential value of the opportunity by only relying on the combination process of capabilities and resources, because the level, quality or quantity of exclusivity of the required capabilities and resources of firms have changed. Since stabilizing process aims at improving existing capabilities, firms concentrate resources on absorbing knowledge related to existing fields, which may help to obviously increase the depth of knowledge. Therefore, stability integration is a way to improve existing resources and capabilities in a more conservative way (Sirmon et al., 2007). Unlike stabilizing process, enriching process integrate various resources to form unique capabilities to develop innovative opportunities to meet market demand. Because the exploitation of highly innovative opportunities requires more resources for specific functions and purposes (Semasinghe & Davidsson, 2009), it is more helpful for firms to adopt enriching process to improve performance.

6.1.4 Moderating effect of resources bundling

For RBV, the core is the ability to integrate, develop and use resources. The organization's approach to resource integration creates uniqueness that makes it an important core competency. This ability can be formed by the combination process of resources within an organization, it has social complexity, it is a powerful force that cannot be replicated. This ability depends on a complex organizational learning process that relies on early learning, investment and development (Salaman & Asch, 2003).

Dynamic resource management provides three resource bundling methods for pioneering, enriching and stabilizing. These bundling processes have special functions on the resource utilization of firms, and have different influences on the relationship between them and core competencies.

The process of stabilizing bundling is to effectively maintain the current capabilities of firm. Firms that focus on a stabilizing bundling process tend to maintain continuity in their day-to-day operations in order to increase the efficiency. When time goes on, this method will

generate path dependence and inertia, and then form the core competence, which will promote the formation of the core rigidity.

Enriching bundling process, focus on the development of capabilities of firm, extending existing capabilities and adding new sills, usually in response to the changes in market competition. By reorganizing the firm's existing resources, they can be configured differently and take advantage of new resources. In fact, firms that focus on enriching bundling processes tend to try their best to improve existing products to compete in new market environment condition (Day, 1994).

A pioneering bundling process can facilitate the implementation and support of new corporate strategies. Pioneering can better create entirely new functionality than the other approaches (Ahuja & Lampert, 2001). It is found that new capabilities of firm usually originate from some new resources, and new resources can help firms create new businesses and develop new markets, enabling firms to adapt to rapidly changing market strategies. The enterprises that focus on pioneering bundling process may usually avoid path dependence and core rigidity. However, the building of core competencies is "time-path-dependent", and the pioneering bundling process without early accumulation is at great risk.

This study confirms that, especially for manufacturing enterprises, enriching bundling processes are more conducive to forming core competencies and coping with environmental changes than stabilizing bundling process and pioneering bundling processes.

6.2 Theoretical contributions and managerial implications

6.2.1 Theoretical contributions

6.2.1.1 Core competencies research from SE perspective

The sustainable growth of firms has always been the focus of practice and theoretical research. For strategic management, the most important core is to obtain and further develop CA of firm, and the core of entrepreneurship is how to find and make use of opportunities. Strategic management and entrepreneurship have different concerns, but their ultimate goal is to help firms grow and create wealth. From a single perspective of strategic management or entrepreneurship, the success or failure of the enterprise can be attributed to whether it is innovative and strategic, which leads to the ineffectiveness of management and the risk of failure.

SE integrates strategic management and entrepreneurship, which have complementary

characteristics: on the one hand, entrepreneurial activities are to develop and identify previously unexplored opportunities, innovatively combine existing resources or create new resources, develop related new products and then gradually commercialize them. Strategic management, on the other hand, allows actions, decisions and commitments to be systematically designed and then executed so as to generate the CA, which may provide the foundation for entrepreneurial activities. The two are essentially integrated, emphasizing the effective coordination of entrepreneurial and strategic behavior to achieve sustainable growth and wealth creation.

This study confirms that SE is a kind of entrepreneurial behavior that introduces strategic perspective, emphasizing the absorption and utilization of existing resources and capabilities while responding to dynamic situations. SE guides firms to maintain existing CA and explore new growth opportunities, to gain long-term CA through continuous innovation, and to maximize the value creation and wealth of firms.

Despite the increasing attention in the field of SE, there is a lack of literature to systematically sort out the adaptability of SCA from the theoretical and empirical perspectives, and this study has made a contribution in this regard. This study expands the boundary of RBV theory, which holds that CA mainly depend on the unique and inimitable resources. However, previous studies focus on the VRIN resources owned by firms, rather than how to renew these resources through innovation opportunities to maintain SCA.

This study reveals the mechanism of SE on SCA. Firms explore innovation opportunities on the basis of existing knowledge resources, and exploit opportunities through enriching bundling process to form new core competencies. The level of knowledge-based resources determines the level of opportunity newness and the way of opportunity exploitation, and then affects the level of core competence, and ultimately determines the CA of firms. In the whole mechanism of actions, core competence is the core, and also the balance point of advantage-seeking and opportunity-seeking in SE.

6.2.1.2 The balance mechanism of advantage-seeking and opportunity-seeking

SE can be regarded as the combination of exploitation activities seeking advantages and exploration activities seeking opportunities. SE emphasizes the balance between seeking entrepreneurial opportunities and seeking CA. The existing research on SE holds that the resources of firms are finite, and the balance of SE is to allocate the finite resources between current CA and future opportunities. That is to say, existing research regards existing CA and future opportunities as two independent activities.

This study confirms that SE is the result of the integration of strategy and entrepreneurship. Strategy and entrepreneurship are mutually integrated and complementary, rather than independent of each other. Strategic management mainly focuses on how firms take strategic actions to build SCA in the continuously changing environmental condition, thus it mainly emphasizes the building of CA of firms. Moreover, entrepreneurial research mainly emphasizes discovering and even creating opportunities and bundling resources to exploit them. Therefore, it mainly emphasizes the exploration, exploitation and utilization of opportunities. This study confirms that the common goal of strategy and entrepreneurship is the formation of the core competencies. The strategic actions form the core competencies, and the entrepreneurial actions updates the core competencies. Therefore, the balance between seeking CA and seeking entrepreneurial opportunities in SE is the balance between maintaining and renewing the core competencies of firms. The maintenance and renewal of core competence is a continuous and dynamic process rather than independent.

For core competitiveness, knowledge (especially tacit knowledge) is an important source. Therefore, the balance of opportunity-seeking and advantage-seeking in SE means the cultivation and renewal of knowledge of firms. This study reveals the essence behind the balance and further deepens the theory research of SE.

6.2.1.3 Source and newness of entrepreneurial opportunities

Opportunity is the core issue of entrepreneurship research. Whether opportunity is discovered or created has always been the focus of discussion in the theoretical circles. Existing research ignores the real source of entrepreneurial opportunities and the nature of the economic activities behind them. This study answers the core question on "why different enterprises from the same field, facing the same external environment and the same source of opportunity, produce different business results".

Identifying valuable opportunities is the starting point of entrepreneurial activities, and whether firms can identify such opportunities and whether they can effectively match opportunities with resources is the key to successful entrepreneurship. Therefore, the existence of opportunities is important premise of the value creation process, and successful exploitation of opportunities (especially that high level of newness), requires firms to integrate the required human, material, financial and other resources (Shane & Venkataraman, 2000). In addition, RBV also emphasizes that knowledge resources are the important foundation of firms. Through the efficient integration of resources, firms can successfully use the opportunities and create new capabilities, and ultimately create value for firms. This is also consistent with Stam and

Elfring (2008) that capability of firms to optimize the allocation of core resources is an important guarantee for the implementation of innovative activities. In this way, firms integrate various resources to form unique capabilities to exploit opportunities with different degrees of newness, so as to meet market demand.

The theoretical contributions of this study to the source and newness of opportunities are reflected in three aspects: (1) Integrating the opportunity perspective and the resource perspective, aiming at the research status on the exploitation of resources and entrepreneurial opportunities, this study builds a theoretical model on the relationships between the characteristics of opportunity newness, the integration of resources and the core competencies of firms, making up for the lack of entrepreneurship research from the integration perspective. (2) Analyzing the core characteristic of opportunity newness (innovation), and explore its role in firm resource integration behavior, and deeply reveal the influence mechanism and difference of opportunity newness on resource integration. (3) Based on the perspective of resource integration, the present work reveals the intrinsic mechanism of the effect of opportunity newness on the core competencies of firms, and proposes that under different degrees of opportunity newness, firms will adopt a reasonable way of resource integration in order to obtain higher performance returns, which fills up research deficiency on the impact path of opportunity newness on core competencies of firms.

6.2.1.4 Measurement and identification of core competencies

The core competencies are deeply rooted in its products, technology, production process, corporate culture and structure, which makes it difficult to separate and measure them from other factors in the firm. Therefore, it is difficult to identify and measure the core competence. Most of the existing studies use text description or index system to describe and measure the core competence, which cannot reflect the core competence comprehensively and accurately. This study holds that the existing measurement of core competence ignores the nature of knowledge resources of core competence.

To discuss the essence of core competence, we should deeply analyze the expression form of core competence and the dependent carrier. The former studies the form in which the core competence of a firm is reflected, while the latter explores the carrier in which the core competence exists. The expression forms of core competence include formatted knowledge, values, resources, information, expertise and competence. The above forms exist in different carriers such as people, organizations, environments, assets. Because information, expertise and ability are essentially the knowledge within the organization, and the culture of the organization

and unique values belong to the unique resources. Therefore, the essence of core competence is the unique resources and knowledge.

The present study may bring some implications for future researches on the identification and measurement of core competence: firstly. the core competence of a firm is the competitiveness compared with its competitors. Firms create unique value for customers through their unique core capabilities, and these values cannot be replaced by other competitors. To become the CA and core competencies, the related capabilities of a firm must enable it to provide more value than its competitors can provide, or to perform value-creating activities that other competitors cannot. Second, the core competence of a firm is temporary. If competitors cannot benefit from the firm's strategy or have no resources to imitate, then there will be a SCA. Firms can use valuable, rare, but imitable capabilities to gain their core CA. Leverage its core competencies to create value whose length of time depends on competitors successfully imitating a product, service or process. Only when the core competence is valuable, rare, and imitating the cost is high and it cannot be replaced, the core competitiveness of the firm will last. Third, the formation of a core competence is a very complex and long-term process in which the resources and opportunities may interact with each other. Complexity gives businesses a SCA.

Therefore, we should measure and identify core competence from the formation process of core competence. First of all, core competence is relative to competitors, and the different choices of competitors affect the relative position of core competence. Some competitors are perceived in the industry, and some competitors are potential and may not be recognized at present. Secondly, core competence is dynamic, not static. The current core competence is not always sustainable, and the continuous investment in core competence is likely to become the future core competence of firm. Finally, formation of the core competence is a result of the complex integration of various resources in different ways, and knowledge is the key to the formation of core competence. Therefore, this study holds that the existing research on the identification and measurement of core competence through simple description or index system cannot reveal the essence of core competence.

6.2.2 Managerial Implications

6.2.2.1 Knowledge-based resources should be the focus of core competencies

First of all, the internal capabilities and resources of enterprises play a key role in the formation process of core competencies. "Resources" is the input factor in the production process, and

they include both external resources and internal resources. Although due to the typical characteristics of the market incompleteness and scarcity, different firms have unequal opportunities to obtain scarcity. However, there is no natural inequality between different organizations in the right of "who can access relevant resources", but the inequality of various organizations in their own knowledge and ability leads to the inequality in the decision-making of resource acquisition and ability. Therefore, the fundamental reason for the "heterogeneity" in the utilization and acquisition of scarce resources mainly lies in the differences in knowledge and capabilities among different organizations. The premise of a firm's decision on external resources is the analysis of internal resources, because the external resources themselves do not have the organization’s characteristics, but only when the internal resources and external resources interact with each other, it will then have the characteristics of a firm. Therefore, how to discover, select and utilize external resources (opportunities and the degree of opportunity newness) according to the characteristics of internal resources is the internal reflection of the core competencies of firms, and the premise of this decision is still the accumulation of knowledge and capabilities of firms. Knowledge is a very unique resource, which is considered as the essential element of core competitiveness.

Secondly, Knowledge integrates "intangible resources" and "tangible resources", and integrates the basic activities of firms in the knowledge movement. It integrates corporate reputation, brand, employee knowledge, customer satisfaction and business relationship, which are neglected by traditional management theory but increasingly become important components of firm resources, and closely combines with organizational structure, production capacity, technological innovation capacity, market development and financial situation of firms. In fact, they constitute the "operating assets" and "core competence" of firms. Management practice has begun to attach great importance to the core competence of firms. Today, competitive success is not regarded as the related result of fleeting product development or strategic management, but as the deep-seated material of the firm, that is, the cultivation of internal capabilities and the comprehensive use of various capabilities are the most critical factors in the maintaining and obtaining of CA. Business strategy is just the activity and behavior of firms to develop the potential of knowledge capital and fully apply it to new areas of development.

Finally, core competencies of firm are a result of collective "learning by doing" of organization. The reason why a capability of a firm will become a core competence must be difficult, scarce, valuable, to substitute and imitate. Core competencies must first be particularly helpful to the values that customers value, and only those capabilities that enable firms to provide fundamental benefits to users can be called core competencies of firms. The end

product of this capability is of great perceived value to the customer. Core competence has the function of opening a variety of product potential markets and expanding new industries and fields. It provides potential access to various markets for firms. With the evolution of industry and technology, core competence can create many unexpected new markets. It is an important source of CA. It is difficult to imitate implicit knowledge, because it has process, completeness and ambiguity, which is different from explicit knowledge. Enterprises root it in the organization, and then integrate it into their management model and corporate culture. The core competence of a firm is a comprehensive reflection of its technological level, R&D capability, design, production capability, management capability and performance strength. It will be affected by various non-technical factors (such as the business philosophy of the enterprise) and technical factors, employee's commitment and moral standards. Core competence is the comprehensive learning ability of firm, which is gradually accumulated by internal learning in the past. It often reflects the accumulation of implicit knowledge in firms, reflects the intangible assets in firms, is the crystallization of collective "learning by doing", and will be improved and refined in the process of continuous application and sharing. Core competencies do not "wear out" like tangible assets, but lose value over time. Core competence has a certain life cycle and needs continuous improvement, development and perfection. Any firm cannot rely on simple imitation to establish its own core competence, but should rely on its own continuous learning, creation and even practice in the market competition, in order to establish and strengthen its unique core competence.

6.2.2.2 Opportunities should be matched with knowledge and resource bunding process

Traditional business philosophy holds that it is easier to gain CA by exploiting opportunities with a high degree of innovation. However, in reality, facing the same opportunities, some firms succeed, while others fail, and some firms rely on duplication and imitation survive in the market. What is the reason behind this?

Existing research points out that when the opportunities exploited by firms are highly innovative, their services or products distinguish obviously from the other firms, which helps them to establish CA in the market environment. The differentiated new services or products can help firms to build barriers to avoid being imitated or duplicated by others.

Empirical research results obtained by us indicate that the level of knowledge-based resources determines the newness level of opportunities that firms can identify and exploit. It means that whether firms can identify and exploit higher level innovation opportunities depends on the level of existing knowledge-based resources. If the level of knowledge resources of an

enterprise is low, it can only survive in the market by duplicating or imitating, and then exploit higher level of innovation opportunities when the knowledge-based resources accumulate gradually to a certain level. Therefore, the newness level of opportunities exploited and identified by firms is matched with the current level of knowledge-based resources.

Characteristics of entrepreneurial opportunities will have an impact on the resource integration behavior of firms, and firms often choose the matching way to integrate resources according to the degree of opportunity newness. When a firm is at a resource disadvantage, its goal is usually to minimize the cost of resources, and to create value at a cost as low as possible by bundling the process of resources within the firm's capabilities, that is, to " play the cards you have". When firms have superior resources and clear goals, resource integration through enriching bundling process is conducive to the organization to quickly achieve the task objectives, and give full play to the value of superior resources in the fierce competitive environment, so as to gain CA for firms. But, when the firm’s strategy requires new capabilities, the pioneering bundling process may be the proper choice. Therefore, firms need to choose the appropriate way of resource integration according to external environment and their own actual situation so as to maximize the matching effect of capabilities and resources of firms.

Furthermore, the metabolism of knowledge determines that the core competence of knowledge system must be constantly updated. Otherwise, the core rigidity accompanied by the cultivation of core competence will hinder the transfer and innovation of knowledge, resulting in the loss of CA and the aging of knowledge. The renewal of core competence is a learning process of knowledge innovation based on the original core competence and customer value orientation. firms identify innovation opportunities based on knowledge-based resources, and use different resource bundling processes to exploit opportunities to form new core competencies. The renewal of core competencies is actually the cultivation of new core competencies. This repeated activity of knowledge innovation actually improves the level of knowledge-based resources, the main reason is that based on the existing knowledge system, it effectively overcomes the rigidity of core competence and gradually forms a series of new core competence. Therefore, the updating process of core competence and knowledge is characterized by a spiral cycle. From SE perspective, this is a balance mechanism between advantage seeking and opportunity seeking.

6.2.2.3 The risk of pioneering bundling process should be concerned

The empirical results indicate that the level of knowledge-based resources greatly determines the level of opportunity newness, the of opportunity newness affects the choice of resource

bundling process, and different resource bundling processes moderate the impact of knowledge-based resources on core competencies. Therefore, firms should choose the matching way of resource bundling according to their own level of knowledge-based resources. For manufacturing firms, they should carefully choose the pioneering bundling process.

The goal of stabilizing is to effectively keep the existing CA by making small incremental improvements to existing capabilities, thereby creating path dependence and inertia in the resource mix. The purpose of enriching is to expand and improve existing capabilities in order to generate new value creation in unstable situations. Unlike building on existing knowledge, the pioneering is unique and requires exploration. This bundling process is generally based on Schumpeterian logic in order to gain new CA. Both stabilizing and enriching build on the current capabilities, and they are basically evolutionary and linear. As opposed to stabilizing and enriching, pioneering tends to generate new knowledge and bring about some major technological changes. It is non-linear and revolutionary. Due to the difficulties and risks involved in its development, it is rare. In addition, the value of market opportunities and technology are subject to great uncertainty. Creativity is necessary because pioneering creates new knowledge, using only a part or a small part of the firm's existing product or technical knowledge. Creativity is very important to a company, but it doesn't bring innovation. In contrast, the use of creative imagination to discover, combine or synthesize existing knowledge, often from all sources. The creativity and imagination required for development and innovation must be supported by strong leadership. Capacity building is an accumulation of "time-path dependence", that is, it takes time, effort and builds on existing conditions. This study argues that firms must pay attention to the risks brought by the pioneering bundling process.

6.2.2.4 Management methods should be matched with stages of enterprise life cycle

According to the theory of enterprise life cycle, the development of enterprises generally goes through four stages: introductory stage, growth stage, maturity stage and decline stage (Dickinson, 2011). As a special resource with similar life characteristics, knowledge also has its own life cycle. In different life cycle stages of enterprises and in different carriers, its role is naturally different. Therefore, enterprises should also take corresponding measures.

In most cases, for the enterprises in introductory stage, R&D is still in the exploratory stage due to the weak foundation of technology accumulation. Therefore, they focus more on technology imitation, experience learning, and pay less attention to breakthrough innovation. Enterprises at this stage are still in the stage of knowledge accumulation, identifying and developing opportunities with lower innovation level, and tend to adopt stabilizing bundling of

resources integration. Survival is an important strategic goal of enterprises in this stage.

The distinctive feature of growing enterprises is that they focus on acquiring heterogeneous knowledge from an open environment to accelerate breakthrough innovation, so that enterprises can quickly occupy the commanding heights of technology, products or services. Based on the product life cycle theory, Laursen and Salter (2006) believe that the key technical elements and knowledge needed by enterprises in the growth stage only come from a few similar or homogeneous knowledge sources. Therefore, in the growth stage of enterprises, keeping close contact with adjacent knowledge sources is conducive to the establishment of knowledge sharing and development system, helping enterprises to obtain knowledge spillover effects in new technologies, reducing the risk of mismatching between the introduced technical knowledge and market demand, and promoting enterprises to form a unique technological development track. Enterprises at this stage already have the ability to identify and develop higher level innovative opportunities, and they tend to adopt enriching bundling to integrate resources.

After entering the maturity stage, enterprises have a relatively perfect product and service system and a relatively stable customer base, but the influx of competitors has changed their demands for external knowledge. On the one hand, with the increasingly fierce market competition, the demand for core technologies, products or services is saturated (Ketokivi, 2016). If enterprises still reconstruct and couple with knowledge fields similar to existing knowledge, the knowledge changes caused will not be enough to break through the existing technology model and meet the conditions required for breakthrough innovation. On the other hand, with the expansion of scale, enterprises' ability to absorb heterogeneous knowledge is significantly improved. By constantly deconstructing and transforming external highly heterogeneous knowledge, knowledge separation and organizational barriers can be broken, knowledge structure can be optimized, and innovation potential can be stimulated (Alexander & Knippenberg, 2014), thus generating new cross-domain technologies. Therefore, it is possible for enterprises at this stage to adopt stabilizing bundling to maintain their existing CA. At the same time, some enterprises may identify and develop high-level innovative opportunities, adopt enriching bundling to optimize existing resources and capabilities, in order to achieve further breakthrough innovation.

When enterprises are in decline stage, due to the lack of innovation motivation and awareness, it is urgent to introduce highly heterogeneous knowledge to break through the internal technical bottleneck in order to seek "rebirth" opportunities. First of all, by extending R&D activities to the highly heterogeneous knowledge domain, innovation potential can be

stimulated, and new knowledge combinations can be attempted through breaking the inherent cognitive framework, so as to realize exploration and rapid entry into new fields and improve the success rate of breakthrough innovation. Secondly, in the process of development, enterprises have experienced many interactions with the dynamic environment, have a high degree of adaptability experience, and further enhance the analytical ability, can better digest, absorb and integrate heterogeneous resources to adjust the innovation model (Srivastava & Gnyawali, 2011), and identify new opportunities for technological development. However, enterprises are still highly concerned about the uncertainty of the future, and their innovation behavior is more cautious. At the same time, due to the backward technology, old equipment and other issues, if the heterogeneity of knowledge is beyond the scope of enterprise knowledge transformation ability, it will easily lead to resistance to innovation, solidification of innovative thinking and other phenomena, which will hinder breakthrough innovation. Therefore, enterprises at this stage may adopt the pioneering bundling to seek rebirth, but at the same time, it also carries enormous risks.

6.3 Research limitations and future study

6.3.1 Research limitations

The present investigated thesis uses scientific methods for theoretical and empirical studies, but it still has some limitations.

1. Due to the difficulty of enterprises investigation, this research does not adopt the principle of random sampling to carry out the survey, but a convenient sampling of manufacturing enterprises in a specific region with the help of local entrepreneur's associations. Moreover, although the sample size meets the requirement of variable quantity, the total amount is still not very high. Relevant factors will have a certain impact on the external validity of the research work. On the other hand, the research adopts the design of retrospective survey, which is difficult to fundamentally overcome the hindsight bias (that is, the respondents may erode the authenticity of the survey data due to factors such as vague memory or intentional exaggeration), which will also bring bias to the conclusion of the research to a certain extent.

2. Because our academic research ability needs to be further improved, related factors that may cause survey errors and the ways to deal with them are not adequately considered in the questionnaire design. For example, for resources bundling process, it is very professional and difficult for the respondents to distinguish stabilizing, enriching and pioneering, and the

existing mature scale is beyond the understanding ability of many respondents; while the revised scale is easy to understand, but the richness of its connotation needs to be improved. It is necessary to further master the theory and skills of the research method in the future work.

3. Results of items discriminative analysis of the levels of opportunity newness are not satisfactory. It may be caused by the problems of the scale itself, or it may be caused by the lack of scale processing skills. According to previous research results, the measurement of the levels of opportunity newness is not mature, and more empirical studies are needed to systematically test and support it.

4. Limitations of the research design: Except for a few hypotheses, the hypotheses of this study were verified by empirical studies. However, the formation of core competence of firms is influenced by many factors, and there are complex interactions among them. However, in the current research work, we have not fully considered all the factors, so there are some limitations. We do not have a deep understanding of the interaction of relevant factors, so there are still some deviations in the research on the relationship and influence degree of variables.

6.3.2 Future study

Although the empirical test of the present work has proved the impact of resources and opportunities on the core competencies of firms, this study is based on manufacturing enterprises in specific regions of China, and whether this impact will vary with different backgrounds needs further study. In addition, the degree of opportunity newness and resources bundling is important in practice and theory, but there are few existing studies, which may be further investigated in the overall framework of SE. Finally, on the theoretical level, although the stabilizing, enriching and pioneering bundling process are clearly defined, it is difficult to distinguish them accurately in practice. Therefore, it is necessary to combine theory with practice to deepen the study of resource bundling process.

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Annex A: Results of Correlation Analysis

	Mean	SD	1	2	3
1. A bundle of knowledge-based resources	5.320	0.773	1.000	0.630**	0.687**
2. Levels of opportunity newness	3.675	0.700	0.630**	1.000	0.587**
3. Core competencies	5.479	0.730	0.687**	0.587**	1.000

N=207; **p<0.01

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Annex B: Groupe Statistics

Total points (split bin)		N	Mean	SE	SE of Mean
CC1	<=82	59	4.71	0.789	0.103
	98+	56	6.19	0.692	0.092
CC2	<=82	59	4.60	0.914	0.119
	98+	56	6.21	0.701	0.094
CC3	<=82	59	4.79	0.824	0.107
	98+	56	6.30	0.717	0.096
CC4	<=82	59	4.85	0.939	0.122
	98+	56	6.19	0.643	0.086
KBR01	<=82	59	4.64	0.783	0.102
	98+	56	6.23	0.738	0.099
KBR02	<=82	59	4.95	0.655	0.085
	98+	56	6.21	0.653	0.087
KBR03	<=82	59	4.83	0.769	0.100
	98+	56	6.34	0.668	0.089
KBR04	<=82	59	4.90	0.824	0.107
	98+	56	6.29	0.803	0.107
KBR05	<=82	59	3.98	0.938	0.122
	98+	56	6.27	0.587	0.079
KBR06	<=82	59	4.22	0.911	0.119
	98+	56	6.02	0.751	0.100
KBR07	<=82	59	4.12	0.911	0.119
	98+	56	6.09	0.769	0.103
KBR08	<=82	59	4.24	0.795	0.104
	98+	56	6.27	0.774	0.103
KBR09	<=82	59	4.14	0.819	0.107
	98+	56	6.27	0.751	0.100
KBR10	<=82	59	4.03	1.129	0.147
	98+	56	6.21	0.706	0.094
LON1	<=82	59	2.90	0.959	0.125
	98+	56	4.20	0.585	0.078
LON2	<=82	59	2.92	0.915	0.119
	98+	56	4.43	0.783	0.105
LON3	<=82	59	3.17	0.834	0.109
	98+	56	4.32	0.575	0.077
LON4	<=82	59	3.07	0.873	0.114
	98+	56	4.34	0.552	0.074

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Annex C: Grouping Total Points

		Number of times	percentage	Valid percentage	Accumulative percentage
Valid	<=82	59	28.5	28.5	28.5
	83-97	92	44.4	44.4	72.9
	98+	56	27.1	27.1	100.0
	sum	207	100.0	100.0	

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Annex D: Independent-samples T Test

		Levene test with equal variance		t test with equal variance						
									95% CI	
		F	Sig.	t	df	Sig.	Average difference	SE	Lower bound	Upper bound
CC1	Equal variances assumed	1.990	0.161	-10.729	113	0.000	-1.488	0.139	-1.762	-1.213
	Equal variances not assumed			-10.766	112.306	0.000	-1.488	0.138	-1.762	-1.214
CC2	Equal variances assumed	7.303	0.008	-10.545	113	0.000	-1.607	0.152	-1.909	-1.305
	Equal variances not assumed			-10.617	108.282	0.000	-1.607	0.151	-1.907	-1.307
CC3	Equal variances assumed	0.408	0.524	-10.438	113	0.000	-1.507	0.144	-1.793	-1.221
	Equal variances not assumed			-10.477	112.155	0.000	-1.507	0.144	-1.792	-1.222
CC4	Equal variances assumed	9.909	0.002	-8.854	113	0.000	-1.335	0.151	-1.634	-1.036
	Equal variances not assumed			-8.939	102.954	0.000	-1.335	0.149	-1.631	-1.039
KBR01	Equal variances assumed	0.252	0.617	-11.180	113	0.000	-1.588	0.142	-1.869	-1.307
	Equal variances not assumed			-11.197	112.996	0.000	-1.588	0.142	-1.869	-1.307
KBR02	Equal variances assumed	1.945	0.166	-10.375	113	0.000	-1.265	0.122	-1.507	-1.024
	Equal variances not assumed			-10.376	112.720	0.000	-1.265	0.122	-1.507	-1.024
KBR03	Equal variances assumed	0.246	0.621	-11.205	113	0.000	-1.509	0.135	-1.776	-1.242
	Equal variances not assumed			-11.247	112.140	0.000	-1.509	0.134	-1.775	-1.243
KBR04	Equal variances assumed	0.247	0.620	-9.139	113	0.000	-1.387	0.152	-1.688	-1.087
	Equal variances not assumed			-9.146	112.922	0.000	-1.387	0.152	-1.688	-1.087
KBR05	Equal variances assumed	3.226	0.075	-15.564	113	0.000	-2.285	0.147	-2.576	-1.994
	Equal variances not assumed			-15.744	98.191	0.000	-2.285	0.145	-2.573	-1.997
KBR06	Equal variances assumed	3.555	0.062	-11.515	113	0.000	-1.798	0.156	-2.107	-1.488
	Equal variances not assumed			-11.573	110.840	0.000	-1.798	0.155	-2.105	-1.490
KBR07	Equal variances assumed	0.628	0.430	-12.497	113	0.000	-1.971	0.158	-2.283	-1.658
	Equal variances not assumed			-12.553	111.505	0.000	-1.971	0.157	-2.282	-1.660
KBR08	Equal variances assumed	0.171	0.680	-13.862	113	0.000	-2.031	0.146	-2.321	-1.740

	Equal variances not assumed			-13.872	112.923	0.000	-2.031	0.146	-2.321	-1.741
KBR09	Equal variances assumed	0.159	0.691	-14.532	113	0.000	-2.132	0.147	-2.423	-1.842
	Equal variances not assumed			-14.565	112.864	0.000	-2.132	0.146	-2.422	-1.842
KBR10	Equal variances assumed	3.691	0.057	-12.340	113	0.000	-2.180	0.177	-2.530	-1.830
	Equal variances not assumed			-12.483	98.093	0.000	-2.180	0.175	-2.527	-1.834
LON1	Equal variances assumed	9.216	0.003	-8.703	113	0.000	-1.298	0.149	-1.594	-1.003
	Equal variances not assumed			-8.808	96.716	0.000	-1.298	0.147	-1.591	-1.006
LON2	Equal variances assumed	0.389	0.534	-9.505	113	0.000	-1.513	0.159	-1.829	-1.198
	Equal variances not assumed			-9.544	111.820	0.000	-1.513	0.159	-1.827	-1.199
LON3	Equal variances assumed	3.976	0.049	-8.580	113	0.000	-1.152	0.134	-1.418	-0.886
	Equal variances not assumed			-8.660	103.381	0.000	-1.152	0.133	-1.416	-0.888
LON4	Equal variances assumed	3.449	0.066	-9.234	113	0.000	-1.266	0.137	-1.537	-0.994
	Equal variances not assumed			-9.338	98.695	0.000	-1.266	0.136	-1.535	-0.997

Annex E: Anti-image Correlation Matrix

	CC1	CC2	CC3	CC4	KBR01	KBR02	KBR03	KBR04	KBR05	KBR06	KBR07	KBR08	KBR09	KBR10	LON1	LON2	LON3	LON4
CC1	0.469	-0.138	-0.175	0.010	-0.121	-0.038	-0.048	-0.006	0.010	0.009	0.026	-0.009	-0.002	-0.026	0.011	-0.009	0.004	-0.037
CC2	-0.138	0.515	0.019	-0.166	0.057	-0.002	0.016	0.025	-0.116	-0.034	0.039	-0.052	0.008	0.016	-0.085	-0.057	-0.031	0.049
CC3	-0.175	0.019	0.515	-0.108	0.043	0.034	-0.052	0.023	-0.070	-0.012	-0.039	0.032	-0.007	-0.008	0.038	-0.058	-0.026	-0.040
CC4	0.010	-0.166	-0.108	0.613	0.019	-0.058	-0.034	-0.125	0.112	-0.013	-0.054	0.013	-0.027	-0.021	0.005	0.049	0.026	-0.048
KBR01	-0.121	0.057	0.043	0.019	0.586	-0.030	-0.052	-0.033	-0.077	-0.037	0.001	-0.023	-0.053	0.005	-0.086	8.323E-05	-0.006	0.037
KBR02	-0.038	-0.002	0.034	-0.058	-0.030	0.534	-0.095	-0.090	-0.015	-0.044	-0.058	-0.029	-0.005	0.025	0.093	0.005	-0.062	-0.095
KBR03	-0.048	0.016	-0.052	-0.034	-0.052	-0.095	0.562	0.007	-0.031	-0.007	-0.029	-0.033	-0.021	0.009	-0.018	-0.062	-0.046	0.032
KBR04	-0.006	0.025	0.023	-0.125	-0.033	-0.090	0.007	0.607	-0.043	0.005	0.005	-0.086	-0.016	-0.072	0.024	-0.046	-0.004	0.036
KBR05	0.010	-0.116	-0.070	0.112	-0.077	-0.015	-0.031	-0.043	0.376	0.003	-0.077	-0.022	-0.056	-0.075	0.041	0.028	-0.019	-0.026
KBR06	0.009	-0.034	-0.012	-0.013	-0.037	-0.044	-0.007	0.005	0.003	0.459	-0.089	-0.115	-0.046	-0.057	0.047	0.008	-0.007	0.012
KBR07	0.026	0.039	-0.039	-0.054	0.001	-0.058	-0.029	0.005	-0.077	-0.089	0.340	-0.032	-0.104	-0.033	-0.121	0.056	0.116	-0.017
KBR08	-0.009	-0.052	0.032	0.013	-0.023	-0.029	-0.033	-0.086	-0.022	-0.115	-0.032	0.432	0.005	-0.061	-0.010	-0.042	-0.032	-0.011
KBR09	-0.002	0.008	-0.007	-0.027	-0.053	-0.005	-0.021	-0.016	-0.056	-0.046	-0.104	0.005	0.368	-0.052	-0.010	-0.008	-0.117	0.024
KBR10	-0.026	0.016	-0.008	-0.021	0.005	0.025	0.009	-0.072	-0.075	-0.057	-0.033	-0.061	-0.052	0.423	0.005	-0.102	-0.040	0.031
LON1	0.011	-0.085	0.038	0.005	-0.086	0.093	-0.018	0.024	0.041	0.047	-0.121	-0.010	-0.010	0.005	0.488	-0.044	-0.123	-0.157
LON2	-0.009	-0.057	-0.058	0.049	8.323E-05	0.005	-0.062	-0.046	0.028	0.008	0.056	-0.042	-0.008	-0.102	-0.044	0.518	0.056	-0.190
LON3	0.004	-0.031	-0.026	0.026	-0.006	-0.062	-0.046	-0.004	-0.019	-0.007	0.116	-0.032	-0.117	-0.040	-0.123	0.056	0.557	-0.090
LON4	-0.037	0.049	-0.040	-0.048	0.037	-0.095	0.032	0.036	-0.026	0.012	-0.017	-0.011	0.024	0.031	-0.157	-0.190	-0.090	0.443
CC1	.919[a]	-0.281	-0.356	0.018	-0.231	-0.075	-0.093	-0.011	0.025	0.020	0.065	-0.019	-0.004	-0.059	0.022	-0.019	0.008	-0.081
CC2	-0.281	.898[a]	0.036	-0.296	0.103	-0.004	0.029	0.045	-0.264	-0.070	0.093	-0.111	0.019	0.034	-0.169	-0.110	-0.058	0.103
CC3	-0.356	0.036	.921[a]	-0.193	0.078	0.065	-0.096	0.042	-0.159	-0.026	-0.094	0.068	-0.016	-0.018	0.075	-0.112	-0.048	-0.084
CC4	0.018	-0.296	-0.193	.883[a]	0.032	-0.101	-0.058	-0.204	0.234	-0.024	-0.119	0.026	-0.057	-0.042	0.009	0.088	0.045	-0.092
KBR01	-0.231	0.103	0.078	0.032	.943[a]	-0.053	-0.091	-0.055	-0.165	-0.071	0.003	-0.046	-0.114	0.009	-0.162	0.000	-0.011	0.074
KBR02	-0.075	-0.004	0.065	-0.101	-0.053	.941[a]	-0.173	-0.159	-0.033	-0.089	-0.136	-0.060	-0.011	0.052	0.182	0.010	-0.113	-0.196
KBR03	-0.093	0.029	-0.096	-0.058	-0.091	-0.173	.969[a]	0.011	-0.068	-0.013	-0.067	-0.067	-0.045	0.018	-0.034	-0.115	-0.082	0.065
KBR04	-0.011	0.045	0.042	-0.204	-0.055	-0.159	0.011	.946[a]	-0.090	0.009	0.012	-0.168	-0.035	-0.142	0.045	-0.082	-0.007	0.069
KBR05	0.025	-0.264	-0.159	0.234	-0.165	-0.033	-0.068	-0.090	.929[a]	0.008	-0.216	-0.053	-0.150	-0.189	0.096	0.063	-0.042	-0.065
KBR06	0.020	-0.070	-0.026	-0.024	-0.071	-0.089	-0.013	0.009	0.008	.952[a]	-0.226	-0.257	-0.112	-0.130	0.099	0.016	-0.014	0.026
KBR07	0.065	0.093	-0.094	-0.119	0.003	-0.136	-0.067	0.012	-0.216	-0.226	.903[a]	-0.083	-0.295	-0.086	-0.298	0.134	0.266	-0.044
KBR08	-0.019	-0.111	0.068	0.026	-0.046	-0.060	-0.067	-0.168	-0.053	-0.257	-0.083	.960[a]	0.012	-0.143	-0.022	-0.090	-0.065	-0.024
KBR09	-0.004	0.019	-0.016	-0.057	-0.114	-0.011	-0.045	-0.035	-0.150	-0.112	-0.295	0.012	.949[a]	-0.131	-0.023	-0.017	-0.259	0.059
KBR10	-0.059	0.034	-0.018	-0.042	0.009	0.052	0.018	-0.142	-0.189	-0.130	-0.086	-0.143	-0.131	.956[a]	0.012	-0.217	-0.082	0.071
LON1	0.022	-0.169	0.075	0.009	-0.162	0.182	-0.034	0.045	0.096	0.099	-0.298	-0.022	-0.023	0.012	.869[a]	-0.088	-0.237	-0.339
LON2	-0.019	-0.110	-0.112	0.088	0.000	0.010	-0.115	-0.082	0.063	0.016	0.134	-0.090	-0.017	-0.217	-0.088	.894[a]	0.104	-0.396
LON3	0.008	-0.058	-0.048	0.045	-0.011	-0.113	-0.082	-0.007	-0.042	-0.014	0.266	-0.065	-0.259	-0.082	-0.237	0.104	.903[a]	-0.182
LON4	-0.081	0.103	-0.084	-0.092	0.074	-0.196	0.065	0.069	-0.065	0.026	-0.044	-0.024	0.059	0.071	-0.339	-0.396	-0.182	.874[a]

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Annex F: The Total Variance Explained of Whole Scale

Component	Initial characteristic value			The sums of squared load extraction			Rotation sums of squared loadings		
	sum	Variance %	Accumulation %	sum	Variance %	Accumulation %	sum	Variance %	Accumulation %
1	8.285	46.025	46.025	8.285	46.025	46.025	4.970	27.610	27.610
2	1.296	7.200	53.225	1.296	7.200	53.225	2.833	15.738	43.347
3	1.014	5.632	58.857	1.014	5.632	58.857	2.792	15.510	58.857
4	0.833	4.629	63.486						
5	0.759	4.216	67.702						
6	0.719	3.995	71.697						
7	0.687	3.815	75.512						
8	0.621	3.451	78.963						
9	0.576	3.203	82.166						
10	0.515	2.862	85.028						
11	0.482	2.677	87.705						
12	0.425	2.361	90.065						
13	0.364	2.023	92.089						
14	0.349	1.937	94.025						
15	0.317	1.763	95.789						
16	0.307	1.703	97.492						
17	0.234	1.301	98.793						
18	0.217	1.207	100.000						

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Annex G: Component Matrix After Rotation

ITEM	Component		
	1	2	3
KBR01	0.624	0.288	0.085
KBR02	0.545	0.183	0.386
KBR03	0.509	0.292	0.365
KBR04	0.574	0.002	0.381
KBR05	0.715	0.268	0.255
KBR06	0.753	0.096	0.242
KBR07	0.745	0.231	0.218
KBR08	0.688	0.260	0.274
KBR09	0.751	0.303	0.190
KBR10	0.681	0.262	0.283
LON1	0.275	0.773	0.069
LON2	0.171	0.636	0.368
LON3	0.371	0.608	0.107
LON4	0.149	0.785	0.294
CC1	0.299	0.333	0.631
CC2	0.292	0.288	0.612
CC3	0.262	0.293	0.656
CC4	0.229	0.034	0.743

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Annex H: Questionnaires

Dear Sir or Madam:

Thank you so much for your time to complete this questionnaire.

This research is carried out to explore the sources of sustainable competitive advantage from the perspective of strategic entrepreneurship. Please complete this questionnaire according to the facts regarding yourself and the organization in which you are working. This questionnaire is anonymous; its results will solely be used for academic research and will not be disclosed to a third party. Thanks again for your participation!

I. Basic Information

1. Location of the company you are working for

   ○ Yangtze River Delta ○ Guangdong Province ○ Others

2. Type of enterprise

   ○ Manufacturing ○ Others

3. Number of employees in the company

   ○ Less than 100 ○ 100-500 ○ 500-10000 ○ More than 1000

4. Age of the enterprise

   ○ Less than 5 years ○ 5-10 years ○ 10-20 years ○ More than 20 years

5. Hong many years have you worked in the company?

   ○ Less than 5 years ○ 5-10 years ○ 10-20 years ○ More than 20 years

6. Your position in the company

   ○ Department head ○ General manager or above ○ Others

II. Items of Questionnaire

1. A bundle of knowledge-based resources:

Compared to other companies in the industry, three years ago, did your company have a weak or strong position in terms of:

Technical expertise	Weak						Strong
	1	2	3	4	5	6	7
Expertise regarding development of products or services	Weak						Strong
	1	2	3	4	5	6	7
Expertise in marketing	Weak						Strong
	1	2	3	4	5	6	7
Special expertise regarding customer service	Weak						Strong
	1	2	3	4	5	6	7
Special expertise regarding management and innovation	Weak						Strong
	1	2	3	4	5	6	7

Staff with a positive commitment to the company's development	Weak 1 2 3 4 5 6 7 Strong
Highly productive staff	Weak 1 2 3 4 5 6 7 Strong
Staff who like to contribute with ideas for new products/services	Weak 1 2 3 4 5 6 7 Strong
Staff educated in giving superior customer service	Weak 1 2 3 4 5 6 7 Strong
Staff capable of marketing your products/services well	Weak 1 2 3 4 5 6 7 Strong

2. Levels of opportunity newness:

   In the past three years, in your company:

company prioritizes most of its funds into R & D activities	Strong Disagree 1 2 3 4 5 Strong Agree
company actively applies for patent, trademark or copyright protection	Strong Disagree 1 2 3 4 5 Strong Agree
the uniqueness of company's product or service in the market	Strong Disagree 1 2 3 4 5 Strong Agree
company has a strong competitive advantage in the industry	Strong Disagree 1 2 3 4 5 Strong Agree

3. Resources bundling process:

   In the past three years, the resources bundling process selected in the company:

A	company maintains its current capabilities' level of proficiency
B	company improves its current capabilities' level of proficiency
C	company pioneers new (to the firm) capabilities

4. Core competencies:

   Compared to other competitors, the position of the company in the following capabilities:

Product technology capability	Worst in class 1 2 3 4 5 6 7 Best in class
User needs understanding capability	Worst in class 1 2 3 4 5 6 7 Best in class
Distribution capability	Worst in class 1 2 3 4 5 6 7 Best in class
Manufacturing capability	Worst in class 1 2 3 4 5 6 7 Best in class

Thanks again for your time and support!