THE MODERATING ROLES OF OWNERSHIP CONCENTRATION AND FOREIGN OWNERSHIP ON ENTERPRISE RISK MANAGEMENT AND FIRM PERFORMANCE

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ABSTRACT

This study examines the relationship between enterprise risk management, firm performance, and the moderating role of ownership concentration and foreign ownership on the relationship between enterprise risk management and enterprise performance. The study uses 6015 listed firms in the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) from 2016 to 2018. The results indicate that enterprise risk management significantly influences both short-term and long-term firm performance based on multiple regression and panel data analysis. The study also found that ownership concentration positively moderates the relationship between enterprise risk management and both short-term and long-term firm performance. However, foreign ownership is found to moderate the relationship between enterprise risk management only for long-term performance but has no significant effect on short-term performance. The results indicate that firms are advised to implement enterprise risk management to gain a competitive advantage and superior performance. At the same time, paying more attention to ownership concentration and foreign ownership is required.

Keywords: ERM, firm performance, ownership concentration, foreign ownership

ABSTRAK

Kajian ini mengkaji hubungan antara pengurusan risiko perniagaan, prestasi perniagaan dan peranan pemusatan pemilikan dan pemilikan asing dalam mengawal hubungan antara pengurusan risiko perniagaan dan prestasi perniagaan. Ujian ini menggunakan 6,015 syarikat tersenarai di Bursa Saham Shanghai (SSE) dan Bursa Saham Shenzhen (SZSE) dari 2016 hingga 2018. Berdasarkan regresi pelbagai dan analisa data panel, keputusan menunjukkan pengurusan risiko perniagaan mempengaruhi secara signifikan kedua-dua prestasi perniagaan jangka pendek dan jangka panjang. Ujian juga menemui pemusatan pemilikan mengurangi hubungan antara pengurusan risiko perniagaan dan prestasi perniagaan jangka pendek dan jangka panjang. Namun, pemilikan asing didapati hanya mempengaruhi hubungan antara pengurusan risiko perusahaan untuk prestasi jangka panjang, tetapi tidak mempunyai kesan yang signifikan pada prestasi jangka pendek. Ini menunjukkan bahawa perniagaan disaran untuk melaksanakan pengurusan risiko perniagaan untuk mendapatkan keuntungan kompetitif dan prestasi yang lebih baik. Pada masa yang sama, perniagaan harus memberi lebih perhatian kepada pemusatan pemilikan dan pemilikan asing.

Kata kunci: pengurusan risiko perniagaan, prestasi perniagaan, pemusatan pemilikan, pemilikan asing

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF SYMBOLS AND ABBREVIATIONS

COSO	:	The Committee of Sponsoring Organizations of the Treadway Commission
CRO	:	Chief Risk Officer
CSMAR	:	China Stock Market Accounting Research
ERM	:	Enterprise risk management
R&D	:	Research and development
ROA	:	Return on assets
ROE	:	Return on equity
SAS	:	Statistical Analysis System
SASAC	:	The State-owned Assets Supervision and Administration Commission of the State Council of China
WTO	:	World Trade Organization

CHAPTER 1: INTRODUCTION

1.1 Background

Continuous economic uncertainty and unfortunate operational risk events affect companies worldwide, which leads to the growth of organizational risk management (Bhimani, 2009). Firstly, it is essential to know what the risk is? Ratsiepe and Yazdanifard (2011) note in their study that according to the standard Encyclopedia of philosophy, the risk is defined as an unwanted event accompanied by abrogating effects. To manage it requires perfect and accurate intelligence. Risks are ubiquitous and inevitable in any type of business activities. According to Verbano and Venturini (2011), enterprise risk management (ERM) is a future-focused and process-oriented method that aims to trade all risk exposures within an organization into one risk portfolio, in which the risk management activates are governed and arranged in an integral and holistic framework.

Under the environment of globalization and industrial integration, the scope of risks the company faces has been expanded, and the attention of the outside on the level of corporate governance has increased. ERM has become an essential condition for the successful operation of enterprises. From the national point of view, risk management is conducive to the healthy development of the whole national economy because enterprises are the foundation of the national economy. It is reasonable to place more emphasis on risk management because the ERM system is considered to decrease the direct and indirect costs of financial distress and earnings changes, as well as negative financial market accidents. Besides, it is helpful for a firm to choose the best investment opportunity, improving the decision-making process (Florio & Leoni, 2017). Therefore, ERM is conducive to the improvement of firm value. From the perspective of enterprises, the pursuit of corporate value maximization has become a driving power on the implementation of ERM for the reason that ERM adapts to the development of

society and meets the needs of the firm. It is of practical significance to assess the implementation and value impact of the ERM program of China's listed companies because it is a common view that risk management is beneficial for enterprises to make correct decisions under the severe situation, reduce the risk of decision-making and improve their ability to face risks, which is consistent with the view of Banham (2004), who notes that companies can manage the various risk that they confront such as strategic, market and so forth by carrying out ERM.

Conversely, poor risk management usually leads to numerous crises in an organization. Therefore, enterprises can reduce various risks by implementing effective risk management to boost the sustainable development of the whole national economy. The implementation of risk management can enable managers to identify and actively realize opportunities by considering potential issues in a comprehensive range.

On September 6, 2017, the Committee of Sponsoring Organizations of the Treadway Commission(COSO)1 revised its 2004 ERM framework. The new framework responds to the evolution of ERM theory and practice, guides meeting the increasingly active business environment needs, emphasizes the significance of considering risks in the process of strategy formulation and performance enhancement, accentuates the relationship between risks and values, and further clarifies the concepts in the original framework. This ERM framework presents the significance of ERM again.

The government of China has also concentrated more on ERM over the past two decades. For example, State-Owned Assets Supervision and Administration(SASAC) has successively issued policies to implement risk management, which prompted many enterprises, especially state-owned enterprises, to begin to implement ERM. It is widely

[1]https://securityintelligence.com/understanding-the-coso-2017-enterprise-risk-management-framework-part-1-an-introduction/

believed that the implementation of ERM is conducive to improving enterprise performance for the reason that it improves the decision-making ability of enterprises. In terms of China's current situation, the concept of ERM has been generally accepted, especially by the insurance industry in China even though the cognition of risk management at the corporate level for most companies in China is not mature (Zou et al., 2018).

Since the mid-1990s, particularly after China's accession to the World Trade Organization (WTO), company governance structure, one of China's most controversial topics, is becoming more and more important to Chinese enterprises. Basyith (2016) defines corporate governance as a set of mechanisms, processes, and relationships that control and guide enterprises to achieve corporate goals. The core problem of corporate governance is the relationship between the owner and the agent. The essence of corporate governance is the information asymmetry caused by the separation of ownership and control. A financial market with poor corporate governance can easily lead to a financial crisis such as the Asian financial crisis because poor corporate governance will result in the entire enterprise department's inefficiency and will finally cause low investment returns and market confidence. Meanwhile, inefficiency and lack of transparency make the problems accumulate and eventually lead to crisis. These highlighted the necessity for sound corporate governance practices. In conclusion, ERM and corporate governance are vital for enterprises' operation, so this study starts from these two aspects.

1.2 Problem Statement

Agency problems exist in every country and eliminating agency problems is a global concern. Agency theory presented by Jensen and Meckling in 1976 was applied to elaborate on the relationship between agents and principals. An agent acts on behalf of

the principal for commercial transactions and is supposed to represent the principal's best interests, taking no account of his/her own interests. However, because of this kind of agency relation, the agency problem appears. Agency problems refer to what the agents have the possibility to make use of all possible opportunities to increase wealth for their own benefit and may damage the interests of the owners. Nevertheless, relying on the information of the accounting information system is the only choice to assess an agent's performance because the principal cannot examine and supervise the agent's efforts directly. Under this situation, it is possible for the managers to share some risks associated with future results, which can be realized by linking their remuneration with the enterprise's performance that is often reflected in the disclosure report. Theoretically, managers tend to disclose ERM though they did not implement it, resulting in inaccurate research results on the relationship between ERM and enterprise performance.

To date, scholars have done many studies on ERM. For example, Quon et al. (2012) investigate the relations between ERM information content and firm performance. Chen et al. (2017) discuss the benefits of ERM adopting and the value created by ERM activities. Both hold the same view that the implementation of ERM affects enterprise performance positively. However, firms in China are rarely able to establish mature ERM (Zou et al., 2018), even though the government supports enterprises to implement risk management, for most enterprises in China. In 2012, State-Owned Assets Supervision and Administration(SASAC)2 required all central enterprises to set up and improve the internal comprehensive risk management reporting mechanism, timely control the risk change trend, major risk control progress and effectiveness of all levels of enterprises through the reporting mechanism, ensure smooth communication and timely sharing of various risk information, and improve the timeliness and effectiveness

[2] http://xxgk.sasac.gov.cn:8080/gdnps/newContent.jsp?id=4312868

of risk management reports. At the same time, the enterprise voluntarily continues to submit the annual report on comprehensive risk management to the SASAC. Nevertheless, according to the annual reports of many companies, it was found that even if some companies disclose that they have implemented ERM, they still face the decline of corporate performance. For example, in response to SASAC's call for ERM, Chalco (a Chinese state-owned company) actively disclosed the enterprise's risk since 2012. However, the company's performance declined in that year, with a negative net profit, which was often negative in the next few years. This is inconsistent with the results of many previous studies. Cases of such contradictions can be partly attributed to the failure of previous studies to differentiate between the short-term and long-term performance of a company (Nasr et al., 2019). Therefore, it is necessary to distinguish the long-term performance and short-term performance to ensure the results' accuracy. Meanwhile, due to the uncertainty of the relationship between ERM and performance, it is meaningful to look for whether there are existing other factors affecting ERM and corporate performance relationship.

Williams et al.(2006) argue that the existence of agency cost is the main issue of agency theory. Implementing good corporate governance is seen as an effective way to promote the goal consistency between principals and agents so as to achieve agency cost minimization (Conyon & Schwalbach, 2000, Judge et al., 2003). According to the research of Terjesen et al. (2014), robust corporate governance can alleviate the agency problem and encourage managers to operate correctly. More specifically, the ultimate goal of corporate governance is to supervise the management decision-making, ensure that it conforms to the shareholders' interests, and encourage the management to take corresponding actions to improve the company's wealth (Cheung & Chan, 2006). Emily (2016) discussed that corporate governance can be seen as a system of laws, contracts, and so on that control the structure of corporate decision-making. Based on agency

theory, the company could disclose more beneficial information or exaggerate it to maintain its good image. Hence, corporate governance systems are needed to play a role in economic performance because they provide mechanisms that influence the ROA (return on investment) of external financing providers (Edwards & Nibler, 2000). Meanwhile, La Porta et al. (2000) argue that ownership structure is a key determinant of corporate governance. Regulators are also involved in ensuring that companies comply with rules and regulations set by policymakers. Due to the emergence of agent problems, internal and external monitoring devices for control purposes have been developed. The defects of the external governance mechanism lead to investors' dependence on highly concentrated ownership (Javid & Iqbal, 2008). Following Ballantine, Berle and Means (1932), the performance of the company is often insufficient when the firm's owners are dispersed, and the solution is to urge owners to play a positive role in the nomination and election of directors, thus affecting the selection of enterprise managers. Meanwhile, Javid and Iqbal (2008) found corporate governance pays great attention to shareholders' identity. Compared with domestic investors, foreign investors are more independent and more interested in ERM.

Throughout the previous literature of corporate governance, previous authors mostly look from the perspective of internal corporate governance mechanism, rarely involving external, for ERM and corporate performance. For example, Zona et al. (2019) show that the board of directors' interlocks has a significant and positive relationship with resource-constrained firm performance. Besides, in recent years, China has attracted more foreign investment, and for China's state-owned enterprises, ownership is relatively concentrated. Thus, it can be concluded that there is a positive relationship between institutional investors and disclosure since the ownership by the institutional shareholders enables them to conduct monitoring compared with shareholders with a small amount of ownership (Sheila et al., 2011). In conclusion, it is more important to

study the ownership concentration and foreign ownership and its relationship to ERM and firm performance.

This study focuses on the moderating effect of ownership concentration on the ERM and firm performance relationship in China. In 2005, China Securities Regulatory Commission (CSRC)3 issued regulations on the reform of non-tradable shares, which account for two-thirds of the total issued shares, into tradable shares. With the rapid completion of the reform of non-tradable shares, the proportion of tradable shares of many Chinese listed companies has increased, and the degree of ownership concentration has decreased. According to the study of Gunasekarage, Hess and Hu (2007), ownership related arrangements, such as ownership concentration and managers' ownership of shares in their own companies, are considered as mechanisms to mitigate agency conflicts. Lower ownership concentration seems to cause a bad consequence for the implementation of ERM in a firm. For example, even though Avic International Singapore Business Pte Ltd. (AVIC Singapore) has invited Ernst and Young to formulate an ERM system for it, a risk management committee member and a risk prevention system have been established. However, the so-called ERM does not seem to be effectively implemented due to the lack of major shareholders who have binding force on the company's decision-making. The power of the company is concentrated on one manager. Therefore, ownership concentration seems to have an impact on the implementation of ERM.

This study also focuses on the moderating effect of foreign ownership on the ERM and firm performance relationship in China. This is because foreign enterprises have earlier risk management awareness than domestic enterprises and have higher ERM

[3] http://www.csrc.gov.cn/pub/newsite/scb/gqfzg/200610/t20061031_70021.html

requirements. This also leads to the possibility that foreign shareholders can bring this kind of risk awareness into domestic enterprises and urge Chinese enterprises to implement risk management and strengthen supervision.

In order to examine the above issues, China is the perfect context. Although compared with Europe and the United States, China started to implement enterprise risk management relatively late, relevant departments have issued a series of policies for risk management and called for enterprises to implement ERM in recent years. Meanwhile, the awareness of risk among the firms has increased in the past several decades, and it is essential to know the actual situation that Chinese companies' implementations of ERM.

1.3 China Context

This study is carried out in a developing country, namely China. With the Reform and Opening-up Policy executed since 1978, the market economy has achieved great success in China. Chinese firms have achieved remarkable success in expanding growth. Since China joined the WTO in 2001, China has entered a new stage of opening to the outside world in an all-round way. Over the past 30 years, China has gradually transformed from a planned economy to a market economy. At the same time, listed companies have also developed from state-owned holding to multi-ownership structure.

On March 16, 2016, the 13th five year plan4 was issued. The fourth session of the 12th National People's Congress examined and approved the outline of the 13th five-year plan for national economic and social development of the people's Republic of China. The outline of the 13th five-year plan for the development of central enterprises mainly clarifies the national strategic intention, clarifies the government's work priorities, and guides market entities' behaviors. It is a grand blueprint for China's

[4] http://www.12371.cn/special/sswgh/wen/

economic and social development from 2016 to 2020, a common action program for all ethnic groups, and an important basis for the government to fulfill its economic regulation, market supervision, and social management and public service. It pointed out that one of the 13th Five Year Plan period's overall goals is to significantly improve the international operation of enterprises, improve the quality and efficiency of development, and cultivate many multinational companies with innovation ability and international competitiveness. Specifically, it includes the cultivation of innovation ability and international competitiveness and the construction of entrepreneurial teams. It is an effective way to actively exchange experience with foreign enterprises and introduce foreign capital to improve the level of internationalization.

Up to now, China has become one of the most economically powerful countries in the world. On the one hand, opening-up actions brought huge opportunities for China, and the huge market inevitably attracts foreign investment. Many multinational firms and foreigners poured into the Chinese capital market. At the same time, they brought advanced experience towards management and corporate governance. The Chinese government has also actively attracted foreign investment and has issued a number of regulations. For example, the State Council promulgated the Notice on Measures for Further Opening Up and Actively Utilizing Foreign Investment, emphasizing the need to further expand opening-up, further create a fair competition environment, further strengthen the work of attracting foreign capital, and simplify the management procedures of foreign investment. On the other hand, when entering the foreign market, which is quite different from the domestic environment, Chinese enterprises often lack the awareness and experience of risk prevention. Due to the influence of these factors, China's cognition of the impact of risk, the establishment of relevant mechanisms, the ability of management and control are relatively backward. Although the cognition of enterprise risk is not mature, China is also in constant exploration and effort. Especially

after the economic crisis in 2008, regulators began to pay more attention to ERM, which led investors to ask their enterprises to implement risk management. For instance, SASAC issued ERM requirements for state-owned companies in 2006 and requested all state-owned companies to comprehensively implement ERM in 2012.

Therefore, the additional reason China is chosen in this paper is that it has a large economy. Thus China has made outstanding contributions to the development of the world economy. For developed countries such as the United States and European countries, there are many pieces of research on ERM. For instance, Florio and Leoni (2017) investigated the ERM and corporate performance relations based on Italian companies' background. Thomas, Berry, and Xu (2016) explore the relationship between ERM implementation and the cost of equity capital of American insurance companies. While with the continuous development of China's economy, since the mid-1980s, various foreign theories and works on risk management have been introduced to China, mainly applied in the financial industry. However, the research on the overall risk management of domestic enterprises is still in its infancy, which mainly focuses on the interpretation of the framework, the comparison of its similarities and differences with previous frameworks, the analysis of possible problems and obstacles that may appear in the application of ERM, and how to translate the concept of ERM into specific action steps. All of these are qualitative descriptions, mostly based on logical reasoning (Sun,2012). Besides, China has a unique regulation system and capital structure. Over the years, China has made efforts for ERM and corporate governance. Through this study, we can test its achievements to some extent and provide some suggestions for it.

This study attempts to analyze the effect of ERM on firm performance and the impacts of ownership concentration and foreign concentration on the relationship between risk management and corporate performance under the background of China,

which is conducive to the enterprises to take corresponding measures to improve performance. Furthermore, this study divides performance into long-term performance and short-term performance.

1.4 Research Questions and Qesearch Objectives

1.4.1 Research Questions

The above discussion leads to the following research questions and research objectives:

(1) Does the implementation of ERM promote short-term enterprise performance?

(2) Does the implementation of ERM promote long-term enterprise performance?

(3) Does ownership concentration moderate the relationship between ERM and short-term firm performance?

(4) Does ownership concentration moderate the relationship between ERM and long-term firm performance?

(5) Does foreign ownership moderate the relationship between ERM and short-term firm performance?

(6) Does foreign ownership moderate the relationship between ERM and long-term firm performance?

1.4.2 Research Objectives

The purpose of this paper is to explore the influence of ownership concentration and foreign ownership on the relations between ERM and both short-term and long-term firm performance of Chinese listed companies from 2016 to 2018. To be more specific, there are three objectives in this paper. The first one is to examine the relationship of ERM and long-term and short-term firm performance, and the second one is to investigate whether ownership concentration moderates the relationship between ERM

and long-term and short-term firm performance, and the final objective of this paper is to explore whether foreign ownership plays a moderating role on the relationship between ERM and long-term and short-term firm performance.

1.5 Research Gap

Several scholars have studied the relationship between ERM and firm performance (for example, Banham, 2004; Hoyt & Liebenberg, 2011). However, the results are inconsistent. Few studies attempted to improve the explanation by introducing some influencing variables between ERM and performance. For instance, Gordon et al. (2009) argue the effects of industry competition, firm size, and other factors on ERM and corporate performance. To the best of the author's knowledge, limited previous studies have considered the influence of ownership concentration and foreign ownership on the ERM and firm performance relationship. These two key corporate governance mechanisms are one of the most suitable to be researched in the context of China due to the high concentration of ownership among China-listed companies and the rising foreign ownership in China.

1.6 Contribution

This research has four contributions. First, scholars have researched the relationship between ERM and enterprise performance. However, few have examined the effect of corporate governance mechanisms, particularly external corporate governance mechanisms such as ownership concentration and foreign ownership. This study has practical guiding significance for improving Chinese corporate governance, especially for building a corporate governance structure that positively affects the successful implementation of ERM. This paper attempts to discuss the effect of external governance mechanism factors on the relations between ERM and performance from

the perspective of corporate governance, which can provide evidence on the effectiveness of external corporate governance mechanisms on ensuring the ERM works in companies. Through the study of the external corporate governance factors, it is helpful to study the relationship of ERM and performance from a new perspective and provide practical suggestions on how to design the best corporate governance mechanism for different operating environments to ensure the realization of owners' interests, and ultimately accelerate the sustainable development of corporate governance in China. Furthermore, it will be beneficial for Chinese companies to establish the ERM Framework after clarifying the influencing factors of ERM implementation enthusiasm. In the meantime, using the data of Chinese listed companies to study the influence of ERM on firm performance and the roles that ownership concentration and foreign ownership play will become an essential driving force for Chinese companies to construct the ERM framework. Additionally, most of the previous studies did not distinguish the short-term and long-term performance of the company. In this case, the results may not be accurate enough. Therefore, this study distinguishes between the enterprise's short-term and long-term performance, so the results will be more accurate.

Second, this study will provide further evidence on the application of resourced-base theory and agency theory in practice. This study is based on resourced-base theory and agency theory, which provides empirical evidence to support external corporate governance mechanisms to reduce agency problems. The finding of the study also shed light on the inconclusive findings on the relationship between ERM and firm performance.

Third, this study can provide potential shareholders and investors the importance of foreign shareholdings and ownership concentration in their decision-making process. In other words, even if a company does practice ERM, the company needs to have external

corporate governance mechanisms such as ownership concentration and foreign ownership in place to ensure its effectiveness. In particular, for investors and creditors, it highlights the importance of supervision to firms, for example, the supervision of ERM implementation, thereby reducing the risk caused by information asymmetry.

Finally, this study also provides evidence to support the need for strong corporate governance mechanisms for the market regulators and authority bodies to improve further their guidelines on rules to all companies in China.

1.7 Method

This study uses a quantitative method. 10458 firms listed on the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) during the period 2016 to 2018 are selected as the target population for this paper by getting secondary data from the CSMAR database. After the deletion of the firms with missing values, the final sample from 2016 to 2018 is 6015 in total.

1.8 Organization of the Study

The study is structured as follows. The first chapter is the introduction of this study, mainly including background, problem statements, contexts, objectives, research gap, and contribution. Chapter 2 introduced basic concepts and framework of this study, and reviews the relevant literature, and then chapter 3 mainly elaborates on methodology, including putting forward the hypotheses of this paper. The next chapter will report the results and followed by chapter 5, and in this chapter, empirical findings will be discussed. Finally, chapter 6 focuses on the conclusion, including a summary, limitations, and future study suggestions.

CHAPTER 2: THEORIES AND LITERATURE REVIEW

2.1 Introduction

This chapter aims to explain the background of this study and review the previous important research in this area. The second part mainly expounds on basic concepts of this study. The third section puts forward the research framework of this paper, followed by the fourth section describes the two hypotheses on which this study relies. The fifth section mainly introduces the evolution of ERM. This paper introduces the relevant literature on the relationship between ERM and performance section 2.6. Section 2.7 mainly introduces the corporate governance mechanism of ownership concentration and foreign ownership and focuses on the previous literatures on ownership concentration and foreign ownership the links of them on ERM- firm performance relations. The last section of this chapter will introduce some other factors that may affect ERM and firm performance.

2.2 Basic Concepts

2.2.1 Enterprise Risk Management

Although various definitions of ERM exist, it is one of the most popular definition in this 2004 version of the ERM framework, which defined ERM as a process, by which an entity's board of directors, management, and other personnel apply to the setting and overall enterprise strategy, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (Callahan & Soileau, 2017).

2.2.2 Firm Performance

Enterprise performance refers to the extent to which an enterprise achieves its management objectives in business practices and the results of achieving these

objectives at the end of a certain period (Bulut & Can, 2013). Several studies have used different approaches to the selection of performance variables. Tobin's Q ratio(like Nasr et al. 2019), various accounting tools such as return on assets (ROA) and ROE are examples of most common measures of firm performance (for example, Nasr et al. 2019, Alabdullah et al., 2018, Alawattegama et al., 2017).

2.2.3 Ownership Concentration

According to Shleifer and Vishny (1986), ownership concentration refers to the concentration of controlling rights of large shareholders. Ownership concentration is a vital kind of external corporate governance mechanism, and the owner can control and affect the enterprise management to protect their own interests.

2.2.4 Foreign Ownership

With the rise of globalization prevailing in the 21st century, foreign direct investments (FDI) have surged up in the emerging markets, which has prospered not only economic growth but also improved the corporate governance standards in the subject countries (Yavas & Erdogan, 2017). Since China joined the World Trade Organization (WTO) on December 11, 2001, the entry barriers of foreign enterprises in China have been gradually reduced. Foreign ownership means the proportion of shares held by a company registered outside China but having a place of business in China.

2.2.5 Other Factors

Firm age is an indicator that shows companies' existence and ability in competing (Waluyo, 2017). in this study, firm age is presented by the sum of years from establishment to 2018. R&D (research and development) investment in this paper is measured by R&D expenditure. Leverage, the ratio of debt to equity.

2.3 Research Framework

According to resource-based theory, ERM can be used to highlight high-risk areas and ultimately improves firm performance. To be more specific, risks related to the core competencies should in the best case be avoided entirely or at least reduced to the best possible degree, as they threaten the firm's survival. Vice versa, even those risks, which are highly probable might be "accepted" as long as they do not impact the core competence (Prahalad & Hamel, 1990). Meanwhile, based on the agency theory, the agent is likely to deviate from the principal's aim. At the same time, the principal is hard to observe and supervise because the agent and principal's objectives are not the same. Meanwhile, other problems exist, such as uncertainty and asymmetric information, which finally lead the agent to damage the principal's interests. It is believed that enterprises can take risk management measures to keep enterprise value so as to reduce excessive agency cost, information asymmetry caused by debt, agency conflict, and overall loss of welfare. Hence, theoretically speaking, ERM could help to deal with agency problems. The empirical literatures provide evidence to support this idea. For example, Lechner and Gatzert (2017) present ERM is positively associated with firm performance.

Compared with small shareholders, large shareholders have more ability and opportunity to monitor and control managers, which is beneficial to reduce the information asymmetry between managers and shareholders. Ownership concentration helps to reduce dispute over control. Additionally, foreign ownership tends to play an effective role in supervision. Foreign investors who hold equity in domestic companies are also likely to invest in companies related to their core businesses (Douma et al., 2006). After the investment, foreign investors can maintain stricter control over managers by requiring higher information disclosure standards (Dyck, 2001), hence,

force firms to implement ERM. In conclusion, foreign ownership will be an effective channel to strengthen the relationship between ERM and firm performance.

Based on the theory of this study, the research framework is presented in Figure 2.1. In this research, ERM is an independent variable, firm performance as the dependent variable is divided into long-term and short-term firm performance. Ownership concentration and foreign ownership are proposed moderating variables. Figure3.1 also illustrates the proposed relationship and shows how ownership concentration and foreign ownership strengthen the impact of ERM on firm performance. Finally, firm age, R&D investment, as well as leverage, are control variables.

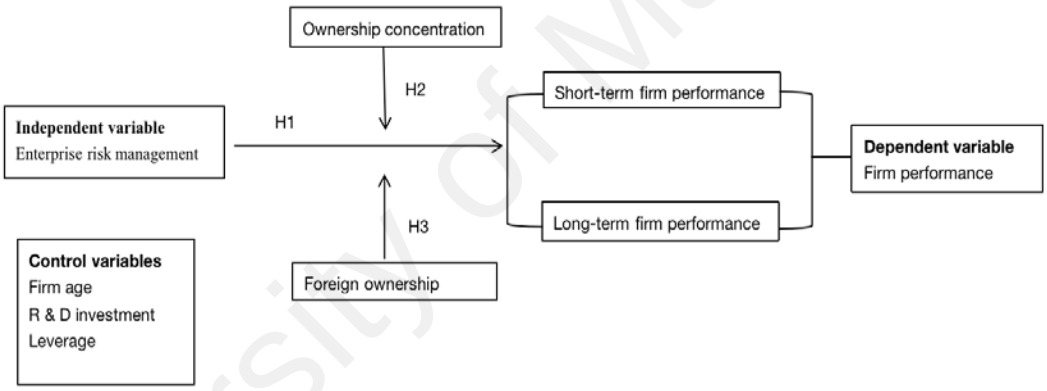

Figure 2.1 Research framework

2.4 Theories

2.4.1 Resource-based Theory

Barney (1991) defines resources as all assets, capabilities, organizational processes, enterprise attributes, information, knowledge, etc. controlled by enterprises. These resources enable enterprises to conceive and implement strategies to improve their efficiency and effectiveness. The resource-based view explains the sustainable competitive advantage of firms through resource heterogeneity. Every firm possesses

different resources, but only a few of them can provide a firm with a sustainable competitive advantage (Barney et al., 2011; Yevgen and Veit, 2017). This theory proposes a coherent systematic approach towards risk management in contrast to managing risks separately (Bromiley et al., 2015). To be more specific, risks related to the core competencies should in the best case be avoided completely or at least reduced to the best possible degree, as they threaten the firm's survival. Vice versa, even those risks, which are highly probable might be "accepted" as long as they do not impact the core competence (Prahalad & Hamel, 1990), which is consistent with the view of Yevgen and Veit(2017), who hold that the high priority risks need to be managed first and foremost, and only when these risks have been taken care of, less important risks can be considered. According to the research of Quon et al.(2012), ERM can expose high-risk areas and recommending risk-based progress to support informed decision-making, which is also beneficial for owners. A firm can never be completely protected from risks for risk management practitioners, but it can develop different degrees of risk resilience. Thus, an application of the resource-based view supports firms to prioritize risks clearly and reduces the number of risks a firm should deal with. This theory helps provide clearer ERM implementation priorities to assist the managers in decision making and ultimately improve firm performance.

2.4.2 Agency Theory

According to Jensen and Meckling (1976), they define an agency relationship as a contract whereby principals entrusts the agents to provide services on their behalf. DeMarzo and Duffie (1991) note that the information asymmetry between managers and shareholders would have a negative impact on the effective monitoring of whether agents properly serve the interests of principals. The managers may implement a project to their advantage, but the current value of the project will be negative. This will also

lead to the loss of enterprise value. Brennan (1995) believes that the reason for the agency problems is that a proxy cannot enter into a contract for every possible act because the decision of the agent influences not only his own benefits but also the interest of the owners. The manager's self-motivated behavior increases the cost of the company, which may include the cost of contracts, supervising and controlling the behavior of the agent, and the loss caused by the agent's sub-optimal decision (Gaur et al., 2015). In this condition, some corporate governance mechanisms have been applied to solve the conflict of interest and reduce the cost related to the conflict of interest.

The implementation of risk management can enable managers to identify and actively realize opportunities by considering potential issues in a comprehensive range. The relations between ERM and financial performance make information symbols and information transfer from informed managers to shareholders with poor information to decrease the degree of information asymmetry between them. The positive signals of financial performance and ERM are likely to, in turn, add value to the enterprise (Nasr et al., 2019). Meanwhile, ownership concentration means a more powerful owner, which makes the relationship between owners and enterprises closer and reduces or completely eliminates agency costs. In addition to that, foreign owners bring better governance and supervision measures and urge firms to disclose more information, eliminating agency problems. The above discussion proves that, based on agency theory, corporate governance makes enterprises under more strict supervision, and then tends to release more favorable information, such as the disclosure of ERM.

2.5 The Evolution of ERM

2.5.1 The Evolution of ERM

Henry Fayol, the famous "father of management" in France, listed risk management as an important function of enterprise management for the first time in the 18th century. The formal formation of risk management was in the 1960s. In the 1960s, a new discipline of enterprise management risk management began to form in foreign countries, while the research on this subject in China started in the middle and late 1980s (Sun, 2012). The United States is the first country to study the theory and practice of risk management. Xi (2017) holds the idea that after World War I, the United States began to study the methods of risk burden, removal, transfer, and established relevant institutions in enterprises to conduct risk management exchange and technical research.

After World War II, human beings developed and utilized a great number of new technologies, new materials, and new energy resources, and the social economy got comprehensive development. However, at the same time, it also brought new risks to society. These threats make risk management more scientific. After the 1970s, risk management has been spread in the world. For instance, in 1998, the United Kingdom formulated a combined Code of Committee on Corporate Governance, which requires all listed companies in the UK to obey compulsively. Especially after the Enron scandal, ERM is considered as a mechanism to improve the reliability of financial statements. After the Enron scandal, the United States and the world pay more and more attention to taking more effective corporate governance as an important mechanism to control and supervise management behavior, especially in the aspect of ERM to achieve organizational goals (Wang et al., 2018). For instance, Sarbanes Oxley Act was submitted by the US Securities and Exchange Commission (SEC) and signed by US President George W. Bush in 2012 after the Enron company and WorldCom company

broke the financial bankruptcy scandal. It is a typical historical regulation to eliminate corporate fraud and malpractice.

A large number of studies (for example, Nasr et al, 2019) have shown that in recent years, the way people look at risk management has changed from managing one risk at a time under the premise of high division and decentralization to integrating all risks into a coordinated strategic framework for management because integrated risk management enables enterprises to better understand and integrate the different risks in different stages of product innovation, it provides a more objective basis for enterprises to allocate resources, thus improving capital efficiency and perhaps increasing the return rate of R&D investment (Wu et al., 2015). In September 2004, the ERM integrated framework was officially launched by the Committee of Sponsoring Organizations of the Treadway Commission(COSO). This framework, called "ERM – Integrated Framework," is often regarded as one of the most common ERM frameworks (Ahmad, Ng & McManus, 2014). Although various definitions of ERM exist, it is one of the most popular definition in this 2004 version of the ERM framework, which defined ERM as a process, by which an entity's board of directors, management, and other personnel apply to the setting and overall enterprise strategy, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (Callahan & Soileau, 2017).

2.5.2 The Evolution of ERM in China

For the past few years, although the ERM models of different countries have the trend of convergence, the specific models of ERM in different countries are different because of the different political and economic systems, the basic concepts of company law, the composition and function design of companies (Sun, 2012). In 2006, SASAC

issued a regulation about the comprehensive risk management of state-owned enterprises, which provides guidance for central enterprises to implement comprehensive risk management. Then, China Securities Regulatory Commission issued the provisions on the management of chief risk officers of futures companies in 2008, requiring futures companies to set up chief risk officers to supervise and inspect the risk management of futures companies.

China's first comprehensive risk management document is the guidelines for comprehensive risk management of central enterprises issued by SASAC in 2012, which marks that China has stepped onto the stage of risk management. Although there are a lot of researches on ERM (Liu et al., 2011; Chen, 2017; Li et al., 2014), China is still in the stage of qualitative description and comparison of concepts, and there are few quantitative studies related to ERM (Sun, 2012). At present, most enterprises in China are lack of risk management awareness and have not actively carried out risk management activities. Therefore, the risk management of enterprises is often temporary or intermittent (Chen, 2017).

There are serious structural problems in many Chinese enterprises, which lead to the unclear responsibilities and operation procedures of each department, making it hard to form a risk management department. Even if the risk management department is established, there is no full-time risk manager, which leads to the unclear subject of risk-bearing, and each department shirks its responsibility, which makes the risk management of Chinese enterprises stay at the decision-making level with the purpose of immediate interests (Chen, 2017). In conclusion, although ERM has been paid attention to in China, the implementation of risk management is still in the initial stage.

2.6 ERM and Firm Performance

In the process of dealing with financial scandals and the global financial crisis, risk management has attracted more and more attention from regulators and academics around the world. ERM is defined by the US 'Committee Of Sponsoring Organizations Of Treadway Commission' (COSO)[5] as, "The likelihood that the event will occur and affect the achievement of strategic and business objectives." After the Enron scandal and then to face the severe economic situation and financial crisis, the United States introduced stricter rules such as the Consumer Protection Act of 2010 in order to restrain opportunistic behaviors and force companies to improve the risk management systems (Florio & Leoni, 2017). In recent years, people's interest in ERM continues to grow. The concept of ERM, as a holistic and strategic approach to manage the risk facing by a business, is expected to enhance firms' performance (Alawattegama & Kingsley, 2017), which has also led scholars to reflect on the relations between ERM and company performance. Many researchers have made a significant contribution to the body of knowledge of ERM on enterprise performance through empirical research. Meulbroek (2002) holds the view that ERM is a management process that requests management of an enterprise to discern and evaluate the collective risks that influence enterprise value, and to apply enterprise-wide strategies to manage these risks so as to establish an effective risk management strategy. At the beginning of the 21st century, ERM develops rapidly in the finance, manufacturing, insurance, and energy industries (Zhao, Hwang & Low, 2013). According to the study of Verbano and Venturini in 2011, traditional risk management is silo-based on financial risk. However, RM has evolved into ERM in recent years, which is future-focused and process-oriented. Governments and industries are committed to translating the "integration" of risk management into practice and improving the ability of enterprises to manage risks (Arena et al., 2010).

[5] https://www.coso.org/Pages/erm.aspx

Despite ERM practices have been widely accepted in the corporate sector, but not all organizations have successfully adopted them(Beasley et al., 2008). This feature has been reflected in mainland China. For example, the construction industry in China needs practical guidance due to its short exposure to ERM practice and lack of sufficient experience (Liu et al., 2011).

The relationship between ERM and firm performance has drawn the attention of researchers for a long time. Until now, these studies have not led to a unanimous conclusion regarding the ERM-firm performance relationship. Firstly, several studies (Gordon et al., 2009；Hoyt & Liebenberg, 2011; Malik, Zaman & Buckby, 2020) have shown that ERM implementation improves institutional performance. Florio and Leoni (2017) prove that companies with the high level of ERM implementation have good performance in financial performance and market evaluation. Lechner and Gatzert (2017) hold the same view that ERM is positively associated with corporate performance. Similarly, Nair et al. (2013) discover that companies could perform better by implementing ERM. Companies with mature ERM processes will logically have higher operating performance (such as ROA) than companies without ERM. Additionally, firms with more mature or advanced ERM activities should also experience a higher ROA than those in the early stage or without adopting ERM practices(Callahan & Soileau, 2017). Alawattegama and Kingsley (2017) use return on equity (ROE) from published annual reports as a proxy for the financial performance of the observing firms. The study of Callahan and Soileau (2017) supports the linkage of enhanced operating performance (ROE) associated with the maturity of ERM processes. Callahan and Soileau (2017) find firms with higher levels of ERM process maturity are characterized by higher operating performance than their industry peers utilizing performance metrics closely related to the earnings process. Differently, ERM may be transformed into a simple compliance task, which can neither improve risk prevention

nor affect enterprise performance. For example, Culp (2012), Chen and Wang (2006) hold the opposite viewpoint that risk management is not conducive to improving the value of Chinese enterprises. Wang, Li and Zhou (2010) report that the premier theory about risk management argue that risk management cannot influence their operational ability or future investment, it cannot create value for enterprises. Similarly, the studies of Papee et al. (2010) and Li et al. (2014) fail to support the theoretical expectation that ERM has a positive impact on firm performance. Based on the empirical study of Alawattegama and Kingsley (2017), it concludes that the adoption of ERM has no impact on firm performance. The findings of this study are contradictory with the theoretical expectation of the adoption of ERM practices has a positive impact on firm performance confirmed by Beasley et al. (2008).

Agustina and Barorouh (2016) investigate the relationship between ERM and corporate performance of 53 banks in Indonesia from 2011 to 2013. Their research results show that there is no relationship between ERM and short-term performance. The findings of these researchers put forward some mixed results on the proposition of ERM on enterprise performance and value.

ERM enables enterprises to better understand the risks in different business activities, thereby providing a more objective basis for resource allocation. Since there are still disputes about whether ERM can improve company performance, it is meaningful to verify the effects of ERM on company performance in China and why these gaps happened, because this result affects the enterprise's understanding of risk management as well as the enthusiasm for implementing ERM. Nasr et al. (2019) think the difference among different results of ERM- frim performance can be partially attributed to the fact that previous studies did not make a distinction between the short-term and long-term

performance of a firm. Hence, this study will make a distinction between the short-term and long-term performance of a firm.

According to resource-based theory, an enterprise can never be completely free from the impact of risk, but it can develop different degrees of risk resistance. Therefore, the application of a resource-based view supports that high priority risks need to be managed first, and only after these risks are dealt with, the less important risks can be considered. This theory helps to provide a clearer priority for the implementation of ERM, help managers make decisions and allocate resources to the most critical places, and ultimately improve the enterprise performance. From the point of agency theory, Smith et al. (1990) believe that enterprises can reduce excessive agency costs, information asymmetry caused by debt, agency conflict, and total loss of welfare by taking risk management measures to stabilize enterprise value. Due to the lack of consensus in the literature, this study uses Chinese data to explore the effect of ERM on short-term and long-term firm performance.

2.7 Corporate Governance

According to Jensen's (1993) classification of corporate governance, corporate governance mechanism is divided into external governance and internal governance mechanism, external governance mechanism mainly includes the ownership concentration and foreign capital, etc., and the internal governance mechanism mainly includes the characteristics of the board of directors and management incentive, etc., most of the factors affecting the implementation of ERM are ascribed to the corporate governance mechanism. For example, Beasley et al. (2005) find that the implementation degree of ERM is associated with the independence of the board of directors. That is, a corporate governance mechanism has a significant effect on the implementation and

promotion of ERM. In addition, corporate governance is considered to have a significant impact on business performance. If the functions of the corporate governance system are properly set, it will attract investment, resist possible financial challenges, and help to maximize the company's capital, which will lead to the improvement of the company's performance expectations. Therefore, corporate governance plays a key role in improving corporate performance.

Roe (1990) argues that corporate governance differs significantly across countries because of variations in political and legal constraints on the ownership and control of public companies. Government regulations affect the ways companies are owned (stock exchange rules), the manner in which they are controlled (legal structures), and the processes by which changes in ownership and control take place (Jenkinson and Mayer, 1992; Prowse, 1990).

In Britain and the United States, ownership is more dispersed among a large number of unrelated individual and institutional investors, and cross-shareholdings are rare. In Japan and Continental Europe, the existence of industrial groups serves as a system of contractual governance, and the agency cost arising from the conflict between shareholders and managers is reduced by concentrating equity ownership and control in the hands of a few key group stakeholders with multiple, commingled claims against other firms in the same industrial group (Kester, 1992).

Hence, corporate governance in China has its special characteristics. Since its 1978 reform and financial opening, China gets great achievements towards the economy. China is now the world's second-largest economy and will soon become the world's largest economy (Jiang, Zhan & Kim, 2017). According to Wang et al. (2019), owners have been classified as insider owners, dominant owners, dispersed owners， managerial owners, state owners as well as foreign owners. Concentrated ownership is

the most common form in most countries (La et al., 2000), but unlike Western counterparts, Chinese companies operate under a very unique ownership structure. The Chinese government opened the stock market in 1991, allowing companies to list on the Shanghai or Shenzhen stock exchanges, but cross-listings are not allowed. In China, one of the main characteristics of equity is the state's non-tradable equity ownership, whether through direct investment or control indirectly through holding domestic institutions, which are partly or wholly owned by the central government or local authorities.

A typical Chinese listed company issues shares to four different classes of owners based on different investors: state shares, corporate shares, individual shares(including employee shares and employee shares), and foreign shares. Specifically, the state shares are held by the central government, local governments, or solely state-owned enterprises. Since most of the joint-stock enterprises in China are reformed from the original large and medium-sized state-owned enterprises, the state-owned shares account for a large proportion of the company's shares. Through the reform, various economic elements can coexist in the same enterprise, while the state controls more resources with less capital by way of holding shares, thus consolidating the dominant position of public ownership.

Besides, the legal person shares are owned by domestic institutions including stock, companies, financial institutions other than banks, and SOEs that have at least one nonstate owner.

Meanwhile, the employee shares are offered to workers and managers of a listed company, usually at a substantial discount. These share offerings are designed more as a benefit to employees than as an incentive scheme. Employee shares are registered under the title of the labor union of the company, which also represents shareholding employees by exercise their rights. Private equity refers to the shares held by individuals

through subscription, transaction, and transfer. These individuals hold funds or assets, but they do not directly participate in the operation and management of listed companies.

Furthermore, foreign investors are restricted to invest in B, H or N-type shares. B-shares are available exclusively to foreign investors and some authorized domestic securities firms. H-shares and N-shares are listed on the Hong Kong Stock Exchange and New York Stock Exchange, respectively (Huang & Song, 2006). The foreign shares in this paper refers to the holding of B-type shares because the research object of this article is listed companies in mainland China. The ownership of Listed Companies in China is highly concentrated, which can be roughly divided into state-owned holding companies and private enterprises. Before 2001, the state was the only major shareholder in China, but the proportion of private enterprises has been steadily rising (Li et al., 2015).

2.7.1 Ownership Concentration

Considering the difficulty of alleviating the agency problem, this paper proposes to introduce a corporate governance mechanism to help solve the agency problem. The ownership structure is one of the important mechanisms to reduce this conflict between agents and owners. Ownership structure has two important aspects: concentration and composition. The degree of ownership concentration of determines the distribution of power between its shareholders and managers (Madhani, 2016). Therefore, ownership concentration represents the power of principals to exert influence on agents (Thomsen & Pedersen, 2000). Although the ERM will influence the performance of the enterprise, this study argues that the degree of influence between the two is influenced by the ownership concentration of the enterprise. Along with the deep growth of corporate governance, numerous companies are owned by decentralized shareholders and controlled by hiring managers. Shareholders' rights usually come from a series of

regulations, which can lay the foundation for such rights and shareholders' requirements for the company (Emily, 2016). The empirical evidence of corporate governance shows that compared to small shareholders, large shareholders have stronger incentive mechanisms and better opportunities to control managers(for example, Shleifer & Vishny, 1986). Based on the study of Li in 1994, Agency problems arise when decisions are made which are inconsistent with shareholder interests. These problems are addressed in the governance structure by separating decision management (initiation and implementation of decisions) and decision control (ratification and monitoring of decisions).

Similarly, Schleifer and Vishay (1986) argue that large shareholders have a strong incentive to monitor managers because of their significant economic stakes. Even when they cannot monitor the management themselves, large shareholders can facilitate third-party takeovers by splitting the large gains on their own shares with the bidder. In a corporation with many small owners, however, it may not pay any one of them to monitor the performance of the management. In the firms with concentrated ownership, large shareholders are able to take a leadership role in monitoring management and thus reduce the agency costs arising from the conflict between shareholders and managers (Li,1994).

Adams, Hermalin and Weisbach (2010) believe that board independence and ownership concentration are the two most important corporate governance mechanisms affecting corporate performance. Madhani (2016) holds the view that when the ownership is decentralized, due to the weak supervision of shareholders, the control of equity tends to be weak. Small shareholders are unlikely to be interested in monitoring because they will undertake all the costs of supervision and therefore share a small share of the benefits. However, when the ownership of the firm is centralized, the large

shareholders' meeting plays an important role in supervising the management. Besides, Nguyen (2011) finds that centralized ownership will lead companies to take risk-taking strategies and ultimately lead to higher performance, but large controlling shareholders can be used as an effective governance mechanism to supervise managers, but they can also obtain private benefits from control, which may reduce the value of the company, especially in countries with weak shareholder rights. In view of the fact that small shareholders have no incentive to supervise managers with a high concentration of ownership, it has also been thought that a method to improve the quality of risk management is to ensure (at least) the existence of a large shareholder (Desender & Lafuente, 2009). Grossman and Hart (1980) showed that if a firm's ownership is widely dispersed no shareholder has adequate incentives to monitor the management closely because the gain from a takeover for any individual shareholder is too small to cover the monitoring cost.

According to the study of Yasser and Mamun in 2017, which show that there is a significant positive correlation between ownership structure and market performance and economic benefits. In 2012, SASAC6 announced that all state-owned companies in China must fully implement an ERM plan. Theoretically, state-owned enterprises tend to disclose more information about ERM in response to the call of the government. As a result, some firms especially firms with state-owned capital in the leading position are forced to establish ERM programs in their aim to fulfill the compliance purpose (Zou et al., 2018).

[6] http://xxgk.sasac.gov.cn:8080/gdnps/newContent.jsp?id=4312868

2.7.2 Foreign Ownership

Since China joined the World Trade Organization (WTO) on December 11, 2001, the entry barriers of foreign enterprises in China have been gradually reduced. In recent years, Chinese governments have implemented policies more flexibly such as preferential tax policy to attract more foreign investment due to the beneficial impact on economic development. One of the general goals of the 13th Five-Year Plan period 7is to greatly improve the international operation level of enterprises, significantly improve the development quality and efficiency, and cultivate a number of innovative and internationally competitive multinational companies. In order to realize internationalization, it is necessary to strengthen the exchange with foreign countries, and the ownership of foreign capital is one of the ways of international exchange and information sharing.

Zou et al. (2018), who hold the view that China's huge market potential inevitably attracts more and more multinational companies, who want to join and share economic achievements. Yudaeva et al. (2003) present that foreign direct investments bring foreign technologies into the emerging markets; which eases the information buildup process, paving the way for the modernization of manufacturing facilities in the emerging markets, with the combination of technological improvements and increasing competition. In other words, foreign investors are able to bring new capital, improve technological capabilities, and the skills of the local workforce, thereby enhancing the competitiveness of the economy (World Bank Group, 2010). Schneider et al. (2017) argue that national culture affects individual and corporate risk-taking behavior. Lindemanis et al. (2019) suggest that the source of investors is important to the company's performance, especially in companies with high risk.

[7] http://www.12371.cn/special/sswgh/wen/

Studies examining the influence of foreign institutional ownership on performance are aplenty. For example, Yasser and Mamun (2017) find there exists a positive correlation between foreign ownership and corporate performance. Wang et al.(2019) verify that companies in China benefit more from foreign ownership than those with only domestic ownership. Takii (2004) also makes relevant research based on the background of Indonesia, which shows that the wholly foreign-owned Indonesian companies are often the most productive. Ferreira and Matos (2008) present that foreign-funded institutional shareholding improves enterprise performance for the reason that it is generally believed that foreign-funded shareholding is an important way to bring capital, high technology, and advanced management skills to enterprises (Dyck, 2001). In turn, these resources will help improve governance and performance. Similarly, Ahmadjian and Robbins (2005) point out that foreign investors have a tendency to increase the opportunity of divestiture, which usually leads to better corporate performance. Nguyen (2012) believes that the rising participation of foreign investors leads to the increase of risk-taking ability measured by performance change. Ji (2009) hold that compared with the mature practice in foreign countries, ERM in the context of China is still in the initial stage, which is consistent with the study of Zou et al. (2018). In conclusion, foreign countries have more experience in ERM, foreign ownership may have an effect on the implementation of ERM.

2.8 Other Factors

Recently, researchers have become increasingly interested in the impact of age on corporate performance. Stinchcombe (1965) shows that the older company has more experience and has better performance, this implies that companies have the tendency to learn about how to organize things better as they grow older (Hart et al., 2018; Jensen and Szulanski, 2007). Coad et al. (2010) argued companies improve with age because

older companies are better able to translate sales growth into subsequent profit and productivity growth. Up to 2018, there are more than 3000 listed companies in China, so the ages between different firms are different.

Meanwhile, R&D (research and development) investment is considered to be a crucial element influencing enterprise performance. According to Aboody and Lev (2000), R&D expenditure is positively correlated with enterprise performance, because it promotes product and process innovation and improves enterprise productivity. Rafiq et al. (2016) find that companies engaged in R&D activities have higher sales and profits than those that do not. Furthermore, Ruiqi (2017) also shows that R&D expenditures are positively associated with firms' future performance. Therefore, it is necessary to take R&D investment as a control variable to ensure the accuracy of the research results.

Previous studies advised that leverage may affect company performance, for instance, Brav et al. (2005) show the amount of leverage in capital structure influences company performance. According to Ahmad (2017) argue that financial leverage, measured by debt to equity ratio, has significant impact on financial performance. Similarly, Robb and Robinson (2009) present that the return of leverage is significant, and the use of debt can improve the firm performance because the return obtained is greater than the average interest expense generated by leverage.

The above literature shows that firm age, R&D investment, and leverage influence firm performance. In order to avoid these items noted above influence the final results of this study, this paper regards firm age, R&D investment, and leverage as control variables.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter mainly describes the methodology of this study. The specific structure is as follows. The second section discusses development of the hypotheses. Section 3.3 describes the quantitative design, including the process of sampling, the measurement of variables, regression model, and the process of data analysis.

3.2 Hypotheses Development

3.2.1 Impact of ERM on Firm Performance

ERM helps managers make decisions by uncovering high-risk areas and advising risk-based progress (Quon et al., 2012). ERM urges board-level disclosure of risk-related issues, which in turn should lead to greater transparency and better business management (Brown et al., 2009). Grace et al. (2014) argue that ERM implementation contributes to boosting cost and revenue efficiency. Similarly, some researchers argue that firms' unsatisfactory performance in China has been attributed to the lack of readiness in taking advantage of risk management at the corporate level (Xiaolun, 2010; Xiaochen & Aijing, 2013). Lechner and Gatzert (2017) believe that successful ERM practices enable firms to enhance their values and manage risk effectively. According to the study of Lechner and Gatzert (2017), enterprises can improve their value and risk management ability in a more effective way by implementing successful ERM. Hoyt and Liebenberg (2011) report that the successful implementation of ERM increases shareholder wealth. Although these arguments are supported largely by the literature, the empirical evidence of their validity remains limited. In fact, the relationship between ERM and enterprise performance cannot be taken for granted, particularly considering that ERM may vary from organizations and periods (Arena et al., 2010). For instance, Baxter et al. (2013) find that in the sample of American banks and insurance companies,

the quality of ERM is positively correlated with enterprise value, but only during the global financial crisis.

Since empirical studies tend to use market-based performance indicators (such as Tobins' Q) rather than accounting-based performance indicators (ROA), Demsetz and Villalonga (2001) propose the necessity of considering both indicators. Although some studies have explored the relationship between ERM and corporate performance, their contradictory results have not reached consistent conclusions. This difference is partly since the failure of previous studies to distinguish between short-term and long-term corporate performance (Nasr et al., 2019). Considering that there lack related studies and the results are contradictory, this study will examine the impact of ERM on two types of firm performance, the accounting-based firm performance, also known as short-term firm performance (ROA), and market mark-based firm performance, known as long-term firm performance (Tobins' Q) respectively. Nasr et al. (2019) discuss the relationship between the implementation of ERM and organizational performance. The results show that the implementation of ERM strategy affects enterprises' long-term performance, not short-term performance. At the macro level, ERM creates value by strengthening the ability of executives to quantitatively manage the trade-off between risk and return faced by the company as a whole, to be more specific, the implementation of ERM can reduce the negative impact of risk and improve the process of operation and strategic decision-making, so the impact of ERM on accounting performance is expected to be positive. At the micro-level, ERM becomes a way of life for managers and employees at all levels, and carefully estimates the trade-off between risk and return. Meanwhile, considering that the expected improvement of operating performance may have a positive impact on investors' views, there will also be a positive correlation between ERM and market performance. Therefore, this study expects that ERM will positively impact both the short-term and long-term firm

performance of Chinese enterprises. Therefore, for this study, the first hypothesis is expressed as follows:

H1: There is a positive relationship between ERM and firm performance.

Considering the two measurement methods of enterprise performance, this study divides the hypothesis into two sub hypotheses.

H1a: There is a positive relationship between ERM and short-term firm performance.

H1b: There is a positive relationship between ERM and long long-firm performance.

3.2.2 Role of Ownership Concentration in the ERM and Firm Performance Relationship

Agrawal and Mandelker (1990) hold the view that when ownership and management interests are consolidated through ownership concentration, company performance improves since there is no dispute over the right of control. Therefore, ownership concentration may reduce or completely eliminate agency costs. Desender and Lafuente (2009) argue that ownership concentration alleviates the free-rider problem of corporate control caused by principal dispersion. Similarly, major shareholders have the motivation to supervise and control the management more closely to decrease the agency cost and improve their supervision role in the invested companies. Javid and Iqbal (2008) noted that ownership concentration could positively affect corporate performance. Jensen and Mecking (1976) believe that the ownership structure influences enterprise performance because it reduces management's additional consumption, thus increasing investment. According to Berle and Means' study in 1932, the decentralization of company ownership is often accompanied by poor performance,

which means ownership concentration proves to play a positive role in corporate performance (Omran, 2009).

Based on the study of Wang et al. (2019), which presents that ownership concentration can affect corporate performance in two ways. First of all, the controlling shareholders can have an active effect on the company's performance through resource coordination or effective supervision of the management so as to better carry out business activities. Secondly, the controlling shareholders can transfer the company's resources and obtain personal income through related party transactions, which positively influences the company's operating performance and a negative effect on the company's performance. Tran and Le (2020) think that one of the essential ways that ownership concentration affects enterprise performance is the risk-taking behavior related to investment choice. This study holds that ownership concentration reflects the degree of investor protection. This level of protection will lead to different consequences of risk orientation in investment decision-making, thus having different effects on enterprises' growth. Desender and Lafuente (2009) note that if information asymmetry is an increasing function of the uncertainty, it would indicate a positive correlation between risk-taking of enterprise and ownership concentration.

Similarly, Stiglitz (1985) thinks that the large shareholders have enough shares in the company, so they have enough private incentive to the control manager, and they will engage in costly information acquisition and implement effective control. Wiwattanakantang (2001) makes a comparison and finds that the return on assets of family enterprises, foreign holding companies and companies with more than one person is higher than that of enterprises without controlling shareholders. Desender and Lafuente (2009) think that firms with an independent board and concentrated ownership

show the highest level of ERM. Nguyen (2011) found that centralized ownership will lead companies to take risk-taking strategies and ultimately lead to higher performance.

However, Wang and Shailer (2013) hold the opposite idea that ownership concentration is negatively associated with firm performance across countries. Scholars predict that a high degree of ownership concentration and dual relationships may give enormous power to the CEOs that may ultimately increase agency costs (Rashid, 2012). Differently, Omran et al. (2008) and Demsetz and Lehn (1985)suggest that ownership concentration does not have a notable impact on enterprise performance. As the impact of ownership concentration on performance is still controversial， therefore, it is significant to study its effect on performance. Given that high ownership concentration is beneficial to reduce control disputes and agency costs, this paper assumes that ownership concentration can positively moderate the ERM and firm performance.

Accordingly, for this study, the second hypothesis is stated as follows：

H2: Ownership concentration has a positive moderating effect on ERM and firm performance.

H2a: Ownership concentration has a positive moderating effect on ERM and short-term firm performance.

H2b: Ownership concentration has a positive moderating effect on ERM and long-term firm performance.

3.2.3 Role of Foreign Ownership In the ERM and Firm Performance Relationship

Javid and Iqbal (2008) suggested that foreign ownership concentration has a positive and significant impact on firm performance because foreign owners could bring advanced governance and supervision measures. Dahlquist and Robertson (2001) hold the idea that foreign investors can supplement inadequate or inefficient regulation of domestic institutions. The government can effectively introduce institutional investors' regulatory capacity by opening the local stock market to foreign investors. Omran (2009) proved that ownership identity, particularly foreign investors, has a positive influence on the company's performance. Ferreira and Matos (2008) show that foreign institutional ownership helps companies get better performance. The study of Cigdem and Seda (2016) show that foreign ownership improves the profitability of enterprises to a certain extent. Huang and Shiu (2009) revealed an effect of foreign ownership, that is, the performance of stocks with high foreign ownership is better than those with low foreign ownership. Barbosa and Louri (2005) find that the ownership of foreign investors has a positive and significant impact on the profitability of Greek enterprises, which is in the upper half of the profitability index as measured by the total return on assets. Lipsey, Sjöholm and Sun (2013) hold the idea that foreign ownership impacts employment growth at the enterprise level. Li, Yue and Zhao (2007) think foreign ownership brings capital and high technology along with modern management and better governance practices. Besides, compared with domestic enterprises, the enterprise income tax rate of foreign enterprises is lower. Our research shows that the leverage level of enterprises with high foreign equity is not as good as that of Chinese enterprises. Haniffa and Cooke (2002) report firms with a high proportion of foreign shareholders tend to reveal more information in their annual reports because disclosure of more information is believed to attract more investors (both local and foreign), which also

implies that foreign investors value ERM more than domestic investors, promoting ERM disclosure to obtain more investment. In view of the desire for more foreign investment and the requirements of foreign investors for risk management, Chinese enterprises tend to disclose more useful information such as ERM.

However, foreign acquirers are not homogeneous, and their sources impact corporate performance (Chen, 2011). Similarly, Salis (2008) said that there is no significant increase in performance induced by a foreign acquisition. Harris and Robinson (2002) found that firm performance may actually deteriorate after a domestic or foreign acquisition. Yavas and Erdogan (2017) point out that foreign ownership improves firm profitability up to a certain level, however, after the threshold limit, the surge up in foreign ownership starts to deteriorate firm performance.

There is also some evidence that domestic individual investors have more advantages than foreign investors (Choe, 2004). There still exists a dispute on the relations between foreign ownership and corporate performance. Considering that the increase of the proportion of foreign capital may mean strengthening the supervision of enterprises, thus strengthening the relationship between ERM and performance. Therefore, this paper proposes a positive moderating effect on ERM and firm performance.

Hence, based on this discussion, the third hypothesis is presented below:

H3: Foreign ownership has a positive moderating effect on ERM and firm performance.

H3a: Foreign ownership has a positive moderating effect on ERM and short-term firm performance.

H3b: Foreign ownership has a positive moderating effect on ERM and long-term firm performance.

3.3 Quantitative Research Design

This research used a quantitative research method to collect data from the CSMAR (China Stock Market & Accounting Research) database. Quantitative research refers to the systematic investigation of phenomena by collecting quantifiable data and applying statistical, mathematical, or computational techniques. One of the significant advantages of the quantitative method is that its results are effective and reliable due to a wide data collection scope. With the collection, analysis and mass presentation of data, the results obtained will be extremely reliable and accurate, and can be extended to larger groups. Quantitative methods can provide valuable insight into the order of reality and the materialized discourses. Besides, they can reduce personal bias for the reason that the results are numerical. Therefore, they are fair and objective in most cases (Savela, 2018). Hence, it makes the results more objective. Each problem is tested by hypotheses derived from theory, and each step is standardized to reduce deviations in data collection and analysis. Therefore, for this study, the quantitative method is more appropriate and ideal.

3.3.1 Sampling

3.3.1.1 Source of data

We collect the data from the CSMAR(China Stock Market & Accounting Research) database and annual reports of listed firms. CSMAR database is designed based on professional authoritative database standards and combines with China's actual conditions to develop research-oriented accurate data in economics and finance. This database is currently the largest and most accurate financial and economic database in

China, which covers 18 series such as stocks, companies, bond, the economy as well as industry. Hence, this database can provide more complete and accurate data, so this study chose this database. The criterion used to extract data from CSMAR is all public listed companies on the Shanghai and Shenzhen Stock Exchanges. Furthermore, to ensure the accuracy of the data of the independent variable- ERM, this study also randomly selects some sample companies to collect internal control deficiencies from their annual reports and compare the results with those in the CSMAR database.

3.3.1.2 Data period

The data covers the period from 2016 to 2018. Firstly, one of the overall goals of the 13th five-year plan is to greatly improve the international operation level of enterprises and cultivate a number of innovative and internationally competitive multinational companies. 2016 is a year of great significance for China owing to that 2016 is the first year of the decisive stage of building a moderately well-off society in all respects. Therefore, taking 2016 as the starting point of data research can better reflect the changes of policies and make the results more accurate. Hence, this study selects data from 2016 and later. Then, the use of data up to 2018 is also sufficient to reinforce the conviction and reflect the actual situation because the three-year period allows understanding the effect of ERM on firm performance and the moderating role of ownership concentration and foreign ownership on ERM- firm performance relations. Many previous studies (for example, Callahan & Soileaud, 2017; Florio & Leoni, 2017) use three years' data to study the relationship between risk management application and enterprise performance. This period provides relatively new data while avoiding the repeated period with previous studies.

3.3.1.3 Process of sampling

According to Table 3.1, as of December 31, 2016, 2017 and 2018, there are 3337, 3552 and 3569 listed companies in China, respectively, so the population is 10458. Firms with missing values on the main variables are deleted via Excel. After the deletion of the firms with missing values, the sample sizes from 2016 to 2018 were 1960, 1983 and 2072, respectively, so the final sample from 2016 to 2018 is 6015 in total. The reason for a large number of missing values in this sample is that there is a discontinuity in the sample of these companies from 2016 to 2018. For example, some companies delisted during this period or there are newly listed companies during this period. That is, only firms that are listed before 2016 and exist continuously from 2016 to 2018 are included. If these delisting and newly listed samples are not deleted, this paper will lose comparability. Also, if some main indicators data are missing, the sample will also be deleted, such as ROA value missing. Although more than 4000 samples have been removed from this article, there are still a large number of samples (total in 6015). Therefore, deleting samples is conducive to making the research results more accurate and will not affect the results of this study.

Table 3.1: Sample selection

Description	2016	2017	2018	Total
Population (total listed firms)	3337	3552	3569	10458
Less firms with missing values	(1377)	(1569)	(1497)	(4443)
Sample	1960	1983	2072	6015

3.3.2 Variables Measurement

3.3.2.1 The measurement of ERM

It is difficult to directly know whether the enterprise implements risk management because it is not mandatory in China. To measure ERM, previous literature provided many methods, including the appointment of a chief risk officer (Hoyt & Liebenberg,

2011; Florio & Leoni, 2017), or risk committee (Tseng, 2017), or relying on content analysis of company reports (Gordon, 2009; Hoyt & Liebenberg, 2011; Zou et al., 2018) or presence of internal control (Florio & Leoni, 2017).

Hoyt and Liebenberg (2011) and Zou et al. (2018) provided evidence of ERM activities through displayed information noted in firms' financial reports, internal control reports, and other reports. The specific approach is to search for keywords like ERM, internal control and so on. Companies that fail to find relevant keywords indicate that risk management was not implemented ERM that year or before. Hence, firstly, this study tried to use content analysis to measure ERM by searching keywords of the annual report. After observing the annual report and internal control report of the Chinese listed enterprise, it is found that the annual report has a unified format, and there is no separate classification of risk management in the annual report, most of which are concentrated in the internal control part. Therefore, it is difficult to distinguish between risk management and internal control.

As for the appointment of a chief risk officer (CRO) and risk committee, in China, firstly, the chief risk officer system is introduced and set up in financial listed companies, such as China Construction Bank (Ouyang, 2008). Chief risk officers mainly appear in the financial industry, such as banking, securities industry, and risk committees are also rare in Chinese enterprises. However, many enterprises do not have a chief risk officer such as some manufacturing enterprise and risk committee in China, which does not mean that they do not implement ERM. For example, China XD Group Co., Ltd(a state-owned company) implements risk management but does not establish a risk committee and CRO. Therefore, it is not rigorous and has limited generalizability to measure the implementation of risk management only by the establishment of the chief risk officer and risk committee.

Additionally, many China's listed companies do not adopt the ERM framework, and even some companies have no effective information disclosure and statistical data (Sun, 2012). After the release of "internal control - overall framework, " COSO members also issued an "ERM - integrated framework", and considered that internal control is an integral part of risk management. Some scholars suggested that internal control is essentially equivalent to risk management (Blackburn, 1999) which is in line with Leitch (2004), who points out that there is no significant difference between risk management system and internal control system from the theoretical basis because the extension of the two concepts continues to expand, risk management and internal control are gradually assimilated into the same matter. Dănescu et al. (2012) thought that the adequate controlling of the risks requires implementing some internal control activities integrated into the entity's activity and correlated with the adopted accounting policies. Spira and Page (2003) also held that internal control exists to assist the organization in managing its risk and to promote effective governance processes, which is now explicitly linked to risk management. At the same time, Campbell (2015) suggested that, in the best case, compliance review or risk assessment of internal guidance can identify internal control deficiencies or security vulnerabilities, determine the causes, and address the exposure problems before the event occurs. Based on the perspective of risk management, Ge (2014) makes a preliminary exploration on the defects of internal control of enterprises and believes that the defect of internal control is an important cause of business failure, and all risk events can be attributed to the defect of internal control. Ye and Li (2011) noted that effective internal control is to predict the operation risk and financial risk so as to improve the efficiency of management level. Wu et al. (2013) presented that due to the defects of internal control, the enterprise can not identify and evaluate the enterprise risk, which leads to the failure of risk management. Therefore, whether internal control has defects is an important

index to measure ERM. What is more, managers tend to disclose ERM though they did not implement it, resulting in inaccurate research results on the relationship between ERM and enterprise performance. It is necessary to measure ERM from a new perspective.

The above discussions give this study the direction to measure ERM, that is, the only effective way to distinguish is whether there are major defects in internal control. Therefore, this paper measures and tests the ERM through whether the internal control has defects, that is, the absence of defects in the internal control indicates that the enterprise has carried out the ERM. In contrast, the defects indicate that the enterprise has not implemented ERM well. Therefore, this study measures whether the enterprise has implemented risk management according to whether there are defects in internal control implementation, so ERM is a dummy variable. If there is a defect in internal control, indicating that the enterprise has not implemented risk management, use 0 to represent, otherwise use 1.

The specific ERM measurement process is as follows: firstly, download the data through the CSMAR database, and do preliminary arrangement by Excel,1 represents that the enterprise has internal control defects, 2 represents that there are no internal control defects. Secondly, randomly select the stock code, and compare the internal defect results with the annual report of the enterprise. Finally, according to the results, ERM is assigned in Stata software, 0 means that the enterprise has not implemented ERM, otherwise it is 1, 1 means that the enterprise has implemented ERM. In this case, Gree in 2017 (stock code is 000651) is selected as an example to illustrate the measurement of ERM. As shown in Figure 3.1, the number of internal control defects in 2017 is 2 which means the company has no internal control defects and has implemented ERM. Meanwhile, according to the audit results in the figure 3.2, the

annual report of this company shows no significant defects of internal control were found during the reporting period. This is consistent with the data we downloaded from the database. At the same time, it also verified the reliability of the data sources and ensured the accuracy and objectivity of the research results.

Stock	Year	Internal control defects
000651	2016	2
000651	2017	2
000651	2018	2

Figure 3.1: Data from the CSMAR database

IX. Internal control

1. Details about major defects found in internal control in the Report Period

□ Yes √ No

2. Internal control self-evaluation report

Full disclosure date of the internal control evaluation report	April 27, 2017
Full disclosure index of the internal control evaluation report	www.cninfo.com.cn
Proportion of the total amount of unit assets included in the evaluation scope to the total amount of assets in the consolidated financial statements of the Company	99.00%
Proportion of the unit operating income included in the evaluation scope to the unit operating income in the consolidated financial	99.00%

statements of the Company		
Defect identification standard		
Category	Financial report	Non-financial report
Qualitative standard	For details, see the Internal Control Self-evaluation Report of Gree Electric Appliances, Inc. of Zhuhai for the Year 2016 disclosed on www.cninfo.com.cn by the Company on 27 April.	For details, see the Internal Control Self-evaluation Report of Gree Electric Appliances, Inc. of Zhuhai for the Year 2016 disclosed on www.cninfo.com.cn by the Company on 27 April.
Quantitative standard	For details, see the Internal Control Self-evaluation Report of Gree Electric Appliances, Inc. of Zhuhai for the Year 2016 disclosed on www.cninfo.com.cn by the Company on 27 April.	For details, see the Internal Control Self-evaluation Report of Gree Electric Appliances, Inc. of Zhuhai for the Year 2016 disclosed on www.cninfo.com.cn by the Company on 27 April.
Number of major defects in the financial report	0	
Number of major defects in the non-financial report	0	
Number of important defects in the financial report	0	
Number of important defects in the non-financial report	0	

X. Internal control audit report

Deliberation opinion section in the internal control audit report	
We hold that Gree Electric Appliances, Inc. of Zhuhai has maintained effective internal control of financial reports in accordance with the Basic Rules for Internal Control of Enterprises and relevant regulations.	
Disclosure of internal control audit report	Disclosed
Full disclosure date of the internal control audit report	April 27, 2017
Full disclosure index of the internal control audit report	www.cninfo.com.cn
Type of internal control audit report opinions	Standard without reserved opinion
Major defects found in the non-financial report	No

The accounting firm issued the internal control audit report of non-standard opinions
□ Yes √ No
The internal control audit report issued by the accounting firm is consistent with the self-evaluation report opinion of the Board of Directors
√ Yes □ No

Figure 3.2: Result from annual report

	code	year	stock	erm
445	651	2016	000651	1
446	651	2017	000651	1
447	651	2018	000651	1

Figure 3.3: Data in Stata

3.3.2.2 The measurement of firm performance

To develop performance metrics, this study relies upon previous performance literature and uses Tobin’s Q, ROA, and ROE as firm performance indicators. As Bozecet et al. (2010) mentioned, Tobin’s Q is a typical way to measure expected long-term business performance. Kapopoulos and Lazaretou (2007) noted that a high Q ratio means that the firm has successfully used the investment to develop a company with a market value higher than its book value. ROA measures the company's operational and financial performance (Klapper & Love, 2002). The higher rate of ROA also reflects the efficient use of corporate assets to serve the shareholder's economic benefit (Ibrahim & Abdul Samad, 2011). Numerous studies applied ROA to measure corporate performance(for example, Chaghadari, 2011; Pandya, 2011). Theoretically, ROA and Tobin's Q are used to present the company's short-term and long-term performance, respectively. Li et al. (2015) believe that ROA is an accounting-based measure that reflects backward-looking information, and Tobin's Q is a market-based measure that captures investors' forward-looking valuation perceptions. In data analysis, we can get a more intuitive and comprehensive result by comparing the two indicators of firm performance. Hence, to make performance more reliable, the measurement of company performance in this study used both ROA and Tobin’s Q: ROA as a short-term measure of firm performance and Tobin's Q ratio as a long-term measure of firm performance.

3.3.2.3 The measurement of ownership concentration and foreign ownership

Javid and Iqbal (2008) use the top five shareholders as the representative of equity concentration to analyze whether corporate equity affects corporate governance and firm performance. Similarly, in the study of Khalfan and Wendt (2020), ownership concentration is measured by the percentage of total equity owned by the five largest shareholders, regardless of each shareholder's shareholding ratio. Moreover, Li et al.

(2015) used the same method, that is, the ratio of shares owned by the largest three and five shareholders respectively to total shares to present ownership concentration. Therefore, this paper applies the same method, measuring ownership concentration by analyzing the sum of the top five shareholders' shareholding ratio. To be more specific, the larger the shareholding ratio is, the more concentrated the ownership is. Furthermore, based on the study of Gurbuz (2010) and Kabir (2020), foreign ownership is represented by the percentage of shares that are owned by foreigners. in the same measure, Greenaway, Guariglia and Yu (2012) measure foreign ownership as the share of a firm's equity owned by foreign investors. Therefore, this paper measures foreign ownership by the percentage of foreign investors' shareholding.

3.3.2.4 The measurement of control variables

This study uses several control variables that are commonly used in previous researches. Following the method of Chu (2009) method, company age refers to the number of years after the establishment of the company or the oldest number of years in its predecessor company. Hence, in this paper, firm age is the difference between the year of establishment according to the registration with the Bureau of Industry and Commerce and 2018. R&D investment is presented by the proportion of R&D investment in operating revenue. Similar to previous literature (Le, Walters and Kroll, 2006; Ahmad et al., 2017), this paper measures leverage by debt-to-equity ratio. The summary of measurements of variables are shown in Table 3.2.

Table 3.2: Measurements of variables

Variables	Items	Measurement	Sources
Independent variable	ERM	Internal control deficiency	CSMAR database and annual reports

Dependent variable	Firm performance	ROA, Tobin's Q and ROE ROA is calculated as the percentage of net income to total assets Tobin's Q is calculated as the total market value divided by total assets value ROE is calculated as a percentage of net income to common equity	CSMAR database
Moderating variables	Ownership concentration	The sum of the shareholding percentage of top five shareholders	CSMAR database
	Foreign ownership	The sum of the shareholding percentage of foreign shareholders	CSMAR database
Control variables	Firm age	The sum of years from establishment to 2018	CSMAR database
	R&D investment	The proportion of R&D investment in operating revenue	CSMAR database
	Leverage	Debt-to-equity ratio	CSMAR database

3.3.3 Regression Model

This study employs two equation models, the first equation for ROA and the second equation for Tobins'Q. The regression model is specified as follows. In the first model, firm performance is measured by return on assets - as a dependent variable, while ERM is an independent variable. The moderating variables include ownership concentration, foreign ownership. Firm age, R&D expenditure, Leverage serve as control variables. In model 2, enterprise performance is presented using Tobin's Q. The rest of the variables remain the same.

Model 1

$$roa_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$$

Model 2

$$tobinsq_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$$

Note: roa= return on assets, tobinsq= Tobin's Q, erm= ERM, fip= percentage of foreign shareholding, top5= the sum of shareholding percentage of top five shareholders, lev= Leverage, rds= R&D investment, age =firm age

3.3.4 Data Analysis

The study will use Stata to perform analyses for the reason that Stata can perform most statistical analyses, such as regression, survival analysis, multivariate analysis and so on (Mitchell, 2005). Compared to SPSS, Stata has more powerful programs such as panel data analysis, which is exactly what this study needs. Although SAS (Statistical Analysis System) is popular because of its powerful function and programmability, it is difficult to operate. Compared with SAS, Stata is easier to master and can meet the requirements of this study. The following analyses are performed using Stata:

3.3.4.1 Descriptive analysis

Descriptive statistical analysis can quickly and effectively explain the main characteristics of a large number of data. Such interpretation can be either a quantitative statistical summary along with the minimum, maximum, mean, median, and variance or visual summary such as histograms and scatterplots (Qiu, Wei & Bai, 2017). Through descriptive analysis, it is helpful to know the distribution information of the sample data. Key important data are reported, including average, minimum, maximum, standard deviation, kurtosis, and skewness. The purpose of the analysis is to examine whether

outliers exist in the data distribution of variables, and it helps do further statistical analysis.

3.3.4.2 Bivariate analysis

Bivariate analysis means the analysis of bivariate data. It is one of the simplest forms of statistical analysis, which is used to find out if there is a relationship between two variables. The types of bivariate include scattering plots, regression analysis, as well as correlation coefficients. Based on correlation coefficients, this coefficient tells if the variables are related. Basically, a zero means they are not correlated (i.e., related in some way). In contrast, a 1 (either positive or negative) means that the variables are perfectly correlated (i.e., they are perfectly in sync with each other). It is the analysis of the relationship between the two variables, which can help explore the correlation between different variables, whether there is correlation and the strength of the correlation, or whether there is diversity between variables and the significance of these diversities.

3.3.4.3 Multiple regression

Generally speaking, multiple regression aims to test the relationship between multiple independent and dependent variables and establish the quantitative relationship of linear or nonlinear mathematical models among multiple variables. One of the purposes of multiple regression is to support the results of panel analysis. The comparison of multiple regression and panel data analysis will make the results more objective and intuitive.

3.3.4.4 Panel data analysis

Panel data, also known as longitudinal data or cross-sectional time-series data in some special cases, is derived from a (usually small) number of observations over time on a (usually large) number of cross-sectional units like individuals, households, firms, or governments. In the field of econometrics and statistics, panel data refers to multidimensional data, which usually involves measurement over a period of time. Therefore, panel data includes researchers' observations of many phenomena collected for the same set of units or entities over several periods. Panel data have become wildly available in both the developed and developing countries. For instance, the Development Institute of China's Rural Development Research Centre under the State Council, in collaboration with the World Bank, conducted an annual survey of 200 large Chinese township and village enterprises in China every year from 1984 to 1990. Panel data contains observations of multiple phenomena acquired by a company or individual over multiple periods. Zhu (2012) identifies that panel data allow researchers to use repeated observations of the same units and could increase both the quantity and quality of the empirical information.

Meanwhile, Breusch-Pagan LM test (LM test) is used to decide whether to use mixed effects model or random effects model. According to the view of Meangbua et al. (2019), the Hausman test can be applied to determine whether to choose the fixed effects model or the random effects model to ensure the accuracy of the model. The fixed effects model refers to that the individual-specific effect is a random variable, which is not related to the independent variable of different periods of the same individual (Schmidheiny, 2020). This scholar also noted that the individual-specific effect is a random variable, which is allowed to be related to the dependent variables. Additionally, the F test will also be applied in this study to determine whether to use a mixed effects model or a fixed effects model.

CHAPTER 4: EMPIRICAL RESULTS

4.1 Introduction

This chapter begins with the report of the descriptive statistics in section 4.2. Then section 4.3 looks at correlation analysis, and then multiple regression has been done in section 4.4. Additionally, in section 4.5, panel data model testing will be shown, followed by a summary of the final regression in sec.6. Finally, a robustness test has been done in order to verify this study in section 4.7.

4.2 Descriptive Statistics

In order to avoid the influence of extreme values on data results, this paper did winsor2 at 1% and 99% percentiles. The descriptive analysis of variables of the current study is provided for 6015 sample firms listed at Shanghai Stock Exchange and Shenzhen Stock Exchange by using descriptive analysis like mean, standard deviation, minimum, maximum. The distribution of the variables is explained in Table 4.1. Meanwhile, the statistical results of the description after the winsor2 help examine whether there are significant outliers in the data distribution of variables.

From the result below, it shows there are no obvious outliers in the maximum and minimum value distribution of variables. Except for roa (Sk=-2.487), the skewness of other variables is greater than zero. The peak of frequency distribution shifts to the right, and the long tail extends to the left, which is negatively-skewed distribution. The kurtosis of all variables is greater than zero, and data distribution is (peak) distribution, which means less extreme data on both sides. After the statistical analysis of the description in the table, further regression analysis can be carried out. Compared with the research results of Lin and Fu (2017), the Tobin's Q and ROA of China's listed companies were 2.343 and 4.403% respectively from 2004 to 2014. According to the

results of this study, the mean value of Tobins' Q is 1.829 and ranges from 0.165 to 8.853, indicating that the majority of the firms have high performance. Tobins' high Q suggests that the stock price is rated higher than the book values. Stocks considered overvalued typically occur in companies with no stable revenue and return on equity and those with revenue growth rates below the market average.

The average value of ROA was relatively small, 3.2%, ranging from - 37.9% to 20.1%. This result suggests that Chinese listed firms have a relatively poor performance during the test period (2016-2018). However, the mean value is positive, which indicates that the sample firm can create value for shareholders in this study. A positive value also indicates that the company's assets have been effectively used to generate surplus income. The low ROA value indicates that most enterprises are asset-intensive enterprises. If so, the company needs more money to invest in the business to generate higher revenue. Large institutional shareholders are defined as institutions that directly or indirectly hold at least 10% of the total equity of a company (Laeven & Levine, 2007; Khalfan & Wendt, 2020). The mean value of ownership by the five largest shareholders for our sample firms is 50.8%, which means ownership of Chinese enterprises is highly concentrated. The table also shows the mean percentage of foreign ownership in China's listed companies remains low (0.731%) in general, which means foreign capitals have no controlling interest in most of the listed companies. This result is also consistent with the study of Shaobo, Zhuqing and Dezhu (2012).

As shown in Figure 4.1, for ERM, the percentage of 0 is about 33.33%, which means that 33.33% of listed companies do not implement ERM. The percentage of 1 is about 66.67%, that is, 66.67% of listed companies have implemented ERM. These statistics are comparable to the reported frequency for China in the sample of Xiang (2018), who

investigated ERM implementation in the manufacturing industry during the 2004–2015 period.

Table 4.1: Descriptive Statistics

	N	Mean	St.Dev	min	Median	max	skewness	kurtosis
roa	6015	0.032	0.072	-0.379	0.032	0.201	-2.487	15.873
tobinsq	6015	1.829	1.597	0.165	1.358	8.853	2.04	7.973
top5	6015	0.508	0.147	0.186	0.506	0.864	0.09	2.539
fip	6015	0.731	3.971	0	0	28.483	6.03	38.763
rds	6015	4.048	4.612	0	3.22	25.51	2.32	9.675
lev	6015	0.955	1.148	0.012	0.617	7.482	3.192	15.907
age	6015	12.142	7.352	1	10	26	0.352	1.815

Note: top5= the sum of the shareholding percentage of top five shareholders, fip= the percentage of foreign shareholding, rds= R&D investment , lev= Leverage

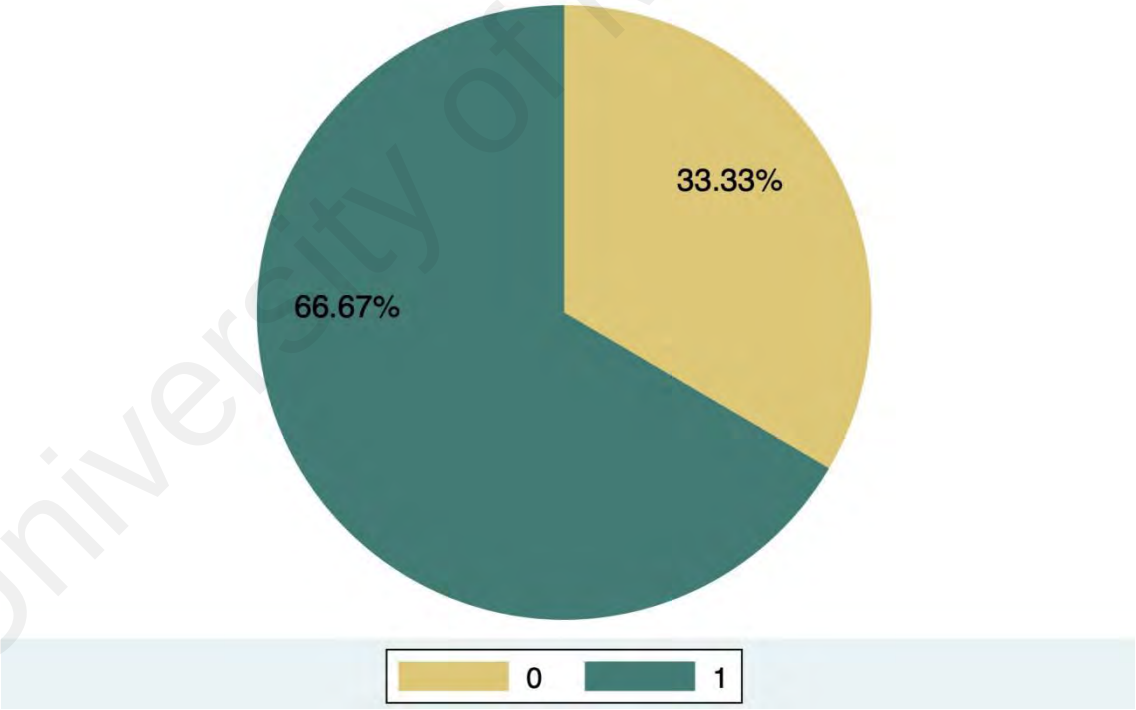

Figure 4.1: Frequency of ERM

4.3 Correlation Analysis

Before regression analysis, it is important to meet the basic assumption of regression analysis, that is, there is no serious collinearity between independent variables. The so-called collinearity refers to the strong correlation between more than two explanatory variables (generally more than 90%). These variables can be described by the same variable in practice, and adding these variables will lead to biased regression results error. To avoid these problems before regression, this paper also conducts a correlation analysis on the selected variables. As shown in Table 4.2 below, the maximum correlation coefficient between independent variables does not exceed 0.5, and there is no serious collinearity problem.

Table 4.2: Correlation analysis

	roa	tobinsq	top5	fip	rds	lev	age
roa	1.000						
tobinsq	0.197***	1.000					
top5	0.299***	0.099***	1.000				
fip	0.034***	-0.069***	0.252***	1.000			
rds	-0.033***	0.295***	-0.130***	-0.062***	1.000		
lev	-0.237***	-0.281***	-0.027**	0.007	-0.223***	1.000	
age	-0.106***	-0.312***	-0.184***	-0.002	-0.290***	0.241**	1.000

Note: top5= the sum of the shareholding percentage of top five shareholders, fip= the percentage of foreign shareholding, rds= R&D investment , lev= Leverage

4.4 Multiple Regression

In this part, first of all, through OLS regression analysis, the method of adding independent variable and moderating variables step by step is used to analyze the impact of ERM on short-term enterprise performance ROA, and the moderating effects of foreign ownership (fip) and ownership concentration (top5) are analyzed. As is shown in Table 4.3, we can see from the results that the coefficient of independent variable ERM (0.011, $p < 0.01$) is positive and significant in the second column without

considering the effect of ownership concentration and foreign ownership, which shows that ERM can significantly promote the growth of short-term enterprise performance. The fifth column shows that the interaction term with FIP is added step by step, and the coefficient of the interaction term (erm_fip) is positive and significant (0.04, $p < 0.01$), suggesting that foreign ownership can positively moderate the effect of ERM on short-term firm performance (when firm performance is measured by ROA), which supports the hypothesis3a (foreign ownership has a positive moderating effect on ERM and short-term firm performance). In the sixth column, the interaction term of top5 (erm_top) was added at the same time, and the result is still significant and positive (0.068)at the level of 1%. This supports the hypothesis 2a (ownership concentration has a positive moderating effect on ERM and short-term firm performance). Additionally, the goodness of fit R^2 increased from 0.069 to 0.180, and the goodness of fit increased significantly. The multiple correlation coefficient (R) measures the goodness of fit of the least-squares regression surface as a whole to the dependent variable values. The square of the multiple correlation coefficient (R^2) represents the percentage of the variation in the dependent variable accounted for by the least-squares surface (Shennan, 1988). Hence, it can be stated that ERM has a positive effect on firm performance, and at the same time, both ownership concentration and foreign ownership moderate the relationship of ERM and short-term firm performance positively.

Table 4.3 Multiple regression analysis: Firm performance - ROA

	(1)	(2)	(3)	(4)	(5)	(6)
	roa	roa	roa	roa	roa	roa
rds	-0.002***	-0.002***	-0.002***	-0.001***	-0.001***	-0.001***
	(-5.481)	(-5.717)	(-5.600)	(-2.994)	(-3.350)	(-3.286)
lev	-0.015***	-0.015***	-0.015***	-0.015***	-0.014***	-0.014***
	(-11.886)	(-11.907)	(-11.900)	(-12.288)	(-12.022)	(-11.809)
age	-0.001***	-0.001***	-0.001***	0.000*	0.000*	0.000*
	(-5.659)	(-4.201)	(-3.915)	-1.703	-1.95	-1.883

erm		0.011***	0.013***	0.019***	0.045***	0.043***
		-5.254	-5.808	-8.719	-19.065	-17.167
fip			0.001***	0	-0.000*	0
			-4.798	(-1.586)	(-1.932)	(-0.136)
top5				0.152***	0.143***	0.100***
				-19.6	-18.497	-9.142
erm_fip					0.040***	0.037***
					-20.692	-18.417
erm_top5						0.068***
						-4.68
_cons	0.062***	0.053***	0.050***	-0.043***	-0.039***	-0.017**
	-24.827	-17.239	-15.863	(-7.478)	(-6.741)	(-2.323)
N	6015	6015	6015	6015	6015	6015
F	73.32***	61.524***	51.167***	108.157***	187.738***	158.216***
r2	0.069	0.074	0.077	0.16	0.176	0.18

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: 1. top5=the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds=R&D investment , lev=Leverage. 2. Model 1($roa_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$

This part is consistent with the above methods. Table 4.4 is an OLS regression to estimate the relationship between Tobins' Q as long-term performance metrics and ERM, as well as proposed moderating roles played by ownership concentration and foreign ownership. In this table, first, through the OLS regression analysis, we add the method of the independent variable and moderating variables one by one, analyze the impact of ERM on long-term firm performance (Tobins' Q), and analyze the moderating effects of ownership concentration (top5) and foreign ownership (fip). The results indicate that the independent variable ERM has a significant and positive impact in the second column, which shows that ERM can significantly promote the growth of long-term enterprise performance, so hypothesis 1b is proved. In the fifth column, the interaction term with FIP (erm_fip) is added step by step, and the coefficient of the interaction term is 0.620, which is significant at the level of 1%. This supports the

hypothesis3b (foreign ownership has a positive moderating effect on ERM and long-term firm performance). In the sixth column, the interaction term of top5 (erm_top5) is added at the same time, and the result is still significant (2.466) at the level of 1%, which supports the hypothesis 2b (Ownership concentration has a positive moderating effect on ERM and long-term firm performance). Additionally, the goodness of fit R^2 of the model increased from 0.175 to 0.217, and the goodness of fit increased significantly. Therefore, these result presents that ERM can positively influence long-term firm performance. Meanwhile, both ownership concentration and foreign ownership moderate the relationship between ERM and long-term firm performance positively.

Table 4.4 Multiple regression analysis: Firm performance - Tobins' Q

	(1) tobinsq	(2) tobinsq	(3) tobinsq	(4) tobinsq	(5) tobinsq	(6) tobinsq
rds	0.066***	0.064***	0.063***	0.071***	0.069***	0.070***
	-12.361	-12.029	-11.863	-13.036	-12.756	-12.903
lev	-0.260***	-0.254***	-0.255***	-0.252***	-0.247***	-0.243***
	(-11.429)	(-11.205)	(-11.259)	(-10.977)	(-10.841)	(-10.716)
age	-0.046***	-0.041***	-0.041***	-0.034***	-0.034***	-0.034***
	(-15.297)	(-13.198)	(-13.362)	(-11.240)	(-11.093)	(-11.164)
erm		0.335***	0.305***	0.358***	0.757***	0.689***
		-8.699	-7.632	-8.703	-9.175	-8.297
fip			-0.015***	-0.025***	-0.026***	-0.013***
			(-4.592)	(-6.880)	(-7.225)	(-3.442)
top5				1.307***	1.168***	-0.390*
				-8.536	-7.578	(-1.725)
erm_fip					0.620***	0.523***
					-5.705	-4.789
erm_top5						2.466***
						-8.235
_cons	2.367***	2.083***	2.125***	1.316***	1.385***	2.188***
	-41.94	-32.184	-31.999	-12.295	-12.904	-15.401
N	6015	6015	6015	6015	6015	6015
F	253.515***	212.393***	182.865***	154.876***	138.616***	133.708***
r2	0.175	0.184	0.185	0.198	0.206	0.217

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note:1. top5= the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds= R&D investment, lev= Leverage. 2. Model 2($tobinsq_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$)

4.5 Panel Data Model Testing

Considering that panel data is used in this paper, using mixed regression directly will ignore the unobservable or missing heterogeneity between individuals. Breusch-Pagan LM test(LM test), F test, and Hausman test are used to determine the final used model. LM test is used to decide whether to use mixed effects model or random effects model，and F test is needed to determine whether to use a mixed effects model or a fixed effects model. Meanwhile, the Hausman test is applied to determine whether to use the random effects model and the fixed effects model. Therefore, according to the model in this paper, the LM test, F test and Hausman test are taken, and the results are shown in the table below. Table 4.5 shows the results for Model 1（y=roa). Table 2 shows the results for Model 2 (y=tobinsq).

According to the results both in Table4.5 and Table4.6, the p-value of LM Test is less than 0.01, which significantly rejects the original hypothesis of using mixed effects model, and the random effects model is better. The p-value of F test is 0, which significantly rejected the original hypothesis of mixed effects model, and fixed effects model is better. According to the results of Hausman test, P-value is less than 0.01, rejecting the original hypothesis of random effects model, that is, fixed effects model should be used to estimate better. In conclusion, the fixed effects model should be used in this study.

Table 4.5: Model test - ROA

Methods	Model(1)

BP_LM Test	P-value	0.0000
F Test	P-value	0.0000
Hausman Test	P-value	0.0000
	Preferred model	Fixed effect model

Table 4.6: Model test – Tobins' Q

Methods		Model(2)
BP_LM Test	P-value	0.0000
F Test	P-value	0.0000
Hausman Test	P-value	0.0000
	Preferred model	Fixed effect model

Then, the autocorrelation and heteroscedasticity are tested in this study. The test results are presented in Table 4.7, which shows that the P-value of the autocorrelation test is less than 0.01, rejecting the original hypothesis that there is no first-order autocorrelation, that is, there is autocorrelation in this model. The heteroscedasticity test also significantly rejected the null hypothesis and was statistically significant at 1%. That is, the model has heteroscedasticity and serial correlation. Considering that the time of panel data is only 3 years and the observable time range is limited. Hence, the problem of sequence correlation between the data is not very serious.

Table 4.7: Heteroscedasticity and autocorrelation test

	Heteroscedasticity test	Autocorrelation test
ROA	chi2 = 2792.92	F = 18.919
	P = 0.000	P = 0.000

TOBINQ	chi2 = 8.1e+33 P = 0.000	F = 246.967 P = 0.000

To solve the above problems, the year fixed effect is added in this part, and individual cluster-robust standard error is used to correct heteroscedasticity and sequence correlation problems. The following Table 4.8 presents the results of clustering robust standard error regression of double fixed effects. One of the objectives of this study is to evaluate the relationship between ERM and firm performance, and it is hypothesized that a positive correlation exists between these two variables. From the results of Table 4.8, we can see that the effects of ERM on the dependent variables roa(0.047) and tobinq(0.474) are still significantly positive at the level of 1%, which supports the first hypothesis(including H1a and H1b). This study also hypothesizes that foreign ownership and ownership concentration play moderating roles between ERM and corporate performance relations. Based on the result in first column, the moderating effect of foreign ownership (fip) is not significant(0.008), so H3a is rejected. In comparison, it is significant in second column when firm performance is measured by Tobins'Q, so H3b is supported. Meanwhile, ownership concentration (top5) still has a significant positive moderating effect both in the first column with the value 0.130 ($p<0.01$) and second column with the value 0.666 ($p<0.05$), which proved the second hypothesis (including H2a and H2b).

Table 4.8: Panel data analysis for ROA and Tobins' Q

	(1) FE_roa	(2) FE_tobinq
erm	0.047***	0.474***
	(8.322)	(5.888)
fip	0.001***	0.003
	(2.771)	(0.502)

erm_fip	0.008	0.279***
	(1.540)	(2.910)
top5	0.501***	4.221***
	(9.507)	(7.797)
erm_top5	0.130***	0.666**
	(4.322)	(2.030)
rds	-0.005***	0.000
	(-4.016)	(0.016)
lev	-0.018***	-0.030
	(-6.655)	(-1.285)
age	0.027	-0.045
	(1.608)	(-0.320)
_cons	-0.516***	0.658
	(-2.677)	(0.410)
Year	Yes	Yes
N	6015	6015
F	34.635***	235.376***
r2	0.258	0.460

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: top5= the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds= R&D investment , lev= Leverage

4.6 Final Results

In order to show the results of multiple analysis and panel data analysis more intuitively, this study compared the results of these two studies. Table 4.9 shows the comparison of the two results. By comparing the results of multiple regression and fixed effect model, it can be found that, in general, the significance of each variable has not changed much except for the moderating effect of foreign ownership in the fixed effects model. That is, ownership concentration (top5) still has a significant positive moderating effect both in OLS regression analysis and fixed effects model. As for foreign ownership (fip), except for the moderating effect of foreign ownership in the fixed effect model (FE_roa), both OLS regression analysis and fixed effect model show a significant positive moderating effect on ERM and both short-term and long-term company performance relationship.

Table 4.9: Final regression for ROA and Tobins' Q

	（1） OLS_roa	（2） FE_roa	（3） OLS_tobinq	（4） FE_tobinq
erm	0.043***	0.047***	0.689***	0.474***
	-17.167	(8.322)	-8.297	(5.888)
fip	0	0.001***	-0.013***	0.003
	(-0.136)	(2.771)	(-3.442)	(0.502)
erm	0.037***	0.008	0.523***	0.279***
	-18.417	(1.540)	-4.789	(2.910)
top5	0.100***	0.501***	-0.390*	4.221***
	-9.142	(9.507)	(-1.725)	(7.797)
erm	0.068***	0.130***	2.466***	0.666**
	-4.68	(4.322)	-8.235	(2.030)
rds	-0.001***	-0.005***	0.070***	0.000
	(-3.286)	(-4.016)	-12.903	(0.016)
lev	-0.014***	-0.018***	-0.243***	-0.030
	(-11.809)	(-6.655)	(-10.716)	(-1.285)
age	0.000*	0.027	-0.034***	-0.045
	-1.883	(1.608)	(-11.164)	(-0.320)
_co	-0.017**	-0.516***	2.188***	0.658
	(-2.323)	(-2.677)	-15.401	(0.410)
N	6015	6015	6015	6015
F	158.216***	34.635***	133.708***	235.376***
r2	0.18	0.258	0.217	0.460
F	2.84***		8.33***	
Hau	581.95***		2792.92***	

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: top5=the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds=R&D investment , lev=Leverage

4.7 Additional Robustness Tests

Comparing the results of OLS and fixed effect panel estimation, we find that the results are significantly different. Although OLS results are basically consistent with the hypothesis, our fixed effect panel estimation results are not consistent with the hypothesis. The results of the fixed effects panel estimation find that the moderating

effect of foreign ownership on risk management and short-term firm performance relationship is not significant, however, it is significant in OLS regression analysis.

According to the study of Al-Matari (2014), ROA and ROE are the most common index to represent accounting-based corporate performance. Return on equity (ROE) is one of the popular tools used by the researchers as a proxy to measure financial performance (Alawattegama & Kingsley Karunaratne, 2017). ROE is a short-term indicator of organizational performance, which cannot well measure the organization's long-term performance (Damodaran, 2007). Hence, this section adds an additional test by using Return on Equity (ROE) as the alternative variable of Return on Assets(ROA) to support the findings of H3b and verify the result. Based on this, multiple analysis and panel data analysis have been done.

Hence, the model is showed below. In this model, firm performance as a dependent variable is measured by ROE (roe), and erm is an indicator of ERM. The moderating variables include ownership concentration (top5), foreign ownership (fip). Firm age (age), R&D expenditure (rds), Leverage (lev) serve as control variables.

Model 3

$$roe_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$$

4.7.1 Multiple Regression

Similarly, firstly, an OLS regression analysis is applied in Table 4.10, the method of adding independent variable and moderating variables step by step is used to analyze the impact of ERM on ROE (as a short-term measure of enterprise performance), and the moderating effects of ownership concentration(top5) and foreign ownership (fip) in this relationship are also analyzed. As is shown in Table 4.10, we can see from the

results that the coefficient of independent variable ERM (0.024, $p < 0.01$) is positive and significant in the second column without considering the effect of ownership concentration and foreign ownership, which shows that ERM can significantly promote the growth of short-term enterprise performance. In the fifth column, the interaction term with FIP (erm_fip) is added step by step, and the coefficient of the interaction term is positive and significant (0.056, $p < 0.01$), suggesting that foreign ownership can positively moderate the effect of ERM on short -term firm performance. In the sixth column, the interaction term of top5 (erm_top5) is added at the same time, and the result is still significant and positive (0.116)at the level of 1%indicated that there was a positive and significant moderating effect of ownership concentration on the relationship between the ERM implementation and short-term firm performance. At the same time, according to the F test, the results are also significant. Additionally, the goodness of fit R^2 increased from 0.044 to 0.130, and the goodness of fit increased significantly. Therefore, according to the results of multivariate analysis, the three hypotheses (H1a, H2a, and H3a) in this study have been verified and supported. Meanwhile, it shows that ownership concentration and foreign ownership moderate the relationship between ERM and short-term firm performance positively.

Table 4.10 Multiple analysis: Firm performance – ROE

	(1) roe	(2) roe	(3) roe	(4) roe	(5) roe	(6) roe
rds	-0.004***	-0.004***	-0.004***	-0.003***	-0.003***	-0.003***
	(-7.206)	(-7.484)	(-7.361)	(-4.823)	(-5.087)	(-5.018)
lev	-0.023***	-0.022***	-0.022***	-0.022***	-0.021***	-0.021***
	(-6.114)	(-6.059)	(-6.049)	(-6.061)	(-5.939)	(-5.869)
age	-0.001***	-0.001***	-0.001**	0.001**	0.001***	0.001**
	(-4.114)	(-2.634)	(-2.373)	(2.434)	(2.596)	(2.535)
erm		0.024***	0.028***	0.039***	0.074***	0.071***
		(5.602)	(6.093)	(8.758)	(14.146)	(12.924)
fip			0.002***	0.000	-0.001	0.000
			(4.627)	(-1.149)	(-1.394)	(0.181)

top5				0.271***	0.259***	0.185***
				(18.055)	(17.189)	(8.153)
erm_fip					0.056***	0.051***
					(10.965)	(9.951)
erm_top5						0.116***
						(3.980)
_cons	0.114***	0.094***	0.089***	-0.079***	-0.073***	-0.035**
	(22.001)	(14.816)	(13.641)	(-7.126)	(-6.565)	(-2.363)
N	6015	6015	6015	6015	6015	6015
F	28.565***	27.951***	24.184***	77.033***	88.823***	80.413***
r2	0.044	0.05	0.052	0.118	0.127	0.130

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: 1.top5= the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds= R&D investment , lev= Leverage. 2. Model 3($roe_{i,t} = \beta_0 + \beta_1 erm_{i,t} + \beta_2 fip_{i,t} + \beta_3 erm\_fip_{i,t} + \beta_4 top5_{i,t} + \beta_5 erm\_top5_{i,t} + \beta_6 rds_{i,t} + \beta_7 lev_{i,t} + \beta_8 age_{i,t} + \varepsilon$)

4.7.2 Panel Regression

In this section, we use the fixed effects model to do regression analysis again. Three kinds of enterprise performance measurement methods are put together for comparison. The results of the fixed effects estimation are presented in Table 4.11.

One of the objectives of this study was to evaluate the relationship between ERM and firm performance. It is hypothesized that a positive correlation exists between these two variables. From the results of Table 4.11, we can see that the effect of ERM on the dependent variables roe is still significantly positive at the level of 1%, which is in line with the dependent variables roa and tobinsq. This study also hypothesizes that foreign ownership and ownership concentration play moderating roles between ERM and short-term firm performance relations. The third column presents the results for our interaction terms. From this model, we found that the moderating effect of ownership concentration(erm_top5) is significant. However, the moderating effect of foreign

ownership(erm_fip) is not significant. The results of this study are consistent with those of previous chapters.

Table 4.11: Panel data analysis for ROA, Tobins' Q and ROE

	(1) roa	(2) tobinsq	(3) roe
erm	0.047***	0.474***	0.077***
	(8.322)	(5.888)	(7.190)
fip	0.001***	0.003	0.002**
	(2.771)	(0.502)	(2.362)
erm_fip	0.008	0.279***	-0.007
	(1.540)	(2.910)	(-0.597)
top5	0.501***	4.221***	0.756***
	(9.507)	(7.797)	(12.688)
erm_top5	0.130***	0.666**	0.210***
	(4.322)	(2.030)	(4.464)
rds	-0.005***	0.000	-0.011***
	(-4.016)	(0.016)	(-9.163)
lev	-0.018***	-0.03	-0.039***
	(-6.655)	(-1.285)	(-13.073)
age	0.027	-0.045	-0.010***
	(1.608)	(-0.320)	(-5.500)
_cons	-0.516***	0.658	-0.169***
	(-2.677)	(0.410)	(-4.060)
N	6015	6015	6015
F	34.635***	235.376***	110.478***
r2	0.258	0.46	0.184

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: top5= the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds= R&D investment , lev= Leverage, roe= Return on equity

4.7.3 Final Regression

The purpose of the following table 4.12 is to compare the results of multiple regression and panel data analysis of enterprise performance measured by three methods to make the results more intuitive. Table 4.12 shows the comparison of the two results. By comparing the results of multiple regression and fixed effect model, it can be found

that, in general, the significance of each variable has not changed much except for the moderating effect of foreign ownership in the fixed effects model. That is, ownership concentration (top5) still has a significant positive moderating effect both in OLS regression analysis and fixed effects model. As for foreign ownership (fip), except for foreign ownership's moderating effect in the fixed effect model(FE_roa and FE_roa), both OLS regression analysis and fixed effects model show a significant positive moderating effect on ERM and firm performance relationship.

Based on the results of LM test, F test and Hausman test, fixed effects model is better, so this study selected fixed effect model to determine the results and the decision.

Table 4.12: Final regression for ROA, Tobins' Q and ROE

	(1) OLS_roa	(2) FE_roa	(3) OLS_tobinq	(4) FE_tobinq	(5) OLS_roe	(6) FE_roe
erm	0.043***	0.047***	0.689***	0.474***	0.071***	0.077***
	(17.167)	(8.322)	(8.297)	(5.888)	(12.924)	(7.190)
fip	0.000	0.001***	-0.013***	0.003	0.000	0.002**
	(-0.136)	(2.771)	(-3.442)	(0.502)	(0.181)	(2.362)
erm_fip	0.037***	0.008	0.523***	0.279***	0.051***	-0.007
	(18.417)	(1.540)	(4.789)	(2.910)	(9.951)	(-0.597)
top5	0.100***	0.501***	-0.390*	4.221***	0.185***	0.756***
	(9.142)	(9.507)	(-1.725)	(7.797)	(8.153)	(12.688)
erm_top5	0.068***	0.130***	2.466***	0.666**	0.116***	0.210***
	(4.680)	(4.322)	(8.235)	(2.030)	(3.980)	(4.464)
rds	-0.001***	-0.005***	0.070***	0	-0.003***	-0.011***
	(-3.286)	(-4.016)	(12.903)	(0.016)	(-5.018)	(-9.163)
lev	-0.014***	-0.018***	-0.243***	-0.03	-0.021***	-0.039***
	(-11.809)	(-6.655)	(-10.715)	(-1.285)	(-5.869)	(-13.073)
age	0.000*	0.027	-0.034***	-0.045	0.001**	-0.010***
	(1.883)	(1.608)	(-11.164)	(-0.320)	(2.535)	(-5.500)
_cons	-0.017**	-0.516***	2.188***	0.658	-0.035**	-0.169***
	(-2.323)	(-2.677)	(15.401)	(0.410)	(-2.363)	(-4.060)
N	6015	6015	6015	6015	6015	6015
F	158.216***	34.635***	133.708***	235.376***	80.413***	110.478***
r2	0.180	0.258	0.217	0.460	0.130	0.184

Robust t-statistics in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Note: top5= the sum of shareholding percentage of top five shareholders, fip= percentage of foreign shareholding, rds= R&D investment , lev= Leverage, roe= Return on equity

CHAPTER 5: DISCUSSION

5.1 Introduction

In recent years, Chinese enterprises have strengthened the implementation of risk management. In this paper, we investigate whether ERM processes are linked to corporate performance. We also examine the roles of ownership concentration and foreign ownership in this relationship. From the perspective of the fixed effects model test, the effects of risk management on the dependent variables ROA and Tobins'Q are significantly positive at the level of 1%. Simultaneously, compared with the results of multivariate analysis, it is also found that ERM plays a vital role in improving both short-term and long-term enterprise performance. Finally, the same conclusion is drawn from the robust analysis. In summary, we found that ERM has a significant influence on both short-term and long-term firm performance, which supported the first hypothesis (H1). According to the results of the Breusch-Pagan_LM Test, F test and Hausmann test, the fixed effect model is more suitable for this study, so the result of the fixed effect model analysis is the basis of this study.

According to resource-based theory, ERM is used to highlight high-risk areas and therefore it assists the managers in decision-making and ultimately improves the firm performance. The high-priority risks need to be managed first and foremost, and only when these risks have been taken care of, less important risks can be considered (Yevgen &Veit, 2017). Managers will invest more resources and energy to solve major risk events, such as risks that will affect the company's survival, improving the efficiency of managers and helping enterprises avoid high risks, thus improving the company's performance. Based on agency theory, enterprises can take risk management measures to keep enterprise value so as to reduce agency cost, information asymmetry caused by debt, agency conflict, and overall loss of welfare. This is also in line with our results, which confirms the first hypothesis we proposed in the previous paper(H1).

Hence, the results of this study show that ERM can improve firm performance, and the conclusion is parallel with the results of previous studies (for example, Florio & Leoni, 2017; Lechner & Gatzert, 2017), in which the scholars hold the same view. Therefore, the result also gives hints to Chinese firms that it is important to focus on risk management to gain a better performance.

Our results revealed that ownership concentration could positively moderate the ERM-firm performance relationship. Hence, the H2 (including H2a and H2b) of this paper is also positively proved. Meanwhile, when we focused on the fixed effects model test, the ownership concentration (top5) still had a significant positive moderating effect at the 1% level. At the same time, we can see from the results of multivariate analysis that when we join the interaction team erm_top5, both ROA and Tobin's Q results are significant. Besides, ROE was used instead of ROA in the robustness test. The results showed that roe still strengthened the influence of ERM on ROE, which means ownership concentration still has a significant positive moderating effect on ERM and short-term firm performance. All in all, it shows that ownership concentration is positively moderate the relationship between ERM and performance.

Based on the agency theory, ownership concentration can reduce the dispute about control between agents and shareholders because large shareholders can supervise managers and prevent managers from engaging in value reduction activities (Drobetz et al., 2019), therefore, reduce agency costs. This also supports the second hypothesis of this paper. At the same time, this is in line with some previous research results, such as Javid and Iqbal (2008) and Omran (2009). Hence, the results of this study reveal that ownership concentration plays a moderating role in the ERM-firm performance relationship.

Finally, this study also attempts to explore the moderating effect of foreign ownership. The results show that foreign ownership has a positive moderating effect on ERM and long-term performance. However, for short-term firm performance, the effect of strengthening risk management is not obvious. When ROA measures firm performance, the panel analysis results are not significant, indicating that foreign ownership does not play a moderating role in ERM and short-term enterprise performance, rejecting hypothesis 3a. When Tobins'Q was used to measure firm performance, the result shows that there is a significant positive moderating effect, indicating that foreign ownership plays a moderating role in the relationship of ERM and long-term enterprise performance, which supports hypothesis 3b. Compared with the results of multiple analysis, when we joined the interaction team erm_fip, no matter ROA or Tobins' Q was used to measure performance, the results are significant, partially contradictory to the test results of the fixed model. As the previous LM Test, F test and Hausman test show that the fixed model is more superior for this study, so the fixed model shall prevail in this study. A robustness test was conducted to verify the results, that is, ROE was used to replace ROA because both of them represent the short-term firm performance. From the results, it is consistent with the results measured by the previous fixed effects model test. In the relationship between risk management and short-term firm performance, foreign ownership does not play a moderating role. This conclusion rejects the original hypothesis 3a. In short, foreign ownership plays a positive moderating role between ERM and long-term performance. However, it has no moderating effect on enterprises' short-term performance, that is, hypothesis 3b is supported, while hypothesis 3.1 is rejected.

According to the results of Gurbuz (2010), when using ROA as a performance measure, the researcher` finds that the performance of a minority foreign-owned enterprises is better than that of domestic enterprises and majority foreign-owned

enterprises. It is also found that the performance of the majority of foreign-owned enterprises is inferior to that of domestic enterprises. Similarly, Gedajlovic et al.(2005) state that no relationship is observed between ROA as an indicator of profitability and foreign ownership. The results of this study are also inspired by previous studies.

China's risk management is still immature. Compared with domestic investors, foreign investors are more concerned about ERM. Foreign owners bring better governance and supervision measures and urge firms to disclose more information, which reduces information asymmetry and eliminates agency problems. Meanwhile, foreign ownership is generally considered a worthy way to introduce capital, technology and managerial skills. In turn, these resources are beneficial to help improve governance and performance (Meng et al., 2018). This result also supported the ideas held by Lindemanis et al. (2019) and Javid and Iqbal (2008). Similarly, Douma et al. (2006) analyze the impact of foreign ownership on financial performance in India. They find that when analyzing the results of foreign institutional investors, there was no significant relationship between them and ROA. However, these investors have a positive and significant impact on Tobin's Q value. The main reason is that although foreign shareholders can provide more scientific governance and management methods to domestic enterprises, the improvement of governance and management is a continuous process, which cannot be achieved overnight. Therefore, there is no obvious impact on the short-term firm performance of enterprises.

5.2 Research Findings

Firstly, descriptive analysis is used to analyze the centralized trend of the data in this study, including average value, maximum value, minimum value, etc. Secondly, bivariate analysis is used to analyze the collinearity of the variables. Then the panel data

method is used, and OLS analysis is also done to facilitate the comparison of results between different methods. In order to more intuitively reflect the research results of this paper, the form of a table is used to summarize the hypothesis and whether the hypothesis is supported or not. The details are as follows. As shown in Table 5.1, the findings indicate that ERM has a significant influence on short-term and long-term firm performance, which is consistent with the results of many previous studies. Thus, the first hypothesis (including H1a and H1b) of this study is supported, that is, there is a positive relationship between ERM and short-term and long-term firm performance. Meanwhile, the finding also shows that after adding ownership concentration, the relationship between ERM and corporate performance is strengthened, so the second hypothesis (including H2a and H2b) of this paper is also supported, that is, ownership concentration has a positive moderating effect on ERM and both short-term and long-term firm performance. Finally, from the result of this study, the ERM and long-term firm performance relationship are also strengthened after introducing foreign ownership, which is in line with H3b. However, it is not found that it can strengthen the relationship between risk management and short-term performance, so the H3a is rejected.

Table 5.1: Research findings

Hypotheses	Results
H1: There is a positive relationship between ERM and firm performance.	Support
H1a: There is a positive relationship between ERM and short-term firm performance.	Support
H1b: There is a positive relationship between ERM and long-term firm performance.	Support
H2: Ownership concentration has a positive moderating effect on ERM and firm performance.	Support
H2a: Ownership concentration has a positive moderating effect on ERM and short-term firm performance.	Support

H2b: Ownership concentration has a positive moderating effect on ERM and long-term firm performance.	Support
H3: Foreign ownership has a positive moderating effect on ERM and firm performance.	
H3a: Foreign ownership has a positive moderating effect on ERM and short-term firm performance.	Reject
H3b: Foreign ownership has a positive moderating effect on ERM and long-term firm performance.	Support

In conclusion, there are also answers to the questions raised in the previous part, which are summarized in the following table 5.2. As can be seen from the table, most of the problems have had positive results. From the results of data analysis, through the implementation of ERM, both long-term and short-term performance of enterprises can be promoted. At the same time, ownership concentration also strengthens the positive relationship between ERM and long-term and short-term performance. In addition, foreign ownership can also strengthen the positive relationship between ERM and long-term performance. However, the positive relationship between ERM and short-term performance is not obvious.

Table 5.2: The results of research questions

	Questions	Results
(1)	Does the implementation of ERM promote short-term enterprise performance?	Yes
(2)	Does the implementation of ERM promote long-term enterprise performance?	Yes
(3)	Does ownership concentration moderate the relationship between ERM and short-term firm performance?	Yes
(4)	Does ownership concentration moderate the relationship between ERM and long-term firm performance?	Yes
(5)	Does foreign ownership moderate the relationship between ERM and short-term firm performance?	No
(6)	Does foreign ownership moderate the relationship between ERM and long-term firm performance?	Yes

CHAPTER 6: CONCLUSION

6.1 Introduction

Steered by the growing interest in ERM in China, this study examined the relationship of ERM and firm performance of listed Chinese companies over 2016 to 2018，using both ROA and Tobins' Q as firm performance measures. At the same time, in order to verify these results, we use ROE instead of ROA for additional robustness testing. This study augments the extant empirical literature by simultaneously exploring the role of both ownership concentration and foreign ownership on ERM and firm performance relationship of listed Chinese firms while using the recently available unique and large CSMAR covering more than 2000 firms every year of different age, growth, and profitability from 2016 to 2018. Simultaneously, the moderating roles of ownership concentration and foreign ownership between ERM - firm performance relationship have also been investigated. After controlling for firm-specific characteristics (such as firm age, leverage, R&D investment), this study provides evidence that higher ownership concentration influences firms to implement ERM, which in turn accelerates both short-term and long-term firm performance. These findings support the idea that there is less conflict between shareholders and managers about control in enterprises with centralized ownership. Compared with enterprises with weak ownership concentration, stronger enterprises have stronger supervision on enterprises, which is more conducive to strengthening the implementation of risk management and improving enterprise performance. This study also presents the evidence that higher foreign ownership strengthens the relationship between risk management and long-term performance but has no obvious impact on short-term firm performance. Foreign shareholders have higher requirements for risk management and stronger supervision to strengthen the relationship between ERM and performance. However, the improvement of management and governance is not achieved overnight.

Therefore, in the short term, the moderating effect of foreign ownership on enterprise performance is not significant.

6.2 Conclusion

This paper is an attempt to empirically test the relationship between risk management and firm performance and the effect of external governance mechanism factors, including ownership concentration and foreign ownership on the relationship between ERM and performance from the perspective of corporate governance under the background of China.

The firm performance was measured by using three measures. ROA is the measure of a firm's financial performance and an indicator of short-term performance. On the other hand, Tobin's Q ratio is an indicator of long-term performance and a measure of a firm's marketing performance. Additionally, ROE is used in the robust test to verify the effect of foreign ownership on the ERM- firm performance relationship.

Firstly, to measure the effect of ERM on firm performance, this study employed both OLS regression and panel data analysis. The data were analyzed in Stata. The results demonstrate that there is a significant relationship between ERM and ROA as well as ROE. Additionally, there was a significant relationship between ERM and Tobin's Q. The results regarding the effects of ERM on three measures of firm performance is consistent. Therefore, it implies that ERM is positively related to both short-term and long-term firm performance. Based on this conclusion, the adoption of ERM processes is more attractive for Chinese firms who have not yet implemented ERM, enabling enterprises to fully realize the importance of ERM, and has a certain role in accelerating risk management process in China. Meanwhile, this article looks at the effects of ownership concentration on ERM and firm performance relationship, a

topic which, to my knowledge, has received no particular attention for the Chinese market. Based on the result of OLS regression and panel data analysis, after adding ownership concentration, this study suggested that ownership concentration plays a positive moderating role in the effect of ERM on firm performance. Additionally, this paper also investigated the effect of foreign ownership on ERM and firm performance. The result highlights that foreign ownership also plays a moderating role between ERM and long-term firm performance.

These results could give some hints on designing the best corporate governance mechanism for different operating environments to ensure owners' interests and ultimately promote the sustainable development of corporate governance in China. By detecting the positive moderating effects of ownership concentration and foreign ownership on the relationship of ERM on both accounting and market performance of Chinese listed companies, this research provides several contributions to the literature on ERM and firm performance in a new context. First of all, based on a large dataset, this study provides the same convincing evidence as to the empirical research on the impact of enterprise performance. Secondly, this paper provides new insights into the factors that influence the relationship between risk management and performance, which are considered to promote an integrated and holistic approach to risk management.

This study has several important implications for both countries and companies. For the country, considering increasing the introduction of foreign capital is recommended. On the one hand, it can increase employment and tax revenue, in the meantime, promote China's economic development. On the other hand, it can bring new scientific methods to China's enterprise management, which in turn, promotes firm performance. For the companies, firstly, this study highlight that it is necessary to implement ERM. The

reasons are as follows. First of all, implementing risk management makes external investors and regulators understand enterprise risks and increase the transparency of information and reduce information asymmetry, which is beneficial to reducing agency problems. Secondly, it can make resource allocation more reasonable and improve the level of internal control. Besides, it is necessary to enhance the ability of emergency response and risk response. Last but not least, ERM can help enhance the trust and confidence of stakeholders to promote the sustainable development of the whole economic market.

Meanwhile, these results are of great significance to risk management and firm performance. Previous studies usually assume a single and universal relationship between ERM and enterprise performance, and the results are mixed (Banham, 2004; Nair et al., 2013; Florio and Leoni, 2017; Culp, 2012). The results of this study help to solve this confusion by proving the contingency between ERM and enterprise performance. In particular, this study confirms the importance of ownership concentration and foreign ownership in explaining the relationship between ERM and corporate performance. At least in China, both ownership concentration and foreign ownership have obvious influence. Researchers obviously need to pay more attention to these background factors when discussing ERM and enterprise performance.

Finally, this study helps understand the role of the external mechanism of corporate governance in the relationship between risk management and corporate performance. The positive moderating relationship between ownership concentration and foreign ownership on ERM and enterprise performance shows that there are differences between ERM and foreign capital ownership in improving corporate performance. High ownership concentration means that shareholders can control the enterprise more to reduce the contradiction between the shareholders and the managers about the enterprise

control power, which will inhibit the temptation to engage in high-risk areas and reallocate resources to manage product innovation risks. The high proportion of foreign capital ownership means that foreign capital pays more attention to ERM. However, the improvement of enterprise management is a long-term process, so the promotion between risk management and short-term performance is not obvious. In the long run, foreign ownership has a positive effect on the relationship between the two. Therefore, it is reasonable to believe that it has better requirements for ERM.

This study has several contributions. Firstly, performance is divided into long-term performance and short-term performance. The relationship between risk and performance is verified again, contributing to solving the inconsistency between the two items. Secondly, the paper studies the external mechanism of corporate governance, highlights the importance of corporate governance, and solves the lack of research literature on the moderating role of ownership concentration and foreign ownership, which provides new ideas for future research. This study also has important implications for managers and regulators that ownership plays a vital role in corporate governance. Chinese business managers should welcome foreign investors, as they bring the necessary resources to enable them to expand and enter the global economy. Policymakers should strive to ensure that governance standards and laws promote transparency in order to attract foreign investors.

6.3 Limitation

As with all research, this study is not free from limitations. Firstly, this paper is limited to listed companies in China, but China has its unique national conditions and systems. For example, the degree of government intervention in enterprises, the degree of acceptance and implementation of risk management, etc., so may not be a suitable

representative of the companies in this world, including developed markets. At the same time, this empirical study suffers unavoidably from a sample selection bias because only listed enterprises that were chosen. However, unlisted companies are not included in the sample for the reason that China does not impose disclosure on unlisted companies, which leads to the unavailability of data. Nevertheless, there are a large number of unlisted companies, accounting for a large proportion of the economy, which is of great strategic significance to the national economy. Therefore, the degree of risk management is not known. Therefore, the degree of enterprise ownership concentration and foreign owners' influence in such enterprises are not exact. Meanwhile, this study only focuses on the external mechanisms involving ownership concentration and foreign ownership for corporate governance. However, the internal mechanism is not involved, such as the size of the board of directors, so it can not fully reflect the relationship between corporate governance and corporate risk and performance, so later scholars can consider other aspects. Finally, only three years of observations are covered. The result may be influenced by the condition of economics for the period of the data.

6.4 Suggestion for Future Research

For the future study, future research may extend this research to other countries with different systems outside China, such as the United Kingdom and the United States, to find out whether there are differences or similarities between corporate governance mechanisms and ERM and performance because it can help to gain more fruitful insights and solve the lack of representativeness in this study. Meanwhile, compared with listed companies, unlisted companies account for more in a country, which is also a group that can not be ignored. Therefore, in future research, scholars can consider researching unlisted companies to make the research results more perfect and accurate. Although we examined the moderating role of ownership concentration and foreign

ownership between ERM and firm performance, further research is needed to check the moderating role of other corporate governance factors, such as the board of director composition, board leadership structure and board size. Finally, since this study focuses on the data from 2016 to 2018, the results of this study may be affected by the economic situation. Therefore, it is suggested that future research can span larger periods, such as economic boom and depression, to enhance the persuasiveness of the article.

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