

**THE IMPACT OF BOARD DIVERSITY
ON THE EFFICIENCY OF
CHINA'S LISTED COMMERCIAL BANKS**

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**THE IMPACT OF BOARD DIVERSITY
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by

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IMPAK KEPELBAGAIAN LEMBAGA TERHADAP KECEKAPAN BANK PERDAGANGAN TERSENARAI CHINA

ABSTRAK

Kajian ini menjalankan kajian terhadap impak kepelbagaian lembaga ahli lembaga pengarah atas kecekapan bank perdagangan China yang tersenarai. Peringkat pertama penyelidikan ini mengkaji kecekapan bank perdagangan tersenarai di China semasa era pemulihan pasca krisis dengan menggunakan kaedah DEA. Selepas itu, kecekapan bank perdagangan yang didapati di peringkat pertama dijadikan sebagai pembolehubah bersandar bagi mengkaji hubungan antara kecekapan bank perdagangan China dan kepelbagaian lembaga. Terdapat empat faktor kepelbagaian lembaga pengarah dalam kajian ini, iaitu pengarah bebas, pengarah wanita, pengarah berwarga asing dan pengarah yang mempunyai hubungan politik. Sampel penyelidikan ini merangkumi 16 buah bank perdagangan tersenarai di China dari tahun 2010 hingga 2014. Keputusan DEA menunjukkan bahawa kecekapan purata bank perdagangan meningkat semasa era pemulihan krisis, dan bank perdagangan saham-bersama mempunyai kecekapan yang lebih tinggi berbanding bank perdagangan milik. Hasil kajian juga mendapati bahawa pengarah berwarga asing dan pengarah yang mempunyai hubungan politik mempunyai hubungan positif yang signifikan dengan kecekapan bank. Kajian ini juga mendapati bahawa tahap pendidikan lembaga pengarah mempengaruhi hubungan kepelbagaian lembaga pengarah dengan kecekapan bank manakala tahap ketekunan para pengarah dalam mesyuarat tidak mempengaruhi hubungan kepelbagaian lembaga pengarah dengan kecekapan bank. Kesimpulannya, penemuan kajian ini menunjukkan bahawa kepelbagaian lembaga pengarah dalam bank perdagangan yang tersenarai di China perlu diregulasi dan dikukuhkan untuk meningkatkan kecekapan bank tersebut.

THE IMPACT OF BOARD DIVERSITY ON THE EFFICIENCY OF CHINA'S LISTED COMMERCIAL BANKS

ABSTRACT

This study investigates the impact of board diversity on the efficiency of China's listed commercial banks. First, we measure the efficiency of China's listed commercial banks in post-crisis recovery era, by using the DEA method from Non-Parametric analysis approach. Then, we investigate the relationship between the board diversity and the efficiency measured from DEA tested results. The board diversity is represented by 4 different groups of directors, which are the independent director, foreign director, women director and political linked director. The total research samples used 16 listed commercial banks in China, and study period is from 2010 to 2014. The DEA tested results show that the average efficiency values of all China's listed commercial banks have been steadily risen in the post crisis recovery period, however the joint-stock listed commercial banks have higher efficiency than the state-owned in the whole research period. We found that the numbers of foreign and political linked directors in board have positive and significant relationship with bank efficiency. We also found that the director's education level significant by affect the relationship between board diversity and bank efficiency. The degree of directors' diligence in board meeting does not affect the relationship between board diversity and bank efficiency. In conclusion, the findings of the study showed that the board diversity should be regulated carefully and still need to be strengthened in order to improve the efficiency of China's listed commercial banks.

Chapter 1

INTRODUCTION

1.1 Background of the Study

China is a significant major economy in Asia, as well as second largest economies of the world. Twenty years of economy rapid growth, China is able to maintain its GDP steadily. Despite the global financial crisis in the year 2007, she achieved more than 7% steady growth above the world average growth. This has made a very important contribution to global economic development. After China's accession to the WTO in 2001, foreign banks and other financial institutions have entered China's financial markets. This lead to the trend of global economic integration and financial globalization continues to deepen, finance has long been the core of the world's economic activities, and China's financial market environment is also undergoing profound changes. As an important part of the financial market, commercial banks play an increasingly important role in guiding the flow of funds, optimizing the allocation of resources and even adjusting the national macroeconomics (Svitalkova, 2014). At the same time, for national financial security, health commercial banks system is also a very important factor to maintain the stable development of the national economy. The Asian financial crisis in 1999 and the 2007 global financial subprime crisis have once again demonstrated that the stability of a country's financial system, especially the stability of the commercial banking system, is very important for national economic security. Since 2006, according to the relevant provisions of the WTO, foreign banks in China began to fully enjoy the national treatment, the original barriers to entry and business restrictions have invalidated, foreign banks and Chinese banks began to compete for market share (Xu & Pu, 2012). Therefore, in such fierce

market competition, if the Chinese commercial banks do not want to quit in the competition, they must follow the reform trend of commercial banks in the world, and comprehensively improve the international competitiveness and operational efficiency.

In year 2008, the USA subprime mortgage crisis that evolved from the global financial crisis also caused varying degrees of negative impact to the world's economic development, especially developed countries in the West. Globally, the banking industry was hit the most. At international, commercial banks experienced huge losses due to the business problems; such as excessive investment and lending, and the surge in non-performing assets; being exposed during the financial crisis. Although commercial banks in developing countries have not suffered heavy losses as the developed countries, but the operating efficiency is generally declining, facing business and credit crisis (Wang & Luo, 2017). As at to-date, the global economic still at a downturn, fiscal austerity in all countries, economic growth in developed countries continued to decline, economic growth has slowed down in emerging economies and developing countries, the situation is complicated, and competition is becoming increasingly acute. Despite the complicated international situation, China's overall economic efficiency has been relatively stable in recent years, but economic growth has also unavoidably slowed. Due to the impact of various unfavorable factors, China's banking industry business environment and operating conditions are facing greater pressure. This also means that China's financial industry must experience in-depth adjustment, is to change the mode of development in order to adapt to the new development environment. Compared to other industries, as important forces in economic development, China's commercial banks in the adjustment of financial

structural reform process is essential factor.

With the Chinese government's calmly deal with the crisis, commencing in year 2010, the Chinese economy has officially entered the post-crisis recover era. But in the post-crisis recover era, Chinese economic situation has undergone great changes. However, this special environment has also created a very unique development opportunity for China's commercial banks. From a domestic perspective, China's commercial banking industry in the post-financial crisis recover era, facing a more mature financial environment. The mature financial environment consists of three aspects. First aspect is that the financial crisis promote the Chinese banking industry goes with the tide of the international banking industry, which lead the Chinese's financial market to be more open and financial extension industry is also more abundant. Second, after this financial crisis, China's market and consumers will be more rational, and the demand for banking and finance has changed from single to diversified, so this provides more opportunities for innovation in the banking sector. Third, the supervision of China's commercial banks will be more scientific and sound, because the government and relevant regulatory authorities, from the crisis, see the existence of banking regulatory deficiencies, which will then gradually strengthen the regulatory measures. While China's commercial banking industry will face an unprecedented strict regulatory era, but in return commercial banks can also take the opportunity to optimize their own internal governance structure (Qi & Liu, 2010).

But it is inevitable that the China's commercial banking industry is also facing three challenges. First, despite the credit has rapidly consumed bank capital, but the bank capital cannot be added in time. And when faced with strict regulatory

constraints, the China's commercial banks must face the problem of capital adequacy ratio. Second, China's commercial banks that previously rely on credit assets to enhance efficiency and the extensive mode of operation is difficult to succeed in the future. Last but not least, the adjustment of economic structure and the transformation of the growth model are also a challenge to the quality of the bank's assets (Liu & Sun, 2018).

In conclusion, accurate positioning and establishment of a reasonable business operational model for the development of commercial banks is essential. Of course, opportunities and challenges are coexisting, the banking industry can only continue to innovate to survive and develop, therefore, finding the factors that impact of commercial banks efficiency and improve the efficiency of China's commercial banks is worthy of research.

1.2 Motivation of the Study

The concept of corporate governance was first introduced in the early nineteenth century. The founder – Tricker, in 1984, published the “Corporate Governance” and for the first time highlighted the importance of modern corporate governance. In recent years, with the development of economic globalization, modern enterprises began to think that one of the key factors to enhance the core competitiveness of enterprises is corporate governance. Therefore, corporate governance reform has become a global focus. At the same time, perfect corporate governance mechanism is a competitive advantage in the market, of which also an important element for the development sustainability of enterprises. Corporate governance is a set of organizational mechanisms and rules that relied on guidance and control to manage the operation of an enterprise. It originates from the separation of ownership and control, including specific conflicts of interest arising from the interaction of senior managers, shareholders, and other stakeholders, and the resulting agency relationship. In the modern corporate governance structure, due to the separation of ownership and management rights leads to the generation of agency problems, the board is set up to control and solve such agency problems. Corporate governance also plays very significant role in this relationship, which to govern over the senior manages’ conducts to ensure optimal enterprise efficiency can be established for the benefits of the main shareholders.

In order to remain competitive in an increasingly competitive environment, companies must innovate and change the governance mechanisms of the company to meet new market demands. Throughout the global corporate governance reform, the modern corporate governance system is being transformed from the shareholder

congress centrism to the board of director centrism. The board of directors is the most important part of the corporate governance structure, is also the core of corporate governance. The board of directors is not only the agent in the proxy relationship between the shareholder and the director, but also the trustee in the proxy relationship between the board and the manager. Its existence can balance the conflict between the company's stakeholders, reduce the agency costs, enhance the company's business efficiency, and ultimately increase the value of the company. The outcome of the governance by board of directors is directly related to the efficiency of the company and the interests of shareholders, which has a decisive effect on the protection of shareholders' equity. According to Williamson (1984), the company's managers are mainly responsible for the implementation of the company's important business decisions. However, due to the separation of ownership and control of the company, it is difficult for the shareholders to carry out effective supervision to the managers, which may lead the managers in the decision-making process to sacrifice the interests of shareholders to meet the individual interests, and then the agency problem arises between managers and shareholders. In order to reduce the resulting agency costs, it is necessary to establish a combination of internal control and external control, the board of directors, to coordinate the conflict between managers and shareholders. And through the board of directors, monitor the managers' decision making from sacrificing the interests of shareholders, and prevent managers to manipulate the company's internal control. Shareholders give their decision-making control right to directors, as it is more effective in controlling and supervising managers' decision-making and behavior than themselves engaging in management. Jensen (1993) believes that a well-structured and orderly board of directors must be a high-quality board, which will inevitably bring a catalytic role in corporate efficiency.

The board of directors of large companies in the United States failed during the 1980s, and one of the reasons was that the board structure was unreasonable, which undoubtedly pointed out that the structure of the board would have a significant impact on decision-making. Yu & Chi (2003) pointed out that an excellent board of directors must have its own distinctive common characteristics, through the analysis and search for this feature and in practice to be promoted will greatly accelerate the reform process of Chinese enterprises.

Early researches of corporate governance in board-specific studies area such as Jensen (1993), Zahra & Pearce (1989) were attempting to shed light on the influence of board size towards firm efficiency. They investigated the impact of board of directors of different sizes on corporate efficiency. Those studies are initiated due to some scholars believe that when the number of board members increased, more prone to free rider phenomenon. The board is likely to be manipulated by the managers, because it cannot play an effective supervisory and managerial function. But other scholars insist to believe that the level of difficulty of manipulating the board of directors will become higher as the number of boards increases, because the directors can use their rights to support or deny the manager's decision. Finally, scholars agree that the expansion of the size of the board of directors brought about the improvement on professionalism and decision-making ability, which is based on the increase of operational and communication costs. The impact of expansion the size of board on corporate efficiency depends on the interactions results of the benefits and costs.

Subsequently, the studies of corporate governance in board-specific research area have been changed. Scholars like Fama (1980), William & Brown (1996), and Bhagat

& Black (2002) try to explain the influence of directors of board composition in terms of the ratio of an independent board towards firm efficiency. They investigate whether the independence of the board can successfully govern over the managerial opportunism in the enterprise. These researches are mainly emphasized on the role of board with respect to agency theory. Those researches are initiated because they believe that the composition of independent and non-independent director member's maybe can influence the efficiency of monitoring mechanism towards the managers' agency conducts and decisions-making which could influence enterprise efficiency.

Besides that, instead of emphasizing on board structure from the perspective of independent and non-independent directors' status, these researches mainly focusing on board structure from the perspective of composition of directors' education level, working experiences (human capital) and external network, and personal reputation ties (social capital). As shown by Lorsch & MacIver (1989) and Demb & Neubauer (1992), research attention have gradually move to examine the effect of the board's background in supervising the mode of operation of enterprise, strategic planning and its implementation. Therefore, it could be seen from literatures that the researches on the board diversity have been emerging in recent years.

Now, it is rather to focus on the board diversity replaced individual directors' background capital. This is due to nowadays the board of directors' works like a team through board's meeting for the very important decisions made for firm future development. It also meant that the "personal hero show" no longer adapted to this boardroom. The background capital of individual director would be gathered in the board meeting, and the finally decision would be made by information and

suggestions about corporate development shared by all of the directors at board meeting. So this also explains why early corporate governance code tries to highlight the board size, so that to prevent the monopolization of the rights in decision-making for the corporate. It indicates the worthiness of focusing on the studies issue on board diversity rather than individual director's background capital.

This research is specifically focuses on the sample from the listed commercial banks. This research claims that the supervisory role of board on strategic planning and policy implementation is relatively more obvious in listed commercial banks. This is due to the unstable investment, market and policy environment of the commercial banks industry (Gropper, 1991; Yu & Ju, 1999 and Yi, 2001) by which the fluctuation of the economic demand which is likely to be influenced by some factors such as Inflation and deflation, customer's income, macroeconomic policy, as well as interest rate change. But different from the other industries like agriculture, education and new technology industries which do not need too much of strategic and mode of operation change, commercial banks are required to frequently even immediately revise the strategies and behavior to best fits to rapidly changing environment. Indeed, a great extent of innovation is essential for commercial banks to increase its competitiveness through introducing new products and other customized services like interaction approach, because homogeneous mode of operation cannot effectively improve the efficiency of commercial banks. Therefore in this case, the board diversity is important to analyze the changing environment for commercial banks industry, as well as the customers' behavior from time to time. A capable board of directors may be able to provide good quality of supervision towards strategic-making and mode of operation to ensure that the commercial bank is able to

hunt the competitive advantages in the financial market.

This study focuses mainly on listed commercial banks in China. The reason is that China's commercial banks industry has been one of the fastest growing industries among the countries in Asia, even the world. Therefore, it has become one of the hottest areas of discussion either in economic policy conference or academic study area. The attractiveness of China's listed commercial banks is further due to its potential growth in the future since China is the world's most populous country, with sufficient capital and spending potential which become the major attractions for sustainable economic development. Next, in lieu of the resurgence in China economic growth as well as international trade, China's listed commercial banks are bound to provide more financial support. Moreover, the Chinese government is committed to improving the national economy, and its commercial banks are the premier financial platform for promoting economic ties between countries and regions. According to the 2017 British famous financial magazine - "The Banker", published the global commercial banks ranking, China's four state-owned commercial banks are in the top ten listing, especially two of them ranked first and second in the world. These rankings attract more investment injections into the China commercial banks market and therefore it shall not be a surprise that the China's commercial banks have great efficiency in the recent years. Herein, the competition among China's commercial banks industries should be more vigorous. The high competition in the China's financial market is believed to further magnify the role of board in commercial banks.

Now, it is more than five years, since 2010 years the Chinese economy officially entered the post-crisis recover era. How was the China's listed commercial banks

efficiency during the past 2010-2014 years? It is important to address this question. China began its thirteenth five-year plan for national economy and social development in 2016. Have China's commercial banks contributed to the economy growth positively, have they become more science and technology driven, and are the directors of the board ready to face the challenges of liberalization and globalization in China's thirteenth five-year development plan? The results of this research could provide us the insights to the answers for above questions.

In conclusion, as board of directors is first to be responsible to maximize shareholders' benefits, and then improve all stakeholders' profits, hence its quality to drive the enterprise for optimal enterprise value should be concerned. In this study, the board of directors' quality is measured from the perspective of the board diversity, and the issue of board diversity on firm efficiency is especially worth of research in the context of the commercial bank industry. Therefore, this study specifically investigates the efficiency of China's commercial banks in post-crisis recover era, and relationship between the efficiency of China's commercial banks and the board diversity.

1.3 Problem Statement

Although the commercial bank is an old financial industry which has history of several hundred years in the world, but the sustainability of commercial banks is at a worrying stage. In fact, the efficiency of the commercial bank industry has been challenged by a wide range of uncertainties. The uncertainties are markedly attributed to the volatility of economic demand, which is affected by a series of factors such as overall residence's incomes, food prices, and exchange rates as well as competition in the same. The commercial banks also risks being in unstable environment due to various kinds of crises, such as man-made and natural disasters, war and terrorism, disease outbreaks, economic and financial downturn or crisis. Due to the globalization of financial industry, the economies of all countries in the world are closely related, hence even a crisis only occurs in a country may then constitute to the sluggishness of global financial industry. All of these uncertainties must have cast the attention of enterprise strategic makers to inquire into the problem of sustainability of the bank industry in the short and long run. A quote from "Strategic Crisis Report", Fu Ka Think tank: "The post-crisis recover era of the socio-economic environment has undergone profound changes, long-term period of the business model and theoretical methods have suffered heavy suspects and shocks, the difficulty of strategic decision unprecedented. How to master the initiative in the major changes? The board of directors' strategic ability and diversity are become the key to winning." It is said to survive in the highly competitive and unstable environment, the responsibility of board of directors in commercial banks to oversee and guide the strategic planning and policy implementation should be emphasized.

Although the many researches on board diversity have been established prior to

the present study, limited studies bring to light on the effect of board diversity towards enterprise efficiency. There are two problems that still need to be addressed. First, the studies about the efficiency of China's listed commercial banks during the entire period of Chinese economic entered the post-crisis recover era (2010-2014) had been lacking. In the past, most of studies about China's commercial banks efficiency focus on the financial crisis broke out in the first two years and after three years or partial in post-crisis recover era (Shi, 2014; Zhao et al. 2009 and Chen, 2011). In addition, the studies on commercial bank efficiency are limited to measuring commercial banks' efficiency in each years, it can't reflect the influence of the internal governance reform of China's commercial banks and the technological innovations on banks efficiency over the years, which leads to a strong need for more studies to be carried out to empirically research the efficiency of China's listed commercial banks under the post-crisis recover era to reduce the gaps in the existing body of knowledge.

Second, Svitalkova (2014) indicated that it is important for countries to have a consolidated and advanced banking system, since the better its financial environment, the more competitive a nation will be. Nowadays, these huge total assets already made China's commercial banks have an overwhelmingly dominant position in the Chinese financial system, and are an extremely important and unreplaceable engine of Chinese economic growth. Therefore, how to ensure the sustainable and healthy development of China's commercial banks? The Basel Committee on Banking Supervision (BCBS) 2006 pointed out that "effective corporate governance practices are essential to achieving and maintaining public trust and confidence in the banking system, which are critical to the proper functioning of the banking sector and

economy as a whole.”

Among a range of differently governance mechanisms, the Chinese supervisory authorities take the board as an essential part of the commercial bank governance reform. Although as early as 2005, China Banking Regulatory Commission (CBRC) published “Guidelines for Board of Directors Code of Conduct of Joint Stock Commercial Banks”, aiming to standardize board structure and establish the boards of China’s commercial banks to be as strong and functional as those in developed countries. However, until 2010 the last state-owned commercial banks of China completed the shareholding system reform and listed, at the same time established the board of directors. Rethinking the 2008 international financial crisis, it is not difficult find that the flaws in corporate governance mechanisms of financial institutions become one of the important fuses for the crisis. After the financial crisis, strengthening corporate governance of banks, especially in the board aspect, has become the common choice of banking financial institutions and regulatory authorities around the world. At 2013, CBRC continues to issue the “Commercial Bank Corporate Governance Guidelines”, which clearly states that the bank board should pay full responsibility for the bank operations and risk management. Under the situation of newly adopted governance rules and deepened reforms, have China’s commercial banks already established a set of effectively board governance mechanisms? And what’s positively role does the board played in the efficiency of China’s commercial banks in recent years?

1.4 Research Questions

Specifically targeting the problems as discussed above, four research questions have been established as follow:

- 1) Has the efficiency of China's listed commercial banks changes significantly during the post-crisis recover era of 2010-2014 years?
- 2) Does board diversity of the directors significantly affect the efficiency of China's listed commercial banks?
- 3) Does the education level of directors significantly affect the relationship of board diversity on the efficiency of China's listed commercial banks?
- 4) Does the degree of directors' diligence significantly affect the relationship of board diversity on the efficiency of China's listed commercial banks?

1.5 Research Objectives

Referring to the research questions above, four research objectives have been developed as shown in the following:

- 1) To evaluate the efficiency of China's listed commercial banks in the post-crisis recover era of 2010-2014 years.
- 2) To investigate the relationship between the board diversity of the directors and the efficiency of China's listed commercial banks.
- 3) To investigate the education level of directors significantly affects the relationship of board diversity on the efficiency of China's listed commercial banks.
- 4) To investigate the degree of directors' diligence significantly affects the relationship of board diversity on the efficiency of China's listed commercial banks.

1.6 Significance of the Study

This study fills the research gap by conducting in-depth study on the relationship between China's listed commercial banks efficiency and the board diversity at differently aspect. Although past studies have linked the board diversity issue with several subjects of discussion, for example board efficiency, firm valuation, and firm innovation efficiency, limited studies are found to link the effect of the board diversity towards firm efficiency by different indicators. But the Commercial banks because of its own particularity are different from ordinary enterprise, so it is clearly inappropriate to measure the efficiency of commercial banks by using the standard of measure ordinary enterprises efficiency. Therefore, the "efficiency value" as the commercial bank efficiency is first used in this study for investigation the influence of the board diversity on commercial bank efficiency. Efficiency is a common proxy for commercial bank efficiency in finance, and it even could represent investors' perception towards the worthiness of investing in the commercial banks. In other words, bank efficiency demonstrate the efficiency of the commercial banks in an industry, by which investors are willing to payment for the stock price, which is seen equivalent to the value of the commercial bank. In addition to that, maximizing commercial bank efficiency is the ultimate responsibility of the commercial bank's board as to maximize both of shareholders' and stakeholders' benefit. Therefore, the investigation on the relationship between commercial bank efficiency and the board diversity is worthy to be studied. The findings from the relationship can set as a reference for China's commercial banks to setting up a better board of directors so that to be in control or avoid crisis and confide the investors when seeking financing for growth opportunity in the future.

Additionally, the effect of the board diversity at member's identity education level and meeting attendance ratio aspects towards commercial banks efficiency is to be revealed in this study. The findings may supplement to the body of existing literatures as limited researches are found to provide empirical analysis evidence on the effect of overall the board diversity, especially in China. Past researches focusing on the board diversity issue such as Goodstein et al. (1994) and Kim & Lim (2010) merely look into the effect of a single aspect of the board diversity in board structures, gender, political linked, education and other factors. However, it is very important to understand the effect of overall board diversity in an enterprise as controlling for a single of board diversity is incredible and impractical in reality. Therefore, the finding on the effect of the overall board diversity is important to set as a reference for adjusting the weight of the board diversity. The result of this study could also initiate a future research to provide more advanced mathematical calculation for the better mixture of board of directors' background capital, and the optimal board diversity which should be adopted, so that can maximize the bank efficiency.

1.7 Contributions

The financial industry has always been the core of modern social and economic development. At present, China has basically built a multi-level and multi-functional financial market system, and China's listed commercial banks as the leading institutions of the financial system. The operation of China's listed commercial banks has strong influence on the Chinese economy and has played a pivotal role in promoting China's economic development. The efficiency of commercial bank is a direct evaluation standard of their operating status. The commercial bank efficiency is not only related to their own risk defense ability, profitability and the level of comprehensive competitiveness, but also influences the overall socio-economic development speed and quality, and the potential changes in the business environment will be reflected in the bank's efficiency changes. So, the concerns about the efficiency of commercial banks and the factors that affect the efficiency of commercial banks are one of the current requirements of the China's economic development, it is also the reference factors which influences the development plans for China's financial industry in the future. Therefore, this study is specifically aims to provide the information to investors, researchers and policy makers (commercial bank board and government).

The finding of this study may the benefit China's listed commercial banks as they can more clearly understand their own bank efficiency, from which to find their own strengths and weaknesses, and to be improved. On the other hand, the finding of this study could also provide an insight into except technical factors, whether the board diversity is also will be influence bank efficiency. Furthermore, this study will also provide them with further information as to board of which type of board structures

could maximize benefit to commercial bank efficiency.

The findings of this study will be beneficial to the investors, as the result may influence investors' choice on which commercial bank's stock to invest on for specially if there are changes to the leadership structure as a consequence of events, for example general election of the board of directors or addition new directors. If the board diversity improves commercial bank efficiency, then investors shall search more towards investing into commercial banks which have good board diversity. On the other hand, if commercial bank's board diversity proven to worsen or of no effect to bank efficiency, then investors have to be caution or finding other factors which will influence bank efficiency when investing in them.

Besides, in 1999, the Basel Committee published a report "Strengthening corporate governance in banking institutions", it expressed the concern and attention of academia and governments in corporate governance issues of commercial banks. And in 2002, the People's Bank of China (PBOC) also issued "Guidelines on Corporate Governance of Joint-stock Commercial Banks"; the report provides clear guidance and suggestions on corporate governance of joint-stock commercial banks. Although China's listed commercial banks have made great achievements in improving the efficiency of operation and the reform of corporate governance mechanism in recent years, there are still some flaws and hiccups compared to other countries that have mature commercial banks operating mode.

Therefore, the finding of this study hopefully will be useful to the government, policy makers or regulatory authorities through analyzing the operational efficiency of

China's commercial banks in recent years and the relationship between commercial bank's board diversity and the efficiency of banks, trying to find ways to improve the efficiency of Chinese listed commercial banks and the future direction of corporate governance. This shall be a good contribution to the establishment of a good corporate governance mechanism for Chinese-listed commercial banks, and the regulatory authorities make effective guidelines to improve the efficiency of commercial banks and enhance their core competitiveness.

1.8 The Definition of Key Terms

- 1) The People's Bank of China: The Central bank of China.
- 2) Data Envelopment Analysis: A linear programming technique for assessing sample efficiency, it can calculate the relative input-output ratio of multiple samples in multi-input and multi-output situations.
- 3) Technical Efficiency: The technical efficiency measured the gap between the decision-making unit and the frontier of production, under the situation of constant scale returns.
- 4) Pure Technical Efficiency: The pure technical efficiency measured the gap between the decision-making unit and the frontier of production, under the situation of variable scale returns.
- 5) Scale Efficiency: The scale efficiency measured the difference between the same decision-making at the situation of constant scale returns and the situation of variable scale returns.
- 6) Corporate Governance: A set of organizational mechanisms and rules that relied on guidance and control to manage the operation of an enterprise. In this study, we mainly focus on the board governance section.
- 7) Board Diversity: The board diversity in this study is represents by four group of directors, which are the independent director, foreign director, women director and political linked director.

1.9 Organization of the Chapters

The thesis is organized into five Chapters. Chapter 1 discussed the background of the study, followed by the China's economic situation and the problems faced by commercial banks. Then, it is followed by motivation of study, problem statement, research questions and objectives, significance and contribution of the study and organization of chapter. In Chapter 2, we discuss the theoretical and empirical literature reviews related to this research and the respective hypothesis. Chapter 3 we discuss the methodology, research design and data collection. Chapter 4 demonstrated the results and provided discussion on the finding of the research. Chapter 5 concluded the results and also the implication of the result.

Chapter 2

LITERATURE REVIEW

2.1 The Definition of Efficiency

The definition of efficiency varies according to the scope of study and the field of study. In general, efficiency is reflected in the case of limited resources can achieve social satisfaction, which is usually reflected by the ratio between input and output or cost and benefit. When the input is fixed, the efficiency is proportional to the output; when the output is fixed, the efficiency is inversely proportional to the input. In economics, the meaning of efficiency refers to the degree of the realization of the maximum output under certain economic resources and technical conditions or the realization of the minimum economic resources and technical conditions under certain output. We generally believe that efficiency can be divided into micro-efficiency and macro-efficiency. Usually micro efficiency refers to the ratio between the existing production resources and their utility for human beings. Macro-efficiency means that the resources can be effectively configured between different production sectors, so that it can meet the needs of the society and people to the maximum extent.

Some economists have also described the meaning of efficiency. According to an US economist - Samuelson (1996), he thinks that effective efficiency represents the greatest possible use of economic resources to meet the needs of the people or minimize waste as much as possible. It also means that if you do not reduce the production of an item, you can't increase the production of another item, this is operation efficiency. At this time, the economy is on the frontier of production possibility. Furthermore, he also believes that economics is the study of how society

uses scarce resources to produce the most valuable products, and the distribution of these products to different people. This means that the efficiency of economic research is the effective allocation of scarce resources, the way to achieve the maximization of the value of the limited resources. Therefore, the efficiency of economic activity means that there is no waste.

Technical efficiency is the ability to achieve maximum output under the given technical level and input factors, which reflects enterprise ability of effective utilization of the existing investment resources. Configuration efficiency refers to how the effective allocation of the proportion of elements in order to achieve production optimization under a given price and technical conditions. Only when both, the technical efficiency and allocation efficiency, achieved at the same time, then economic efficiency can be achieved (Frank, 1992). Besides that, Gao (2007) also pointed out that in economics, the market, system, transaction costs, information and other aspects are from different angles to explain how to achieve the optimal allocation of economic efficiency, improve resource-use efficiency. Therefore, he believes that economic efficiency essentially includes both production efficiency and resource allocation efficiency.

For example, according to the rational economic man hypothesis and the characteristics of resource scarcity, enterprises must consider the way to achieve maximum output under the conditions of scarce resources in order to pursue the internal economy. At the same time, corporate resource selection and use of resources will have an impact on the overall social resources; therefore, enterprises have both internal and external efficiency. Actually, internal efficiency is the production