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**Bank ownership and performance in China:
some further evidence**

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Abstract: China has recently completed an important part of the reform process of its banking system partially privatising its major Commercial banks with both domestic and foreign capital. This paper investigates the effect of different ownership structures to banks' economic performance, using a panel data analysis of 57 banks over the 2000-2016 period. A specific focus will be given to the Big-Five Commercial banks and the role of foreign ownership. The main findings show that private domestic banks are the most efficient and profitable banks; on the opposite side, Policy banks are by far the least efficient and profitable banks; Big Five banks have instead closed the cost efficiency and Asset quality gap with the best performing private banks, while profitability findings remain mixed. Also, strategic minority foreign ownership in State-owned banks is found to be positively associated with bank performance.

Keywords: China, banking sector, panel data, ownership, performance.

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Table of Contents

List of Tables	3
List of Figures	4
List of Abbreviations	5
Chapter 1: Introduction	6
1.2 Aim, purpose and hypotheses	7
1.3 Thesis outline	7
Chapter 2: Background and theoretical framework	8
2.1 The Mono-banking System, 1948 – 1978	9
2.2 The Experimental Period, 1979 – 1994	10
2.3 Transformational Period: 1995 – 2010	13
2.3.1 Effects of SOBs Public Listing	18
2.3.2 Market structure and Profitability	21
2.4 Evolutionary period: 2010 – present	23
2.4.1 Market structure and profitability	25
2.4.2 Asset quality	30
2.5 Contemporary Chinese Banking System	32
Chapter 3: Bank ownership structure and performance	35
3.1 Evidence of bank efficiency in developing countries	35
3.2 Evidence of bank efficiency in China	36
3.3 The role of foreign ownership	38
Chapter 4: Data and Methodology	41
4.1 Sample and observations	41
4.2 Model and variables	44
4.2.1 Dependent variables	45
4.2.2 Independent variables	46
4.2.3 Control variables	47
4.3 Descriptive statistics	47
4.4 Tests of the Assumptions	49
Chapter 5: Empirical Results	50
Chapter 6: Conclusion	53
References	55
Appendix	66

List of Tables

Table 1: Definition of Five Categories Under the Guidelines on Risk-Based Loan Classification.	(Appendix)
Table 2: Concentration of Assets, Deposits, Loans and Profits: Big Four SOBs, 1994-1998.	14
Table 3: Non-performing loans (NPLs) in China's banking system, 2002-2005.	17
Table 4: IPO of Chinese commercial banks	(Appendix)
Table 5: NPL ratio of all major Chinese commercial banks, 2003-2010.	20
Table 6: Total Assets of different types of banks (%), 2003-2010, China.	21
Table 7: Profitability of different types of banks, 2004-2010.	22
Table 8: The world's largest banks, Forbes 2016 (\$ billion).	27
Table 9: Key financial indicators of Chinese SOBs and world-class banks, 2015 (%).	29
Table 10: Distribution of observations.	43
Table 11: Summary of banks partially acquired by foreign investors.	44
Table 12: Variables employed in the regression models, descriptive statistics.	(Appendix)
Table 13: Correlation Matrix of all variable used in the regression	(Appendix)
Table 14: Bank ownership and performance, baseline specification.	52
Table 15: Regression results, complete baseline specification.	(Appendix)
Table 16: Regression results, Robustness check.	(Appendix)

List of Figures

Figure 1: Total Assets of Chinese Banking Institutions (right axis) by bank types (left axis), 2003-2015	25
Figure 2: Profits of banking Institutions by bank types, % of total, 2015 China.	28
Figure 3: NPL ratio by bank types (left axis) and total amount of NPL (right axis) , 2006-2015, China.	31
Figure 4: NPL ratio of several Countries' Banking system, %, 2015	32
Figure 5: Overall structure of the Chinese banking system, 2015	33
Figure 6a-b: Sample Average of Return on Assets and Return on Equity by bank types, 2004-2016.	48
Figure 6c-d: Sample Average of NPL ratio and Cost-to-Income ratio by bank types, 2004-2016	49

List of Abbreviations

(ABC)	Agricultural Bank of China
(ADBC)	Agricultural Development Bank of China
(AMC)	Asset-management companies
(BOC)	Bank of China
(BOCHK)	Bank of China Hong Kong
(BOCOM)	Bank of Communications
(CBRC)	China Banking Regulatory Commission
(CCB)	China Construction Bank
(CCBs)	City Commercial banks
(CCP)	Chinese Communist Party
(CDB)	China Development Bank
(Chexim)	Export–Import Bank of China
(ECB)	European Central Bank
(ICBC)	Industrial and Commercial Bank of China
(IPO)	Initial Public Offering
(JECBs)	Joint-equity Commercial banks
(NPLs)	Non-performing loans
(PBOC)	People’s Bank of China
(RCBs)	Rural Commercial banks
(ROA)	Return on Asset
(ROE)	Return on Equity
(SEZs)	Special Economic Zones
(SOBs)	State-owned banks
(SOEs)	State-owned enterprises
(WTO)	World Trade Organization

Chapter 1

Introduction

The Chinese banking system played a significant role during China's economic miracle and transition from a State planned economy to a Socialist market economy. Chinese banks fuelled the sustained double digit economic growth through lending activities, and enabled China to fight off the economic recession that hit Western countries during 2007-2008. However, the banking sector and more broadly, the Chinese financial sector, has experienced a long and gradual reform process over the last forty years and it has finally achieved substantial progress. Currently, the banking system still represents one of the strategic sector of the economy that the Chinese government intends to keep under the State control and not under the market forces. However, despite having been developed at a much later stage compared with other developed nations, the current Chinese banking system can be defined as mature, adopting several characteristics from the Western banking systems and then adapting them to the Chinese context. For example, Chinese government resolved the Non-performing loans issues by establishing wholly State-owned Asset Management Companies (AMC), similar to the “*bad banks*” Western institutions; further, Chinese banks consecutively set the world largest Initial Public Offering of all time, in 2006 and then in 2010, listing more than 16 Commercial banks on the stock exchanges and having the largest banking system of the world, in direct competition with the more experienced and sophisticated Western banks. From this substantial transformation and rapid evolution, it arises the need to investigate further the characteristics of the Chinese banking system.

This thesis documents how the modern banking system in China is embedded in the China's cultural background and political economy, how it is part of a market socialist economy rather than a market capitalist economy, and how it is conditioned by its historical background. A specific focus will be reserved on the analysis of the effectiveness of the reform strategies implemented by the Central Government, and particularly the ownership reforms. The successful strategy adopted consisted of gradually liberalizing the banking system, allowing the introduction of both domestic private and foreign capital, in order to diversify the banks ownership structure and increase the competition in the sector, in turn enhancing the overall banks' efficiency. However, during this reform process, some diversities across banks types emerged, involving typically low-efficiency problems associated with State-owned banks compared to their private domestic counterparts.

1.2 Aim, purpose and hypotheses

Several studies on the Chinese banking system covering the period 1980 – 2005 found that the Big Four State-owned banks, and more broadly the wholly State or Locally-owned banks operates less efficiently compared to private domestic or foreign as well as mixed ownership bank types. The purpose of this thesis is to contribute to this part of the economic literature on Chinese banks. It aims to investigate the efficiency gap within the Chinese banking system across different bank ownership types. This thesis, on one hand challenges the widely held view that State-owned banks (SOBs) performed less efficiently both in terms of profitability and costs as well as asset quality than any other bank types. On the other hand, it investigates the role of foreign ownership during the banking reform process.

In particular, the author's expectation is that, following the recent ownership reforms and interest rates liberalization, the efficiency gap between the Big Five SOBs and all others bank type has been reduced, if not completely covered. In addition, a strategic minority foreign ownership is expected to positively contribute to Chinese banks' financial measures due to direct and indirect mechanisms.

The thesis primarily focuses on the Big Four majority State-owned Commercial banks for several reasons. First, performance and efficiency improvements within these banks is likely to have a large positive impact on the entire national economy. In fact, they represented the 56.9 and 41.2 percent of the total Assets in 2004 and 2014 respectively, about half of the total Chinese banking Assets. If the Big-Five¹ classification is taken into account, the shares become even larger. Second, these banks have just completed a partial privatisation program allowing both private and foreign investors to enter into banks Equity, concluding the reform process lasted about forty years and opening the opportunity for post-reform analyses.

1.3 Thesis outline

This thesis is organized as follows. Chapter 2 provides a historical review of structural changes in the Chinese banking industry since 1948. Chapter 3 discusses economic literature on the relationship between banks' ownership and performance, both in developing countries and in China. Chapter 4 offers a detailed analysis on the data and methodologies implemented for the

¹ Including Bank of Communication (BOCOM)

empirical part of this paper. Chapter 5 presents a discussion of the main results. Chapter 6 provides a conclusion, policy implications and suggestions for further research.

Chapter 2

Background and Theoretical framework

Economic historians divide the recent Chinese Economic History into two phases. The first phase of the reform period, from 1978 to approximately 1992, was characterized by an experimental approach of gradual introduction of market forces into the economy.² Over these years however, the heritage of a state-planned and controlled economy was still very present into the economy and it governed the vast majority of the economic activities while the growing private sector was perceived only as a minor force compared to the dominant State sector.

The second phase started in 1992, when the leader of the Communist party Deng Xiaoping introduced the “Socialist Market Economy Chinese style” concept, in which a clear strategy emerged: a gradual shift from the planned economy to a market economy. The market forces entered into the economy, prices and trade started to progressively be governed by the laws of supply and demand and the State sector was rationalized³. The private sector was recognized as a complementary force to the State sector having a larger and essential role for the national economic development. A third phase of China Economic history might have started in 2001, after China’s entry into the World Trade Organization (WTO). This event was a transformational moment for the global economy, defined as “*the beginning of a new era of globalization*” by several economic journals (The Economist, 2011; The Wall Street Journal, 2017). From the China’s perspective, among others effects there was an intensification of trade volumes followed by a constant acceleration of both inflows and outflows foreign investments.

However, with regards to the financial sector with a particular focus on the banking industry, the history of post-1949 Chinese banking system can be divided into four phases:

² In particular, the earliest market transition reforms were incremental and geographically localized especially into the newly established Special Economic Zones (SEZs). For a detailed analysis of Chinese Economic Reforms history, see Naughton (2007).

³ State-owned enterprises experienced managerial reforms instead of more radical privatization policies. Notably, a more competitive business environment, better incentives, along with a more efficient monitoring of performance, were the main reforms that led to a significant improvement of state-owned enterprises performance, as documented by Li (1998) and Nee & Opper (2007).

- The “Mono-banking system period”, from 1948 through 1978, with only a single bank, the PBOC, functioning as both a Central Bank and Commercial Bank.
- The “Experimental period”, from 1978 through 1994, as defined by Stent (2017). During this period economic reforms started and commercial banks were established. The PBOC was split into a Central bank and four large State commercial banks. In addition, several new banks were also established, including Policy banks and Join-Stock Commercial banks.
- The “Transformational period”, from 1994 to 2010, during which the banking system was first restructured and then modernized, taking inspiration from the Western financial systems. During this period, the banking system undergone major changes.
- Finally, from 2010 onwards, the banking system has been in an “Evolutionary period”. The term “*evolutionary*” rather than “*transformational*” has been chosen because of the slowdown of the reforms pace. During this period the banking system has faced and it is still coping with three main changes: Firstly, the development of new consumer needs and technologies such as the wide distribution of online paying platforms. Secondly, the economic challenges of the persistent but declining rural-urban gap and the transitions from high investment and export-oriented growth to an internal consumption-driven and more mature economy. Thirdly, the opening up of the financial market to global competition.

In the following paragraphs an overview of the historical background of Chinese banking and financial system will be presented. A specific emphasis will be reserved at the key reforms as well as the major obstacles and issues within the financial system. The chapter concludes with a detailed description of the contemporary Chinese banking sector.

2.1 The Mono-banking System, 1948 - 1978

The establishment of the People’s Bank of China (PBOC) on December 1, 1948, laid the foundation for China’s contemporary banking system. From then, the Chinese financial system followed a mono-bank model for about 30 years: The Chinese Central Bank, the PBOC, simultaneously carried out two roles. On one hand, it operated as a Central Bank, regulating interest rates and controlling the nation’s money supply. On the other hand, it performed also as a Commercial Bank, by handling policy lending and commercial operations through several divisions across the entire country⁴ (Hsu, 2016).

⁴ For example, Bank of China, the oldest bank in China, was taken over by the PBOC in 1949.

The China Banking Regulatory Commission (CBRC) released in 2009 the official history of Chinese financial reform, describing the role of the PBOC under the centralized planned economy of 1948-78 years, as reported by James Stent (2017):

“The PBOC became the entire nation’s credit center, payments settlement center, and financial cashier. It almost monopolized all financial business of the entire nation, carrying out the functions of a central bank, and all the functions of commercial banks.”

2.2 The Experimental Period, 1979 - 1994

The second period of the Chinese banking system history was opened by the 3rd Plenum of the 11th Party Congress in December 1978.

The starting point of the financial reforms was the separation of the central banking and commercial banking functions placed on the PBOC. The banking sector moved from a mono-banking to a two-tier system, in which the PBOC retained the main functions of a National Central Bank, while commercial operations were up to newly established State-owned Commercial Banks⁵ (Cousin, 2011). Therefore, the PBOC remained in charge of the implementation of monetary policies, control monetary aggregates and supervise all banks and non-banking financial institutions. The commercial functions such as accepting deposits from the public and providing loans, instead, were delegated to four specialized State-owned Banks (SOBs), namely the Agricultural Bank of China (ABC), Bank of China (BOC), Industrial and Commercial Bank of China (ICBC) China Construction Bank (CCB) (Luo, 2016).

The reason behind this reform was based on the expectation of the Chinese Government that a more specialized banking system could better serve the State-owned enterprises (SOEs) and hence improve the overall efficiency of the economy (Chen & Wang, 2015). Indeed, under the planned economy, these new specialized banks functioned as the lending mechanism of the central government, providing funds to SOEs within selected sectors and under the State’s supervision and guidelines. For example, the ABC was in charge of financing China’s agricultural sector, while the CCB focused on providing medium and long-term credit for large construction and infrastructure related projects such as urban housing development, under the state economic five years plans. The ICBC, the biggest bank at that time in terms of total assets,

⁵ This financial market structure, characterized by a separation of functions between the Central Banks and Commercial Banks, has remained so far in place in China, and it is common among the vast majority of developed countries.

employees and number of branches across the country, concentrated on providing services to commercial and industrial activities in urban areas. Finally, the BOC was responsible for managing China's foreign exchange operations and for supporting the country's foreign trade development (Luo, 2016). These banks have been defined as the "Big four" by the economic literature because of their strategic dominant position within the national financial market. The same banks inherited the enormous branch network of PBOC with a large volume of provincial and local branches across all major cities (Naughton, 2007). In addition, the Big four were also able to capture the entire market share of the formal finance channel⁶ at that time, since they had a first-mover advantage. However, all these benefits and strengths matched with other equally important issues and limitations.

Firstly, SOBs' activity was directly connected to the Credit Allocation Plan drafted by the Central Government. Therefore, banks had relatively small room for independent decision making (Liu, 2011). The State, indeed, used SOBs as a 'soft lenders' in order to support the development of strategic sectors of the economy, by funding large and inefficient SOEs and consequently accumulating a great volume of non-performing loans (NPLs). Secondly, the SOBs were also under the indirect influence of provincial governors and party secretaries which forced SOBs to finance local projects and local SOEs in order to enhance the economic performances of their territory and consequently having greater chance of career promotions.⁷

The combination of direct lending under the Credit Plan and the indirect funding due to provincial political pressure with the incapacity from SOBs to resist them, led to a rapid and persistent accumulation of NPLs in the Big four banks' balance sheets. In addition, banks' risk management knowledge was reasonably fragile since the credit allocation of SOBs was mainly orbiting around SOEs and, as mentioned, it was set at a Central level in order to support national economic policies (Cheng & Degryse, 2010). In other words, there was no need at that time to develop risk-management effective measures and skills. Also, the major clients of the banks, the SOEs, they operated under a soft budget constraint. Therefore, there was no punishment for operating inefficiently or for running budgetary losses, and if that happened, the Government

⁶ The informal finance channel also played a remarkable role in the Chinese economic growth, especially for the private sector development (see Nee & Opper, 2012). However, this paper will focus only on the formal financing channel.

⁷ The Chinese Communist party's cadre-evaluation system, linked the officials' career success to the achievement of economic growth's targets such as total revenues and investments or Industrial production. For a detailed discussion of this topic, see Ong (2011).

would repay the debts and bail-out the SOEs (Ong, 2011). Overall, the structure of institutional requests and incentives did not operate in a way to prevent the formation of NPLs.⁸

Available data shows that the NPLs ratio across the banking system during 1980-90 was 24 percent of total loans (Almanac of China's Finance and Banking, 1992), while other recent estimates of the level of NPLs vary at 30–35 percent of total loans (Brandt & Zhu, 2007), meaning that on average around one quarter of total bank loans were likely to be not reimbursed. However, the exact amount of NPLs is complicated to be measured because of a number of reasons. First, even though financial data are collected from banks' annual reports, impaired loans data might not be totally reliable because of poor reporting standards. In addition, the terms of classification of a NPL changed over time and they were implemented by different financial institutions in different points in time (Cousin, 2011).⁹ Therefore, it might be more relevant to compare NPL data across types of banks than over time. Finally, the roll-over of old debts practice was very common, and these debts were still considered as performing. The roll-over practice occurs when, rather than repay the principle of a debt when it comes due, the borrower obtains another debt in order to pay off the original debt. Generally, the borrower uses the roll-over technique because of his impossibility to pay back the first debt, which therefore should be computed as non-performing (ibid).

There are no doubts, however, that the Chinese authorities were completely aware of NPLs related problems. In fact, the Almanac of China's Finance and Banking in 1993 already mentioned the separation of “*policy finance*” from “*commercial finance*” among the possible solutions in order to cope with these problems in the near future.¹⁰

As a consequence, the Chinese Government attempted to manage the low efficiency of the Big Four SOBs caused by the large amount of NPLs, on one hand by establishing three policy banks. On the other hand, by allowing the emergence of smaller Joint-equity Commercial Banks (JECBs)¹¹ and City Commercial Banks (CCBs).

⁸ In addition, a soft budget constraint might also lead to moral-hazard behaviours. Within the Chinese context, this topic has been extensively described by Montinola et al. (1996) and Lu & Sun (2013).

⁹ All banks were required to report NPLs according to the five categories classification standards (see Table 1 in the Appendix). The bigger banks including the Big Four SOBs applied this discipline since 2004 but the smaller CCBs and rural banks started from 2007. For a detailed analysis of NPLs situation into the Chinese banking industry, see Cousin (2011) and Luo (2000).

¹⁰ “China’s state-owned specialized banks are now undertaking the business of policy finance and simultaneously, that of commercial finance too. Such business structure is totally incompatible with market economy that requires complete service of commercial finance.”

¹¹ In the literature of Chinese banks, ‘joint-equity’ and ‘joint stock’ are equivalent in meaning.

The new Policy banks, the China Development Bank (CDB), Export–Import Bank of China (Chexim) and Agricultural Development Bank of China (ADBC), were instituted in 1994 in order to replace the Big Four’s function of government-directed funding to SOEs.

Each of these banks was responsible for the lending activity towards a specific economic sector. In particular, the ADBC focused on the funding of agricultural development projects in rural areas; the CDB was in charge with supporting Chinese companies abroad while the Chexim specialized in foreign trade and on the implementation of the “going global” strategy (Luo, 2016). With the introduction of the new three Policy banks, the SOBs lost their monopoly position over specific sectors of the economy. SOBs could finally operate as proper Commercial Banks within a more competitive environment characterised by the nationwide emergence of new JECBs and CCBs.

Reflecting the experimental spirit of that period, “*crossing the river by feeling the stones*” in the figurative expression of Deng Xiaoping, the Central Government approved a small-scale establishment of JECBs across the entire nation with a mixed ownership structure including the State, private enterprises or group of individuals and SOEs. The intention of the Government was to gradually introduce new players in the financial system, so that the greater degree of competition would increase the efficiency of the Big Four SOBs without letting them loose the de-facto control of the financial market, thereby preserving their dominant position.

Consequently, new banks were established such as the China Merchants Bank in 1987, and the Guangdong Development Bank in 1988. One of the oldest bank in China, Bank of Communications (BOCOM), was re-established in 1986 after 38 years of inactivity, and soon it became one of the largest Chinese bank at the same level of the Big Four SOBs (Luo, 2016). Some scholars hold the view that BOCOM might be included into the ‘Big-Four’ SOBs classification, formulating the new term “Big Five” (Bonin, Hasan & Wachtel, 2005a). Overall, since 1996, 14 JECBs and 34 City Commercial banks have been established and operated nationwide (CBRC Annual report, 2002).

2.3 Transformational Period: 1995 - 2010

Despite a rapid development of smaller Commercial banks, the Big Four SOBs still largely prevailed over the Chinese banking sector. Recent studies have evaluated the level of competition that existed in the system between 1994 and 1998 (Wong & Wong 2001). **Table 2** shows the concentration ratio of the Chinese banking system between 1994-1998. The concentration ratio measures the size of the Big Four SOBs in relation to their industry as a

whole. As it can be seen in the **Table 2**, the Big Four's share of total industry Asset, Deposit and Loans in 1994 was more than 90 percent. In other words, in 1994 the sum of the Big Four's Assets, Deposits and Loans accounted for more than 90 percent of the Chinese banking industry. The Chinese banking system, however, moved towards a relative more competitive environment since the Big Four concentration ratios of Asset, Deposit and Loans declined over the following four years, down to 84.9, 84.3, and 88.5 percent respectively in 1998, showing the emergence of new established and more efficient JECBs. In fact, a very different picture emerges when the banks' profitability ratio is taken into account. In terms of efficiency and profitability, the Profits concentration ratio in **Table 2** shows that despite the JECBs' share of total industry Asset was about 15 percent in 1998, they accounted for about 45 percent of the total industry Profits in the same year, underlining a more efficient structure compared to the Big Four. The latter indeed had an Asset concentration ratio of 84.9 percent but only a 55.3 Profits ratio.

Table 2

<i>Concentration of Assets, Deposits, Loans and Profits: Big Four SOBs, 1994-1998.</i>				
<i>Year</i>	<i>Asset</i>	<i>Deposit</i>	<i>Loans</i>	<i>Profits</i>
1994	93,04 %	90,14 %	93,24 %	83,64 %*
1995	92,00 %	89,54 %	92,39 %	73,3 %*
1996	88,9 %	87,08 %	90,42 %	68,51 %*
1997	87,03 %	85,2 %	88,7 %	63,8 %*
1998	84,93 %	84,26 %	88,51 %	55,33 %*

Source: Own calculation based on Wong & Wong (2001) and Almanac of China's Finance and Banking, various years.

*Note: * Due to lack of information about the Profits of City Commercial banks, the index has been calculated by excluding these banks. Therefore, the index overestimates the Profits concentration ratio in the industry.*

To sum up, the overall pictures that emerges from the Chinese banking industry until 1998 is pretty clear. The Big Four SOBs dominated the loans and deposit markets, being the largest banks in terms of size. However, as demonstrated by several studies, SOBs were considerably less profitable than smaller Commercial banks – namely JECBs and CCBs - and this might be explained by the following reasons.

On one hand, excessive government intervention compromised the profitability of the SOBs. Although the new established three Policy Banks took over the role of policy lending, the Central Government still had a significant influence on the Big Four SOBs. In fact, instead of making lending decisions based on the measured risk and return, the SOBs were expected to support the development of the economy accordingly to the national five-years plans, therefore providing funds and making loan decisions under the State economic policy priorities (Mo, 1999). In addition, part of the management of the SOBs was selected among the Communist Party members, which in turn had evident relationships with the Central Government (Stent 2017). As a result, SOBs were still suffering by structural problems of asset quality and profitability, showing higher NPLs ratio and lower profitability results than relatively smaller Commercial banks (Lardy, 1999; Allen, Jun & Meijun, 2005).

Similar problems, however, were also common across the JECBs and CCBs but less critical. The degree of state interference was essentially determined by the connection between the bank's shareholders and the Central Government: the closer the relationship, the more influenced would be the bank's management and consequently the more likely that the bank would be engaged in policy lending (Cousin 2011). To conclude, there is some evidence to suggest that as a result of their relative independence from the central or local governments, JECBs and CCBs possessed healthier asset quality, higher profitability and lower NPLs compared to their State-owned counterparts (Luo, 2016).

Therefore, the 'Transformational reform period' of the banking sector opened with the key objective of moving from being an oligopolistic and policy-driven to a more competitive and profit-oriented system, or in other words, to introduce market forces into a socialist economy (Yao et al., 2007).

*"There is no fundamental contradiction between socialism and a market economy. The problem is how to develop the productive forces more effectively. We used to have a planned economy, but our experience over the years has proved that having a totally planned economy hampers the development of the productive forces to a certain extent. If we combine a planned economy with a market economy, we shall be in a better position to liberate the productive forces and speed up economic growth"*¹²

Deng Xiaoping, 2014.

¹² Chilton, Tian, Wodak (2012).

With these words Deng Xiaoping explained the argument for introducing elements of a market economy under socialism in an interview conducted in 1985 by Henry Grunwald, Editor-in-Chief of Time Magazine. The released *productive forces* - by combining elements of market economy with elements of socialism - were going to have positive effects on the economy, as predicted by the Chinese political leader Deng Xiaoping.

The emanation of the Commercial Banking Law and the Law of the People's Bank of China in 1995 can definitely be interpreted as a further step in accordance with the initial objective of moving towards a more competitive and profit-oriented system, trying to bring organizational standards in line with western-style corporate governance. In fact, under the new regulatory framework, the Central Bank acquired more autonomy and a legal reference to formulate monetary policies and supervise the financial system. At the same time, the Commercial Bank Law granted all the Commercial banks a certain degree of operational independence, protecting them from any external interference except in the case of national emergency situations when they should cooperate with the Central Government (Cheng & Degryse, 2010). This new legal framework shifted the banks' management behaviour from a politicized and low-profit oriented to a more independent and nearly pure market-based approach, where banks assume independent lending decisions based on the borrower's creditworthiness and as a consequence, autonomously support the related risks.¹³

However, in order to achieve the initial goal of a competitive and profit-oriented banking system, a radical restructuring of the Big Four was needed. First, the Government operated on the SOBs' balance sheets by taking out the large amount of NPLs and placing them into on purpose newly designed State-run Asset-Management Companies (AMC) – typically a Western mechanism. The total amount of NPLs into the two most important categories of Commercial banks, the Big Four plus the JSCBs, declined from around 2,3 trillions of Yuan in 2002 (19 percent of National GDP) to 1,2 trillion of Yuan in 2005 (6.7 percent of GDP) as shown in **Table 3**.

The operation of cleaning up the banks' balance sheets was not a lump sum process. It lasted several years and it involved different methodologies, among which the most important

¹³ Recent research has suggested that despite the formal independence from the Chinese Communist party (CCP) acquired with the Commercial Bank law, banks' management and board of directors remained under an indirect influence of the Central Government, placing the Chinese economy into an 'hybrid institutional order' between a Central planned and a Market economy, a so called 'Politicized Capitalism'. For more details, see Nee & Opper (2007).

was the debt-equity swap¹⁴ (Ma & Fung, 2002). The Central Government, however, spent a substantial amount of financial resources in order to provide the banking sector with the basis of financial health. Barry Naughton estimates that, adding together the various rounds of bail-out and cash injection into Big Four SOBs, the total amount that the government had injected to clean up their balance sheets was about 2.4 trillion yuan. If this value is compared to the China's GDP in 2004 of 16.1 trillion Yuan, then the total bailout over several years reaches the 14.9 percent of 2004 GDP. A remarkable burden for a country at the stage of China's development at that time.

Table 3 *Non-performing loans (NPLs) in China's banking system, 2002-2005*

Year	State-owned banks		Join-stock commercial banks		NPLs as percentage of National GDP
	Billions of Yuan	Percent of loans	Billions of Yuan	Percent of loans	
2002	2,088	26.2	203	11.9	19.0
2003	1,917	20.4	188	7.9	15.5
2004	1,575	15.6	143	4.9	10.7
2005	1,072	10.5	147	4.2	6.7

Source: Own calculation from Naughton (2007).

In addition, from the **Table 3** it can be clearly seen that JSCBs performed significantly better than Big Four SOBs in relation to Asset quality. In fact, the average of NPLs to total loans ratio of JSCBs was 7.22 percent against the 18.17 percent for the Big Four SOBs over the same period, as expected.

The second part of the whole restructuring process consisted in listing the renewed and healthy banks on international securities exchanges. In fact, starting from the 1999, numerous banks were partly listed on the Hong Kong and Shanghai stock exchange. In particular, five different ownership classes were created: state-owned shares, legal-person shares, tradable A-shares, employee shares, and shares only available to foreign investors (H and B shares), a feature that is unique to the Chinese financial system (Naughton 2007). More importantly, in

¹⁴ With this practise, a company's creditors agree to swap some or all of the debt for company's equity. Then, the bondholders and creditors become the new shareholders in the company.

almost all cases, by way of the distribution of tradable and non-tradable shares, the Central or Local Government guaranteed to retain a majority of the equity in the SOBs. In this way, risks of fully privatisation and leveraged buyouts were avoided.

At the end of 2010, a total of 16 banks were listed on the stock market, including the Big Four State-owned banks plus eleven JSCBs with their combined assets at about 77 percent of the total assets of the banking industry, as measured by official statistics data of 2014 (see **Table 4** in the Appendix) (CBRC Annual Report, 2014).

2.3.1 Effects of State-owned banks Public Listing

The effects of the SOBs' public listing were numerous. They vary from the introduction of modern management techniques to the improvement of banks' internal control and auditing systems.

In particular, with the public listing into the stock market banks were forced to bring their corporate governance and accounting systems up to global standards, passing under the vigilance of international auditors and the inspection of foreign securities exchange examiners.

In addition, with the banks' Initial Public Offering (IPO), fresh capital was transferred into the banking system, facilitating the recapitalization process: Chinese companies set consecutively the record of largest IPO of all time. First, in October 2006, ICBC Bank was listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange raising a total of \$19.092 billion. Four years later, on July 2010, the ABC Bank's initial offering raised \$22.1 billion, becoming the largest IPO ever. Just recently, on September 2014, the record was broken by the Chinese online ecommerce company Alibaba which raised a total of \$25 billion on the New York Stock Exchange (Chen, Mac and Solomon, 2014).

Finally, a partial privatisation of SOBs shaped banks' incentives and as a consequence, influenced banks' performance. Indeed, the necessary element in order to move towards a profit-oriented approach is the presence of private forces. An extensive amount of research has been done on this topic (Shleifer, 1998; Jin & Qian 1998). The great majority of the economic literature recognises that, within the Chinese context, private ownership offered stronger incentives for enterprises' management to implement cost reduction and innovation policies compared to the State ownership. In fact, while the State ownership in China was commonly associated with soft budget constraint and consequently periodic bailouts, the Private ownership was instead usually characterized by hard budget constraint, leading the enterprises at the

innovation frontier in order to survive into a highly competitive environment. Moreover, reputational considerations mechanisms in case of bankruptcy reinforced the incentives for efficiency and profit making in the private-ownership enterprises (Nee & Opper, 2012).

Also, the mainstream theories on property right and public choice (Levy, 1987) (de Alessi, 1980) indicate that private ownership is associated with more efficient management and therefore in theory, joint-stock firms should outperform the totally owned public firms. At the empirical level it has been demonstrated that, on average, Chinese public companies perform less efficiently and less profitably than mixed and private enterprises (Boardman & Vining 1989).

However, as regards to the bank industry, how the IPO and the resulting partly privatisation affects Chinese banking industry has been a question of ample academic interest.

For example, Wu, Chen and Lin (2009) investigated the impact of initial public offerings on China's banking sector over 1996 to 2004 period, employing the Return on Assets (ROA) and the Return on Equity (ROE) as measures of performance. The results indicate that listed banks experienced superior operational performances than unlisted banks. Also, the launching of IPO by Chinese banks is found to have a statistically significant and positive effect on their Return on Assets (ROA). A similar conclusion was reached by other academic papers investigating whether IPO was effective in improving banks performance. Findings confirm that listed firms did show on average better performance after the public listing - 10 percent performance improving according to Jiang, Yao & Zhang (2009) - while the previously inefficient SOBs were catching up and reducing the efficiency gap with the JSCBs (Chen and Shih, 2003).

Another branch of research includes the indirect effects of public listing over the banking sector – so called externalities - into account. For instance, an IPO of a large bank might produce a shock to the whole industry rather than just influence the bank's own economic performance. At the empirical level Chen, Li, and Moshiran (2005) examined the reaction of competitor banks and non-bank financial institutions to the IPO announcement of the Bank of China Hong Kong (BOCHK). In their detailed study of IPO externalities, Chen et al. (2005) found that some of the banks reacted negatively to the partly privatisation announcement. In addition, results show that HSBC, the largest bank in Hong Kong, had no significant reaction to the listing announcement, while the Hang Seng Bank, the third largest bank in Hong Kong, experienced a loss after the announcement. Finally, it has been determined that the BOCHK out-performed the rival banks and financial institutions in Mainland China one year after its

IPO, apparently supporting the assumption that partly privatization might improve bank's performance in the short period.

Overall, there is some evidence to suggest that the Chinese transformation process has been successful. The positive results achieved after the privatisation program along with the banks' balance sheets cleaning by the Asset-Management companies are clearly reflected in the banks' financial statements over the 2000 – 2010 period. In particular, the percentage of non-performing loans to the total loans (NPL ratio) significantly declined in the whole Chinese banking sector, from 17.8 percent in 2003 to 1.1 percent in 2010 (see **Table 5**).

Table 5

NPL ratio of all major Chinese commercial banks, 2003-2010

	Average Banking sector	Large Commercial Banks*	JECBs	CCBs	Rural Commercial Banks	Foreign banks
2003	17.8	20.1	8.1	-	-	-
2004	13.2	15.6	5.0	-	-	-
2005	8.6	10.5	4.2	7.7	6.03	1.05
2006	7.1	9.2	2.8	4.8	5.9	0.8
2007	6.2	8.0	2.1	3.0	4.0	0.5
2008	2.4	2.8	1.3	2.3	3.9	0.8
2009	1.6	1.8	0.95	1.3	2.8	0.9
2010	1.1	1.31	0.7	0.9	1.9	0.5

Source: Own calculation based on Luo (2016) and China Banking Regulatory Commission (CBRC) Annual Reports, several years.

*Note: * is constituted by the Big Four banks plus Bank of Communications, namely: BOC, ABC, CBC, ICBC plus BOCOM.*

The table shows how the Large Commercial Banks experienced higher values of NPLs than banking sector's average throughout all the considered period. Conversely, the JECBs and especially foreign banks registered remarkable positive results, with a Non-performing loans ratio at lower than 1 percent during 2009-2010.

2.3.2 Market structure and Profitability

With regards to the market structure, the Chinese banking industry during the 1995-2010 Transformational period remains principally dominated by the SOBs in terms of total Assets, despite the rapid expansion of other banking types (**Table 6**). In particular, JECBs and CCBs' share of the total banking sector Assets increased from 10.7 and 5.3 percent in 2003 to 15.6 and 8.2 percent in 2010, respectively. Conversely, Large Commercial Banks' portion of total banking Assets decreased by almost 10 percentage points, from 58 to 49.2 percent over the same period. Therefore, while the decade 1990 - 2000 presented an oligopolistic market structure – very close to monopolistic one - during the following ten years 2000 – 2010 the market slightly moved towards a more competitive environment, where no bank type had a dominant position over the market.

Table 6 Total Assets of different types of banks (%), 2003-2010, China.

	Total banking Institutions (RMB billion)	Large Commercial Banks*	JECBs	CCBs	Non-bank financial institutions	Foreign banks
2003	27,658.4	58.0	10.7	5.3	3.3	1.5
2004	31,599.0	56.9	11.5	5.4	2.8	1.8
2005	37,469.7	56.1	11.9	5.4	2.7	1.9
2006	43,950.0	55.1	12.4	5.9	2.4	2.1
2007	53,116.0	53.7	13.7	6.3	1.8	2.4
2008	63,151.5	51.6	14.0	6.5	1.9	2.1
2009	79,514.6	51.3	14.9	7.1	1.9	1.7
2010	95,305.3	49.2	15.6	8.2	2.2	1.8

Source: CBRC Annual Report (2012)

Note: * is constituted by the Big Four banks plus Bank of Communications, namely: BOC, ABC, CBC, ICBC plus BOCOM.

In terms of profitability, **Table 7** offers a comprehensive overview of Chinese banks performances divided by different types of banks over the 2004 – 2010 period. First of all, the total profits of the banking sector as a whole increased by nine times in seven years, rising from 103.5 billion of Renminbi in 2004 to 899.1 billion of Renminbi in 2010, with an extraordinary average yearly growth of 31.65 percent. Moreover, throughout the whole period considered,

about half of the profit of the Chinese banking system was contributed by the SOBs: it oscillated from 55.2 percent in 2007 up to 72.4 percent in 2005. With regards to other bank type instead, JECBs consolidated their substantial share from 13 percent in 2004 to 15.1 percent of total profits in 2010, while CCBs and non-bank financial institutions' share essentially remained unchanged over the same period. In addition, by linking **Table 6** with **Table 7**, a more equally distributed overall market picture appears. The share of total Assets and profits of Large Commercial Banks in 2010 was 49.2 percent and 57.3 percent respectively, suggesting that the Big Four SOBs along with the Bank of Communications, caught up the inefficiency gap that existed during 1990 – 2000 (see **Table 2**).

Table 7 Profitability of different types of banks, 2004-2010.

Profit to the total banking sector (%)						
	Total profit (RMB billion)	Large Commercial Banks*	JECBs	CCBs	Non-bank financial institutions	Foreign banks
2004	103.5	57.0	13.0	8.45	4.83	2.27
2005	253.2	72.4	11.41	4.77	2.44	1.44
2006	337.9	67.6	12.84	5.35	3.84	1.70
2007	446.7	55.2	12.6	5.6	7.5	1.4
2008	583.4	60.7	14.4	6.9	4.9	2.0
2009	668.4	59.9	13.8	7.4	4.5	0.9
2010	899.1	57.3	15.1	8.6	4.5	0.8
Year-on-year profit growth (%)						
	Banking institutions	Large Commercial Banks*	JECBs	CCCBs	Non-bank financial institutions	Foreign banks
2004	-	-	-	-	-	-
2005	44.63	58.9	65.14	37.93	25.2	55.74
2006	33.45	24.37	50.17	50.83	108.06	57.65
2007	32.19	26.85	29.95	37.01	23.21	7.01
2008	30.58	43.6	49.1	64.4	-14.8	96.1
2009	14.58	12.9	9.9	21.7	4.9	-45.9
2010	34.51	28.7	46.8	55.1	36.6	20.6
2004-2010 Average	31.65	32.55	41.84	44.50	30.53	30.87

Source: Own calculation from CBRC Annual Report, several years.

*Note: * is constituted by the Big Four banks plus Bank of Communications, namely: BOC, ABC, CBC, ICBC plus BOCOM.*

Finally, the second part of **Table 7** illustrates the year-on-year profit growth of different bank types, with the average annually growth indicated in the bottom row. The results seem to indicate that the average yearly profits growth of JSCBs and CCBs was above the banking institutions' average, suggesting how these banks were gradually but constantly gaining market share in terms of profits over any other types of bank. Conversely, the just above-average performance of Large Commercial banks suggests that they would have gradually lost profits market share towards JECBs and CCBs – since the latter were growing at a faster pace – while steadily gaining profits market share over slower-pace bank, namely non-bank financial institutions and foreign banks.

In viewing these desirable financial results of Chinese banking sector though, it seems relevant to emphasize two important points. First, these results were achieved in a time of an astonishing double-digit economic growth, when loan demand was elevated and defaults risks were low. Therefore, the banking sector largely benefited from an environment of sustained growth. Second, the state-guided approach to economic development characterized by a proactive and interfering role of the Chinese State, defined as '*Developmental State*' by Nee, Oppen & Wong (2007), or defined as '*helping-hand state*' by Frye & Shleifer (1997), definitely played a key role in promoting the economic policies without which the development of the banking sector would not have been possible.

2.4 Evolutionary period: 2010 - present

In December 2001 China became the 143rd member of the World Trade Organization (WTO). Among several terms of agreement, China accepted to gradually open its financial market to foreign competitors over the following five years. Chinese banks were therefore forced to modernize their supervision, transparency and corporate governance systems in order to be competitive with foreign banks, leading the country to the final stage of banking reforms period. However, as reported by the accession agenda, the entire Chinese banking sector would be entirely open for foreign competition only by the end of 2006 (Yao et al., 2007).

The commitment pressured policymakers to modernize the financial system and improve the competitiveness of Chinese banks within a five years' timeframe. Under this context, the most important developments have been the gradual interest rate liberalization, the adoption of the deposit insurance, the market opening for new private domestic and foreign bank licenses and the Initial Public Offering (IPO) of the Big Five Chinese Commercial banks.

China for many years kept interest rates under the State regulation, introducing a floor on bank lending rates and a ceiling on deposit rates (Feyzioglu, Porter & Takáts, 2009). The specific term for keeping interest rates distorted and not reflecting the natural interaction between demand and supply for credit is 'financial repression'. China, as well as many governments in developing countries, has used financial repression as a policy tool in order to mobilize savings from the general public towards specific sectors of the economy under the government's development strategy at a lower-market price (Si, 2015). Therefore, a gradual liberalization of interest rates might be not only necessary for the Chinese economy to move towards a more market-based economy, but it might be also beneficial for the entire economy only if implemented in a progressive way, as described by Feyzioglu, Porter & Takáts (2009).¹⁵

China followed the gradual path of interest rate liberalization and, current interest rates in the financial market are completely liberalized, as Chinese banks have the freedom to set lending and deposit interest rates. However, a recent research has suggested that interest rates instead of being determined by the market, they tend to follow the benchmark rates set by the Central Government (Lo, 2015). Therefore, the complete interest rate liberalisation may take longer time to be fully achieved. This interest rates discussion still represents an important research topic especially because it has some relevant implications for Chinese banks' profitability, as discussed later in the paper (**Table 9**).

With regards to the opening up strategy of the banking sector to foreign-owned banks, during the recent years the situation has improved substantially. In fact, in December 2014 the CBRC revised and issued the "*Rules for Implementing the Regulation of the People's Republic of China on the Administration of Foreign-funded Banks*", which provides a more favourable and convenient policy environment for foreign banks to establish institutions and operate in China with the prerequisite of effective supervision (CBRC 2015). However, the major recent change into the Chinese banking sector has occurred during 2005-2011. The Big Five

¹⁵ In particular, interest rate liberalization can provide several benefits including: better pricing mechanism of capital and risk; improving the allocation and efficiency of capital investment; more credit flowing to sectors previously discriminated such as small and medium-sized enterprises (SMEs); improving the effectiveness of the Central Bank's monetary policy tools. For a detailed analysis of interest rates liberalization in China, see Abiad et al. (2004); Hanson (2001); Feyzioglu et al. (2009).

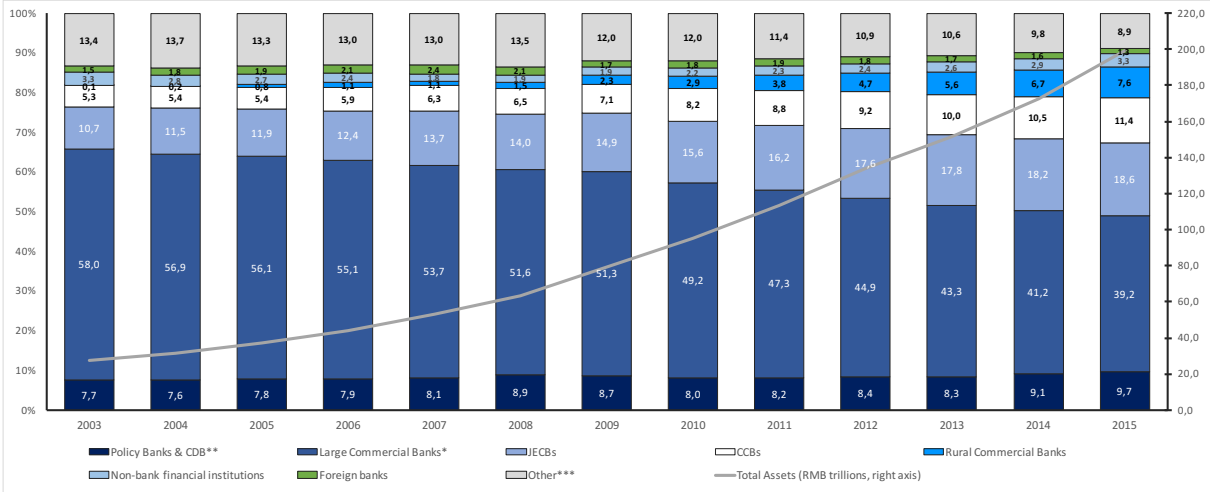
Commercial banks, which before 2005 were wholly owned by the State, went publicly listed to the Shanghai Stock Exchange and the Hong Kong Stock Exchange selling minority of their share through Initial Public Offerings (IPOs), while they retained the majority of ownership by the State (see **Table 4** in Appendix).

In each of these banks, private domestic and foreign investors have become a very influential shareholder by accounting for more than 20 percent of the banks' total equity, leading to substantial changes into banks' corporate governance and improvement in profitability incentives. Hence the need to investigate on one hand, the ownership effects on banks performance with a focus on strategic minority ownership. On the other hand, to examine whether the efficiency gap between the Big Five SOBs and all others bank type has been closed over the last 17 years or whether it still persist within the Chinese banking sector.

2.4.1 Market structure and profitability

With regards to the internal market structure and development of the banking system, **Figure 1** displays the evolution of the sector over the 2003 - 2015 period.

Figure 1
Total Assets of Chinese Banking Institutions (right axis) by bank types (left axis), 2003-2015



Source: Source: Own calculation from CBRC Annual Report, several years.

Note: * includes the Big Four banks plus Bank of Communications, namely BOC, ABC, CBC, ICBC and BOCOM.
 ** include the three Policy banks: ADBC, CDB, Exim. *** include new-type rural financial institutions, Postal savings bank, Rural & Urban credit cooperatives.

As shown in **Figure 1**, the trend started during the late 1990s' continued up until the 2015: the proportion of Large Commercial banks to all the banking Institutions' total Assets decreased below 40 percent in 2015, while JECBs and CCBs progressively increased their share up to 19 and 11 percent, respectively. In the meantime, the total amount of Assets within Chinese banking institutions incremented by more than 7 times in twelve years, starting from 27 trillion of Yuan in 2003 up to 200 trillion of Yuan in 2015, revealing the rapid growth of bank activities and services among different Provinces and the whole Chinese society.

In addition, it seems relevant to consider three other aspects. The first aspect is the steady expansion of Rural Commercial banks (RCBs), moving from the 0,13 percent of total Assets in 2003 up to 7 percent after twelve years, in 2015. There have been several studies investigating the role of RCBs as vehicles to reduce the rural-urban gap in China's economic development (Subrahmanyam, 2011; Elliott J. D. & Yan K, 2013). In fact, even though the Chinese population living in rural areas is decreasing over time, still almost half of the population lived in rural zones in 2015 – precisely 45.7 percent, according to the World Bank data (2016). A recent study also found that in 2008, the banking system met only about 60 percent of rural household financial needs, while only half of rural agricultural enterprises were backed by banks (Kwok, 2009). Indeed, the RCBs stand as the key financial institutions able to connect rural small and medium enterprises to the capital market, providing them with business operations and services. Therefore, a possible explanation of the expansion of RCBs' share might be the diffusion of the banking industry in the rural areas, since the main RCBs' activity is to direct capital to the least developed areas of the country, enhancing ultimately the development of agricultural sector and rural industries. In fact, in order to encourage the banking operations into rural areas, the CBRC and central government have introduced new incentives such as tax cuts, lower capital requirements for rural banks and subsidy programs (Subrahmanyam, 2011).

The second aspect to be recognized is the relative small impact of foreign banks. They moved from 1.5 percent of total banking Assets in 2003, up to 2.3 percent in 2007, and again down to 1.4 percent in 2015. However, even though this paper focuses on the foreign ownership effects on the whole banking system, this should not be confused with foreign banks as a bank type, which remains a separate point.

The third aspect is that both the Chinese banks and the Chinese Banking system as a whole, have respectively become among the largest Financial Institutions and the biggest banking sector in the world in terms of total Assets, according to The Forbes Global 2000, an

annual ranking of the top global 2000 public companies published by Forbes magazine.¹⁶ In particular, as shown in **Table 8**, in terms of the revenues, profits, total assets and market value, Chinese Big Five banks were ranked within the first eleven positions in 2016.¹⁷ Meanwhile, according to the same statistic, among the world's 100 largest banks in 2016, China hosts the most with a total of 19 banks, followed by the United States housing 10 banks. They are followed by the Japan with 9 banks, France with 7 banks, United Kingdom and Germany with 6 banks within the top 100.

Table 8

The world's largest banks, *Forbes 2016* (\$ billion)

Name of the bank	Overall Rank	Country	Sales	Profits	Assets	Market capitalization
ICBC	1	China	151.4	42.0	3473.2	229.8
CCB	2	China	134.2	35.0	3016.6	200.5
JP Morgan	4	United States	102.5	24.2	2513.0	306.6
Wells Fargo	5	United States	97.6	21.9	1943.4	274.4
ABC	6	China	115.7	27.8	2816.0	149.2
Bank of America	7	United States	92.2	16.6	2196.8	231.9
BOC	8	China	113.1	24.9	2611.5	141.3
Citigroup	12	United States	84.0	14.7	1795.1	164.3
BNP Paribas	23	France	74.7	8.4	2190.7	80.5
Banco Santander	33	Spain	48.3	6.9	1412.4	89.4
BOCOM	34	China	53.0	10.1	1209.2	62.2

Source: Forbes (2016)

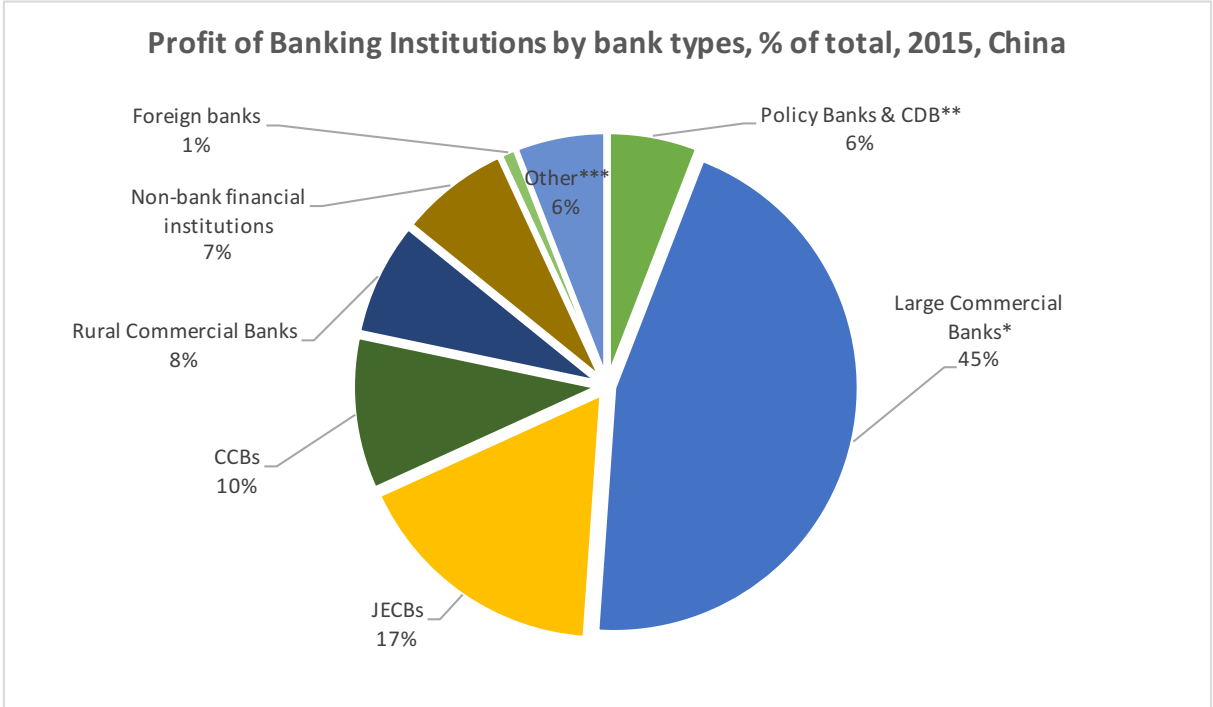
Regarding the profitability of the whole banking sector, the Total Profits more than double in five years, moving from 899 billions of Yuan in 2010 to 1974 billions in 2015. **Figure 2** instead, shows how the 1974 billions of profits of all the Chinese Banking Institutions during 2015 were

¹⁶ The overall rank is based on a mix of four metrics and it is calculated as follow: the individual scores for sales, profits, assets and market value metrics (equally weighted) are added up compiling then the composite score for each company (see Murphy, 2015).

¹⁷ As emerged from the Table 8, considering the Total Assets, Sales and Profits individually the Chinese Big Four banks ranked in the first 4 places worldwide. Therefore, the low market capitalization values lower the average score – being the Big Four banks only partly privatised and listed in the stock market.

distributed among different bank types. Large Commercial banks’ share considerably decreased from 57.3 percent in 2010 (see **Table 7**) to 45 percent of total banks’ profits in 2015. At the same time CCBs and JECBs increased their share by about 2 percentage points over the same period.

Figure 2



Source: Own calculation from CBRC Annual Report, 2015.

Note: Profit is computed as profit after tax. * includes the Big Four banks plus Bank of Communications, namely BOC, ABC, CBC, ICBC and BOCOM. ** include the three Policy banks: ADBC, CDB, Exim. *** include new-type rural financial institutions, Postal savings bank, Rural & Urban credit cooperatives.

At a global level, **Table 9** offers a detailed comparison between Chinese domestic banks and foreign banks’ profitability. In particular, the largest banks from United States, United Kingdom, Japan, Spain, France, Italy, Germany and Canada have been selected in order to generate the comparison as inclusive and comprehensive as possible.

From interpreting the results, interesting points can be explained. Overall, Chinese Commercial banks have exhibited remarkable improvements in numerous key aspects as compared with their foreign competitors. In fact, regarding profitability measures, such as the Return on Assets (ROA) and Return on Equity (ROE), the Chinese commercial banks have already exceeded the performance of foreign banks. However, once the ‘non-interest income’

(NII) to total income ratio is taken into account, Chinese banks appear to be relatively weaker than their foreign counterparts¹⁸. This result suggests on one hand that Chinese banks, unlike modern Western banks whose almost half of total profits come from non-interest related activities such as trading, fees or commissions, Chinese banks are largely dependent on high interest margin to boost profits, apparently confirming the research about the incomplete liberalisation of interest rates in China by Lo (2015), previously discussed. On the other hand, the relatively low NII/Total Revenue ratio also suggests that Chinese banks' activity is more focused on the primary function of Commercial Banks as financial intermediary, that is collecting deposits from the public and making business loans funding the "real economy".

Therefore, the further liberalisation of interest rates might indicate that Chinese banks can no longer rely on the interest rates as the main source of profits, and conversely they should start exploring other income generation opportunities. In other words, Chinese banks are experiencing higher profitability results compared to foreign banks, but because about 80 percent of the revenues are due to interest rate activities, it might be convenient to differentiate their income structure, especially with a view to a further interest rates liberalisation.

Table 9

Key financial indicators of Chinese SOBs and world-class banks, 2015 (%)					
	ROA	ROE	NII/Total Revenue*	Capital Adequacy ratio	Tier 1 Capital ratio
ICBC	1.64	20.17	22.07	15.22	13.48
CCB	1.63	20.66	23.60	15.39	13.32
ABC	1.30	19.05	17.30	13.40	10.96
BOC	1.38	17.06	27.56	14.06	12.07
JP Morgan	0.91	10.34	53.50	14.70	13.30
Bank of America	0.73	9.08	50.90	13.20	11.30
Citigroup	0.95	8.10	35.45	15.30	13.50
BNP Paribas	0.48	10.4	43.70	14.50	11.50
Banco Santander	0.52	6.57	29.10	12.55	10.05
HSBC	0.54	7.84	42.44	15.60	12.50

¹⁸ Non-interest related income includes net gains on trading and derivatives, net gains on other securities, net fees and commissions and other operating income (World Bank data, 2016).

UniCredit	0.28	4.48	45.21	14.23	11.50
Deutsche Bank	0.38	9.00	54.17	15.40	12.30
Mitsubishi UFJ Financial Group	0.50	8.62	48.27	16.01	13.24
Royal Bank of Canada	1.18	18.60	58.18	14.00	12.20

Source: Own calculation from Banks' annual reports and ORBIS database.

*Note: * is calculated as the ratio of Bank's income that has been generated by non-interest related activities to the total income (net-interest income plus noninterest income).*

Finally, the last two columns of **Table 9** present two capital adequacy ratios. With this regards, Chinese commercial banks have shown significant improvements over time and currently they are in line with the foreign banks' average. Also, they all met the Basel III requirements, since the Tier 1 capital ratio is abundantly greater than the minimum level of 6 percent.

2.4.2 Asset quality

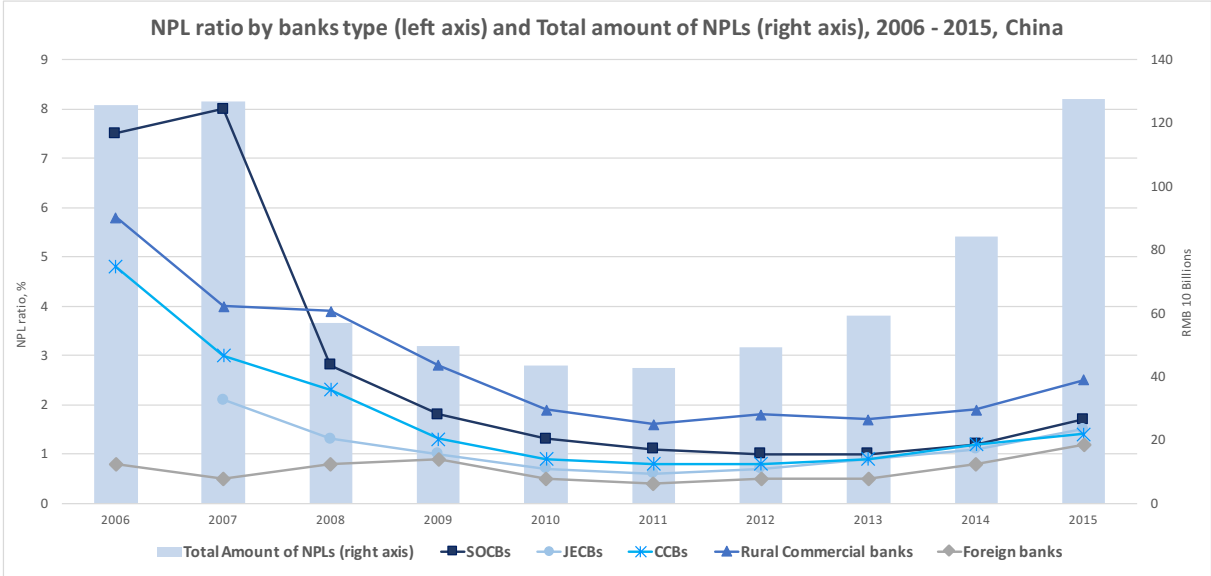
Having discussed both the market structure and the profitability of the Chinese banks, the final section of this chapter addresses the Asset quality issue, and particularly the evolution of NPLs ratio. **Figure 3** displays on the left axis the development of the NPL to total loans ratio segmented by several bank types over the last ten years, from 2006 to 2015. On the right axis, instead, the total amount of NPL is presented, expressed in 10 billions of Renminbi.

It can be clearly seen that starting from the 2006, the Total amount of NPLs experienced a strong reduction, decreasing by more than 50 percent in 5 years, from about 1,250 billions in 2006 to 420 billions of RMB in 2011¹⁹. At the same time, also the NPLs ratio across all the bank types was substantially reduced over the same period, especially for the Big-Four Commercial banks which the average diminished from about 8 percent in 2007 to only 1 percent in 2011. Foreign banks represent an exception to the general trend because they started with a very low NPLs ratio, specifically 0.8 percent in 2006, but their development remains quite flat around 0.7 percent during the following years, exceeding the 1 percent only in 2015. However, from the 2012, the NPLs to total loan ratio started marginally increase within all the bank types.

¹⁹ The phenomenon of NPLs reduction in the Chinese banking sector actually started slightly earlier than 2006, specifically with the establishment of specialized AMC at the beginning of the 2000s' (see Table 3).

The average NPLs ratio for the entire banking system rose from 1 percent in 2011 to 1.9 percent in 2015. As a consequence, because of the increase of the aggregate amount of banks' loans, the total amount of NPLs within Chinese banking system rapidly reached the 2006 level of 1,200 billions of Renminbi (CBRC Annual Report, 2015).

Figure 3



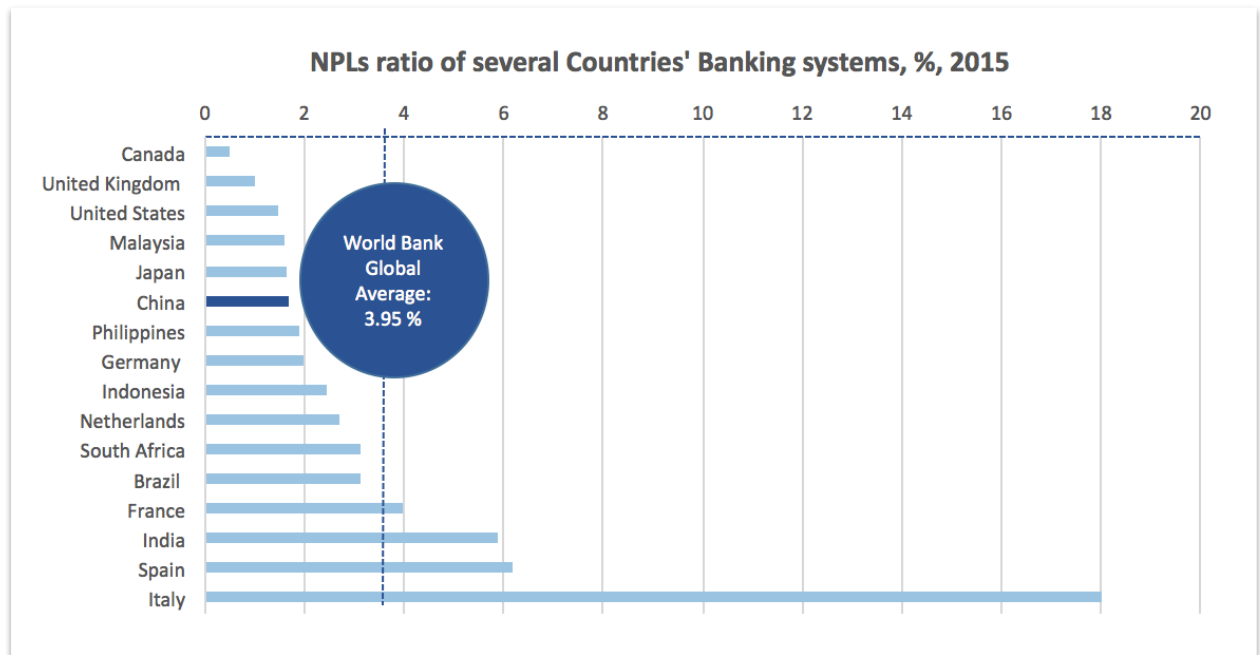
Source: Own calculation from CBRC Annual Report, several years.

Note: 'SOCBs' include the Big Four banks plus Bank of Communications, namely BOC, ABC, CBC, ICBC and BOCOM. The total amount of NPLs on the right axis is expressed in 10 billions of Renminbi.

However, despite the recent increase of the level of the NPLs, the Chinese Banking system seems to be well positioned within the global context. In fact, as shown in the **Figure 4**, China's NPLs ratio remains low compared either with Developing countries as well as with Developed Countries. China's banking system average of NPLs ratio was 1.7 percent in 2015, against the World Bank Global average of 3.95 percent.

Nevertheless, it seems relevant to point out that there exist differences in the way that China and the rest of the world classify loans as NPLs, as reported by PwC (2015). Therefore, data in Figure 4 should be interpreted with caution.

Figure 4



Source: Own calculation from International Monetary Fund, Global Financial Stability Report (2016) and World Bank data (2016).

To sum up, Chinese banking system seems to be well positioned within the global banks competition. Compared with the foreign banks with several years of international experience, the Chinese banks' levels of profitability and Asset quality seem to be pretty solid, while the unexpected development of non-performing loans might represent a future challenge, as it was about two decades in the past.

2.5 Contemporary Chinese Banking System

"We should make good use of the roles of both the market, the 'invisible' hand, and the government, the 'visible' hand."

Xi Jinping (2014)

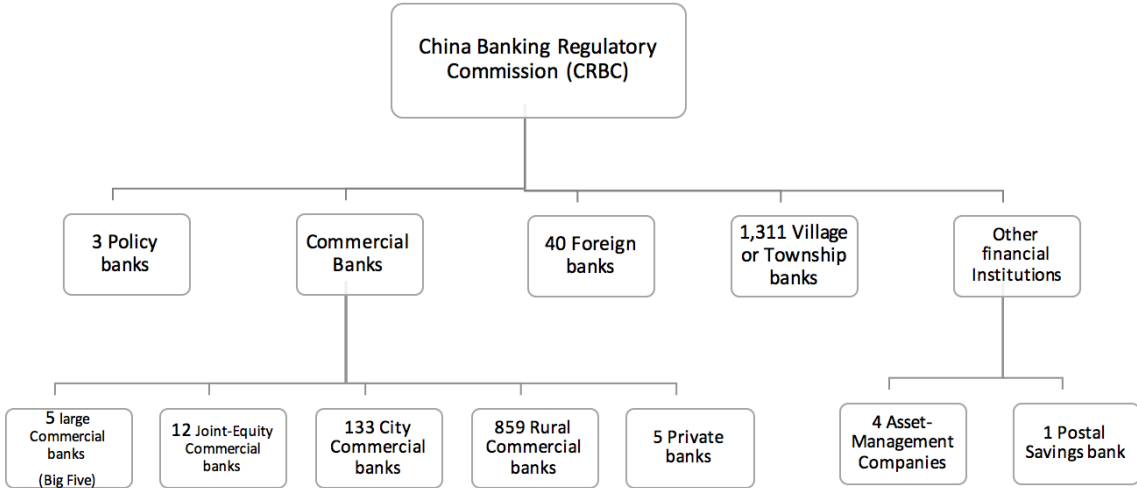
During the Transformational and Evolutionary periods, the Chinese banking system has undergone radical and extremely significant changes. On one hand the Central Government used the state's massive foreign exchange reserves to inject capital to eradicate NPLs from

major commercial banks. On the other hand, the central Government focused on diversifying bank ownership structure to improve corporate governance, strengthen internal control mechanisms and risk management systems, with the final goal of enhancing the international competitiveness of the national Banking system (Jiang, Feng & Zhang, 2012).

At the end of 2015, Chinese banking system can be defined as well diversified, being composed by totally State-owned or locally-owned banks, totally private as well as totally foreign banks. In addition, mixed-ownership banks are also frequent, such as majority State-owned banks with a minority private ownership as well as with minority foreign ownership. Within this context, the term ‘Hybrid Model’ is commonly used to define the Chinese banking system, in which the ownership structure reforms have shaded the “conventional boundaries between public and private property, while the State still plays an important role in the regulation and operation of these banks” (Stent, 2017).

With a specific focus on the banks market structure, **Figure 5** displays the Chinese banking sector configuration at the end of 2015.

Figure 5. Overall structure of the Chinese banking system, 2015



Source: Own calculation based on CBRC 2015 Annual Report.

The Banking sector consisted of three completely State-owned policy banks, 5 large commercial banks, 12 joint-equity commercial banks, 133 city commercial banks, 5 wholly private banks and 859 rural commercial banks, 71 rural cooperative banks, 1,373 rural credit cooperatives (RCCs), 1 postal savings bank, 4 asset management companies, 40 locally incorporated foreign banking institutions, 1,311 village or township banks. On top of it, there

is the China Banking Regulatory Commission (CBRC), an agency authorised by the State Council to regulate and supervise the entire Chinese Banking system. The financial sector as a whole has been increasing its portion of the national economy accounting for about 8 percent of the total GDP in 2015 – about 5,512 billions of Renminbi - with an annual growth from 2014 to 2015 of 17.4 percent, while the total number of employees was 3.8 million at the end of 2015 (CBRC Annual Report 2015).

This Chapter has described the development of the entire Chinese banking system from the Mono-banking system in 1948 up to the current developed system in 2015. It also has focused on the main financial reforms, evaluating the consequences in terms of profitability, size and asset quality across all the types of banking institutions.

Comparing the Chinese banking system during 1980s' or 1990s' with the current banking system, it displays a complete different picture. As a result of gradual but steady reforms in the financial market, the overall banking sector evolved towards a more competitive and mature market structure in terms of distribution of Assets and Profits among bank types. The inefficiency gap within the system as well as with foreign Western banks has been reduced and currently Chinese banks are able to compete with banks all over the globe (Bonin J. P. and Huang Y. 2012). Finally, the issue related with the excessive amount of NPLs into banks' balance sheets, continuously creating alarms about the stability of the entire banking system²⁰, seems to be under the control of the Central Government but still it does represent one of the main concerns about the development of the Chinese Economy (World Bank, 2013).

Another relevant issue that could be faced in the near future is the Capital Misallocation. In particular, Capital scarcity has been an extremely serious problem within the private sector. Capital allocation has been inefficient since a very small slice of total lending – only 1% of total lending in 2011 - went to the Private economy even though it accounted for a relatively high share of the GDP contribution (Boyreau-Debray & Wei, 2005; Nee & Opper, 2012).²¹ In other words, despite the significant growth of many small and medium private enterprises, they have faced difficulties in getting an even market access, for example in getting bank loans. A possible explanation for this problem is that China, as many other planned economies, has used the banking system to support the State sector, injecting funds to large and

²⁰ For a detailed analysis of the NPLs problem, see Cousin (2011) and Luo (2000).

²¹ This because entrepreneurs who desired to start a new business with a good idea but no collaterals were not considered able to borrow money from financial institutions, while State-Owned enterprises could offer real estate as collateral. Banks could not even charge higher interest rates since they were not completely liberalised yet and therefore they were set by the government.

inefficient State-owned companies, in accordance with the Credit allocation plan composed by the Chinese Communist Party. Consequently, the entire formal financing channel was deliberately biased towards the Public sector, even though the Private sector was growing at a very fast pace. In addition, private enterprises faced, especially at the beginning of their development, some discriminatory policies and an unfriendly business environment, letting the emergence of Private enterprises very difficult (Nee & Opper, 2012).

One possible solution at the inefficient capital allocation is represented by the gradual interest rate liberalization. As discussed above, the interest rate liberalisation might decrease the capital miss-allocation since the financial institutions could charge higher interest rates in order to compensate the relatively greater risks of lending to private enterprises. In addition, recent reforms of the Private Property such as the Constitution amendment in 2004²² and the Property Law in 2007 along with a progressive social acceptance of private enterprises can definitely help reducing the credit miss-allocation issue.

²² This was the first time that the words “inviolability of private property” appeared in the Chinese Constitution (Wang, 2016).

Chapter 3

Bank ownership structure and performance

Many studies have investigated the relationship between bank ownership – whether the institution is state-owned, private domestic or foreign – and performance, with substantial differences found among these types. In the first part of this chapter, some findings on this topic will be discussed, focusing on the results for developing countries. The second part, instead, will be dedicated to the review of recent studies about banks performance and ownership link in China.

3.1 Evidence of bank efficiency in developing countries

Even though there exist a large amount of literature on bank ownership and performance, the majority of the studies focuses on transition countries from a planned economy to a market economy especially from Center and Eastern Europe, such as Poland (Nikiel & Opiela, 2002; Weill, 2003), Hungary (Hasan & Marton, 2003), Czech Republic (Matousek & Taci, 2005; Weill, 2003), and Croatia (Kraft & Tirtiroglu, 1998; Jemric & Vujcic, 2002). The most common findings of these studies, to be used as reference, are that on average State-owned banks perform less efficiently in terms of profits and costs than private domestic and foreign banks. However, there are some slight variations across all of these findings.

For instance, some studies found foreign banks as the most profitable banks type, followed by private domestic and finally by the State-owned (Jemric and Vujcic, 2002; Hasan and Marton, 2003; Weill, 2003). Similarly, some other cross-country studies investigating the determinants of banks performance in transition economies, indicate that foreign banks are more profitable and significantly more cost efficient than domestic banks (Grigorian & Manole, 2002; Bonin at al. 2005a, b). Conversely, other studies discovered that foreign banks are less profit efficient than private domestic banks (Nikiel and Opiela 2002).

In other mixed results, a study on the banking systems of twelve transition economies of Central and Eastern Europe (CEE) over the period 1993–2000, found that foreign banks are on average more cost efficient, but less profit efficient relative to both private domestic and State-owned banks (Yildirim & Philippatos, 2007). Meanwhile, two other researches using Argentine banking system data found approximately equal efficiency results for foreign and

private domestic banks, both on average more efficient than State-owned banks (Berger et al. 2005; Delfino, 2003). Additionally, in investigating the relationship between banks and performance in developing countries, two other studies focusing on Nigeria and India came up with similar findings (Beck, Cull and Jerome, 2005; Bhattacharya et al. 1997). They found some evidence of performance improvement in newly privatised banks, along with negative effects on performance of the minority State-owned ownership banks. These diverse studies show how different bank types impacts on bank performance, depending on the country of reference, on the methodology implemented as well as on the time period under investigation.

3.2 Evidence of bank efficiency in China

During the recent years and especially after the partial privatisation of the Chinese banking system, the relationship between ownership and performance has become very popular also among the Chinese Economic literature. In this context, findings seem to be unambiguous: throughout the 1990s to the early 2000s, the Academic literature is consistent suggesting that State owned banks performed worse compared to private domestic or foreign banks with regards to profits and costs efficiency, as well as in terms of asset quality.

A very innovative study conducted by Lin and Zhang (2006) examined the Chinese banking system over the 1994-2004 period, with annual data for a sample of 60 banks. Based on a static view - *static effect* - both foreign and Joint-Equity banks were among the most profitable and costs efficient in China while the Big Four state-owned banks resulted to be the least efficient, highlighting the superiority of mixed-ownership and private ownership over State ownership. In fact, the conclusion encouraged the ownership changes to be pushed forward since the banking system would have benefited from that.

This so called "*static effect*" has also been found to be consistent with other several studies (Chen & Wang, 2015; Du & Girma, 2011). For example, using an input distance function, Kumbhakar and Wang (2005) found that JECBs were more efficient than wholly State-owned banks, with a sample data covering the most influential fourteen banks in China for the time period 1993–2002. At the same time, similar findings are disclosed by Fu and Heffernan (2007), investigating the cost X-efficiency in China's banking sector over the period 1985–2002 using the stochastic frontier approach for 14 banks' data sample. The same conclusion of the *static effect* was reached by Berger et al (2009), analysing the Chinese banking system with a sample of 38 banks over the 1994-2003 period.

To sum up, it is a widely held view that the partial privatisation program improved the overall efficiency of the Chinese banking system, resulting in better financial performances of mixed-ownership and totally private-owned banks compared to State-owned banks. However, as previously documented, the benefits related to this program tend to vary across countries and circumstances. Therefore, the optimal ownership structure seems to be an empirical question that has to be studied on a case-by-case basis.

3.3 The role of foreign ownership

With regards to foreign investors, after the Central government opened up the banking system to foreign capital, the relationship between minority foreign ownership and banks' efficiency attracted the research attention.

A study conducted by Alicia García-Herrero and Santabábara (2008) investigated the effect of foreign ownership on banks performance, using 82 Chinese banks over the period 1999-2006. They found empirical evidence that the Chinese banking system has benefited from the entry of foreign investors, resulting in higher profitability and increased efficiency of the entire banking system. The same study also emphasised the difference between “strategic foreign investors”, actively involved into the bank activities and “pure financial foreign investors”. While the former has been showed to help improve efficiency of the local banks, the latter only contributed to a limited extent, if any, to domestic bank performance.

However, while the prevalent view of the economic literature recognises the role of foreign strategic investors to enhance profitability of the local banks, some research found the opposite. For example, Wu, Chen, and Lin (2007) examined the impact of foreign bank entry on the operational performance of the Chinese banking sector, with a sample comprising 14 Chinese banks over the period 1996–2004. The results showed that the return on assets (ROA) for those Chinese banks with foreign shareholders is, on average, lower than the ROAs for banks not having foreign shareholders.

Conversely, Berger et al. (2009) presented empirical evidence that Chinese banks with minority foreign participation are associated with significantly improved efficiency than other banks. However, their study covers the 1994-2003 years, ending in the period when Chinese authorities began to encourage strategic investment and significant deals were signed. Also, the authors merely focus on the concept of efficiency, overlooking broader dimensions of performance such as profitability measures. Therefore, there appear to be possibilities for

improvement. On one hand extending the time-series of reference with more episodes of strategic foreign acquisitions, and taking into account profitability and cost efficiency measures on the other hand.

However, from a theoretical point of view, while the findings of the *static effect* are backed up with the property rights theory as widely discussed in page 18 and 19, the mechanisms through which minority foreign ownership could increase Chinese banks' efficiency might not be intuitive and therefore it requires a further investigation.

The benefits of foreign capital and strategic investors inflow into the banking system of a developing country are several. In the Chinese case, the bank type that has experienced the greatest changes in terms of foreign ownership has been the Big Five Commercial banks. These banks were fully State-owned until 2006, when they went on to public listing and private investors – including foreign – came into the banks' equity. Therefore, the first group of benefits is related with the private ownership and property rights theory characterising the efficiency improvement of CCBs and JECBs. At these advantages, other mechanisms specific to foreign ownership can be added. These can be divided into indirect and direct mechanisms.

The indirect mechanisms can be discovered in the comprehensive study of the role of foreign banks in developing countries by Levine (1996). The author concluded that Foreign banks might have positive effects on the financial market as well as on the economic development of the overall developing country. In particular, they can support the upgrading of auxiliary institutions such as accounting, auditing and rating firms, thereby improving the quality and flow of information between firms and banks. In addition, foreign banks may compete into the domestic market as they gain more experience, increasing the internal bank competition. They can also promote the development of the bank supervision and legal framework, and improve the country's access to international capital.

However, this paper focuses more on the direct effects of foreign ownership on banks, namely those mechanisms which allow to establish an empirical and credible association between strategic minority foreign ownership and improvement on banks performance. In other words, the more credible those mechanisms, the more the association between foreign ownership and performance can be strengthened, coming closer to the concept of causation.

One way through which strategic minority ownership might positively affect Chinese banks profitability involves the management positions into the Board of Directors. In fact, once a seat is obtained into the board, the foreign managers can “leverage” these positions in order to enhance the corporate governance and management activities of the bank, for example by introducing internal audit activities or independent members of the Board of Directors. The

above mentioned mechanism is both empirically tested as well as theoretically grounded. See Ling and Lu (2004), Wall Street Journal (2004), Lin (2005), and Liu (2005).

At the empirical level, it has often happened in the course of the last 15 years that the initial foreign acquisition was followed by the adoption of at least one seat in the bank's Board of Directors. Just for illustrative purpose, out of 22 banks with a strategic minority foreign ownership in this paper sample, 9 banks present at least one foreign manager into the Board of Directors, especially from United States of America and United Kingdom with several years of experience in large Western Investment banks.²³ In some cases, it has been also possible for Chinese banks with foreign minority to send employees to foreign banks' main offices for advanced training and learning activities (Liu, 2005).

From the theoretical point of view, this mechanism is based on the assumption that foreign banks and managers have superior skills and knowledge about the financial markets and that they are able to transfer these techniques into relatively less modern Chinese banks. The abovementioned assumption seems to be consistent both with the research literature on Chinese banks of relatively high efficiency of majority-owned foreign banks, as well as with the empirical findings of Chinese Banking authorities. In fact, the China Banking Regulatory Commission (CBRC) Annual Report of 2011, investigating the changes in Chinese banks that introduced foreign investors, clearly indicates that strategic foreign investors played a positive role in boosting local financial service capacity. In particular, *"on the one hand, foreign banks actively engaged in consulting services for local Chinese enterprises seeking going global by introducing new products and services. On the other hand, they played an exemplary role in business operations and management for local Chinese banks and thus, contributed to the improvement of local financial services"* (CBRC 2011). Moreover, some researches on other countries also found the positive contribution of minority ownership to firms' productivity and investment (Shleifer and Vishny, 1986; McConnell and Servaes, 1990,1995).²⁴

The second mechanism through which strategic minority ownership might improve Chinese banks profitability is by instructing and guiding the banks to go publicly listed into stock exchange. Again, this mechanism finds some consistency from an empirical as well as from a theoretical point of view. For example, a bank might initially experience a minority foreign acquisition and subsequently go public through IPO, as in the case of Bank of

²³ In particular, Bank of Beijing, Bank of Chengdu, Bank of Chongqing, Bank of Communication, Bank of Ningbo, Bank of Tianjin, China Everbright Bank, Hua Xia Bank and Shanghai Rural Commercial Bank, all presented at least one foreign manager in their Board of Directors at the end of 2015.

²⁴ The focus on the majority of these studies is, however, on non-financial corporations.

Communication (BOCOM). It seems also reasonable to assume that in order to launch an IPO and be publicly listed in the stock market, some prerequisites need to be fulfilled, such as accurate financial records and transparent information disclosure, in line with International Accounting Standards (IAS). Once these prerequisites have been achieved, they can help improve bank performance during the pre- launch date period. In addition, after the IPO other mechanisms can act as incentives in order to increase banks' efficiency. The major ones are the market pressure on the management through the stocks' price volatility and the international competition. Therefore, an IPO might increase banks' performance both before and after the launch date.

To conclude, in comparison with previous literature this paper contributes to the existing literature mainly in three aspects. First, the data sample is larger than those employed in the majority of previous studies. Indeed, the last 17 years of Chinese banks performances have been covered with a sample of 57 banks, covering over 85 percent of the banking Assets in China. Second, the present study offers a comprehensive review of the modern Chinese banking sector, on one hand by challenging previous findings on State-owned banks of similar studies, and trying to find consistency on foreign minority ownership effects on the other hand. Third, this study employs several model specifications checking the validity of the results. For example, two different dependent variables have been employed as proxy for profitability, and diverse robustness checks have been performed.

Chapter 4

Data and Methodology

4.1 Sample and observations

The sample comprises 57 Chinese banks covering the period between 2000 and 2016. The result is an unbalanced data panel with 614 annual observations.

In order to collect financial and ownership data about Chinese banks, four different sources have been used. These are: the ORBIS database, annual issues of Almanac of China's Finance and Banking 2000-2015, Annual Reports provided by individual banks over 2000-2016 period and Bloomberg Terminal.

The ORBIS database, compiled by the Bureau van Dijk (BvD), is a commercial dataset containing firm-level data on about 130 million firms covering more than 100 countries. The financial and balance-sheet information in ORBIS comes from either business registers collected by the local Chambers of Commerce to fulfill legal and administrative requirements or from the firms' Annual reports (Kalemli-Ozcan et al. 2015). Bloomberg Terminal is a software provided by Bloomberg L.P. containing real-time and historic financial market data. The Almanac of China's Finance and Banking is, similar to China Statistical Yearbooks, a volume published annually by the National Bureau of Statistics containing financial data, the current regulation and all sort of information about the Chinese banking system, including macro-level data. Finally, the banks' Annual Reports are published every year on the banks' website and they contain annually balance sheets and income statements, as well ownership data for the specific bank. In addition, the *Rules for Information Disclosure of Commercial Banks* - Article 27 - stipulates that all commercial banks are supposed to disclose annual reports on their official websites (see Appendix).

A certain priority rule has been followed during the collection of data: the basic data-source has been the banks' Annual Report from their website, starting from the most recent available report to the less recent. This way ensures a superior quality of data, since financial data of previous years might be reviewed and better estimated during the subsequent years. Whenever the bank Annual Report did not provide enough information or has questionable values, data has been collected and double checked from the annual issues of Almanac of China's Finance and Banking 2000-2015. Finally, ORBIS database and Bloomberg Terminal have been employed

in order to firstly, double check and corroborate all the previous data, and secondly to trace all the missing and unavailable data points.

One advantages that comes from using multiple data source is to lower the risk of data uncertainty, diversifying the data error risk and increasing the reliability of the data. **Table 10** shows the distribution of the observations over time.

Table 10 Distribution of observations

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
1. Majority State-Owned	2	4	5	8	12	16	17	18	22	24	25	24	27	28	27	27	24	310
a. Big Five banks	0	1	2	4	5	5	5	5	5	5	5	5	5	5	5	5	5	72
b. Policy banks	0	0	0	1	2	2	2	2	2	3	3	3	3	3	3	3	1	33
c. Non-Big Five Majority State-owned without Foreign minority	2	3	3	3	4	7	8	7	9	9	9	8	10	11	11	11	10	125
d. Non-Big Five Majority State-owned with Foreign minority	0	0	0	0	1	2	2	4	6	7	8	8	9	9	8	8	8	80
2. Majority Private domestic	0	1	2	2	3	5	10	16	18	20	23	21	21	22	22	22	22	230
a. Majority Private Domestic without Foreign minority	0	1	2	2	3	4	9	10	11	12	14	13	12	13	11	11	11	139
b. Majority Private Domestic with Foreign minority	0	0	0	0	0	1	1	6	7	8	9	8	9	9	11	11	11	91
3. Foreign banks	2	2	2	2	2	2	1	2	2	1	2	3	3	3	4	4	4	41
4. No majority ownership	0	0	0	1	1	1	1	2	3	3	3	3	3	3	3	3	3	33
Total	4	7	9	13	18	24	29	38	45	48	53	51	54	56	56	56	53	614

The sample contains 28 State-owned majority banks with 310 observations of which 14 experienced a strategic foreign acquisition, 22 majority private domestic banks with 230 observations of which 11 experienced a strategic foreign acquisitions, 4 foreign banks with 41 observations and 3 banks with no majority shareholder with 33 observations. The sample comprises also the 3 wholly State-owned Policy banks with 33 observations and the Big-Five Commercial banks with 72 observations, 11 out of 12 Joint-Equity Commercial banks (JECBs) and 35 out of 133 City Commercial banks (CCBs). Therefore, according to the China Banking Regulatory Commission data of 2015, the sample covers more than 85% of the total banking Assets in China.

Majority state-owned banks have been defined as those banks whose State and State-owned enterprises ownership is greater than 50 percent of total ownership; similarly, majority private domestic banks refer to those banks whose private domestic ownership is greater than 50 percent of total ownership; the same applies for foreign banks; No majority ownership banks

refer to banks with mix of State, private domestic and foreign ownership but with no share above 50 percent. Lastly, a foreign minority has been considered when the foreign investment is “strategic”, that is more than 15 percent of total ownership, allowing foreign investors to have a significant influence on the bank management and ultimately to have at least one seat in the Board of Directors. Of the 57 sample banks, 25 (44%) had experienced a strategic foreign acquisition. **Table 11** provides detailed information about those banks that have experienced a foreign acquisition.

Table 11. Summary of banks partially acquired by foreign investors

Name of the Bank	Acquisition year	Total foreign shares (%)	Largest foreign investor	Ownership percentage (%)	Second largest investor	Ownership percentage (%)
Bank of Beijing	2004	24.90	ING Bank	19.90	International Finance Corporation	5.00
Bank of China (BOC)	2006	28.41	Royal Bank of Scotland	10.00	BlackRock	6.94
Huaxia Bank	2003	17.51	Deutsche Bank	9.90		
China Construction Bank (CCB)	2006	37.28	Bank of America Corporation	9.00		
Bank of Communications (BOCOM)	2005	19.90	HSBC Holdings PLC	19.90		
Bank of Shanghai	2002	17.00	HSBC	8.00	International Finance Corporation	7.00
Industrial and Commercial Bank of China (ICBC)	2006	24.55	Goldman Sachs	8.50	Temasek Holdings	2.44
Industrial Bank	2007	24.98	Hang Seng Bank LTD	15.98	Tetrad Ventures PTE	5.00
Bank of Hangzhou	2004	24.91	Commonwealth Bank of Australia	19.91		

Bank of Ningbo	2007	21.35	OCBC Bank	18.58		
Bank of Nanjing	2001	23.40	BNP Paribas	19.20		
Shenzhen Development Bank	2004	25.00	Newbridge Capital LLC	18.00	GE Consumer Finance	5.00
Guangdong Development Bank	2005	26.8	Citigroup	19.90	IBM	4.70
Bohai Bank	2005	19.9	Standard Chartered PLC	18.90		
Bank of Tianjin	2006	28.54	Australia and New Zealand Banking Group	14.60		
Bank of Chengdu	2009	19.99	Hong Leong Bank Berhad	19.99		

Source: Own calculation from Banks' annual reports and ORBIS database.

4.2 Model and variables

To examine the effects of ownership on banks' economic performance, the econometric framework firstly introduced by Lin and Zhang (2006) and successively implemented by Berger et al. (2009) has been used as benchmark. The aim of the present paper is twofold. On one hand, it aims to investigate the relationship between banks ownership and performance in China. In particular, the hypothesis that State-owned banks (SOBs) perform less efficiently both in terms of profitability and costs as well as asset quality than any other banks types, is examined. On the other hand, the paper investigates the role of foreign ownership during the banking reform process.

Therefore, the econometric model should include: i) a measure of banks' economic performance as dependent variable, ii) variables indicating the ownership structure as main independent variables, iii) several control variables in order to isolate the effect of the main control variables. Based on the previous assumption, the following econometric model will be able to test the main two hypotheses:

(1) *Bank performance measures*_{it} =

$$\text{Constant} + \beta_1 \text{Ownership Indicators}_{it} + \beta_2 \text{Control variables}_{it} + \beta_3 \text{Year Fixed effects} + \varepsilon_{it}$$

Table 12 in the Appendix offers a complete definition of the variables specified in (1).

4.2.1 Dependent Variables

Different dependent variables have been selected based on the specific banks characteristic under investigation. Therefore, in order to measure the banks' profitability and the management effectiveness, the Return on Asset (ROA), defined as profits relative to total Assets has been used, coherently with the vast majority of the Economic literature (Lin and Zhang, 2006; Berger et al., 2009; Berger et al., 2005; Hasan and Marton, 2003). However, some studies found that ROA might be biased upwards for banks that earn substantial revenues from off-balance sheets operations, such as derivate activities, since these activities generate returns and costs but they are not recorded as Assets (Rhoades, 1998). For this reason, the Return on Equity (ROE) has been included as an alternative measure of profitability, defined as profits relative to Equity.

Even though these two variables might appear to be similar, they indicate different banks' aspects. The ROE shows how much Income is generated for every dollar of shareholder investments while ROA measures how much Income is generated for every dollar of the bank Assets. The main difference which separates the two variables is the financial leverage, or debt. In fact, given the Balance sheet equation "Assets = Liabilities + Shareholders' Equity", it appears clear how the more debt the bank accumulates, the more ROE and ROA would differ, since the Total Assets would increase at the same pace of the debt. Conversely, in the other extreme case where a bank carries no debt, then its Shareholders' Equity and its Total Assets would be the same, and consequently its ROE and ROA would also matched. Overall, both variables seem to be a good proxy capturing the banks' economic performance in relative terms to the banks' total Equity and the banks' total Asset, respectively.

Other two dependent variables have been included in the regression, namely the Non-performing loans (NPL) ratio and the Cost-to-Income ratio (COI).

The NPL ratio indicates the share of total loans that can be assimilated as "non-performing". A more detailed discussion on the definition of NPL has already been drawn on page 12. However, to summarise, Non-Performing loan is considered a loan either in default or close to being in default, and consequently the probabilities that it will be fully repaid in the

future are significantly low. For this reason, the NPL ratio measures the banks' Asset quality or portfolio quality. In fact, while Commercial banks continue to expand their provision of insurance and other financial services, the loan portfolio is still typically the predominant component of banks' asset base, especially within the Chinese banking sector. Therefore, NPL ratio remains a key aspect to control for the Asset quality that in turn might have an impact on the banks' financial performance (Bonin, Hasan & Wachtel, 2005a).

The Cost-to-Income (COI) ratio shows the banks' costs in relation to their income. The ratio is obtained by dividing the operating costs, such as the administrative and fixed costs, salaries and property expenses, by the operating income of a specific year. This variable is a proxy trying to capture the banks cost efficiency (Lin and Zhang, 2006). In particular, the lower the Cost to Income ratio is, the more efficient the bank would be.

4.2.2 The Independent variables

The main independent variables of interest are the Ownership variables. The focus of this paper is to investigate the relationship between the ownership structure and banks' economic performances. Therefore, a total of six dummy variables have been generated according to the ownership structure and bank type: one dummy variable for Policy banks, one for Big-Five Commercial banks, one for non-Big-Five majority State owned banks, one for majority private domestic banks, one for majority foreign banks (hereinafter referred as foreign banks), one for no majority ownership banks. The dummy variables take the value of 1 if the bank belongs to that specific category and 0 otherwise. Finally, the dummy variable for majority private domestic banks will be omitted in the regression and it represents the reference category, so all the coefficients are measured relative to this category.

4.2.3 Control Variables

Besides the Dependent and Independent variables, it is important to include in the regression model also different Control variables. In this way, possible effects and correlations between control variables and banks' economic performance will be isolated. The final purpose is to have a net effect of the main independent variables on banks' economic performance. Therefore, the following Control variables have been included.

It seems reasonable to control for the bank size, since it might be correlated both with profitability or efficiency measures and also with independent variables (Bonin, Hasan & Wachtel, 2005a). For instance, State-owned banks are usually larger than domestic Private or foreign Commercial banks. It seems also possible that bank size might influence both profitability and asset quality measures because of the large amount of collateral available for bond emissions. Therefore, the logarithm of lagged Assets is included in the regression as control variable, controlling for bank size. The logarithm of the total Assets on one hand it reduces the probability of potential heteroscedasticity issues. On the other hand, it creates a model less vulnerable to outliers, since the log transformation compresses the scale in which the variable is measured. Instead, the lagged values have been considered since the explained variable depends on past values of the explanatory variables and not on the contemporary ones.

In addition, Fixed Effects should be included in the model since they control for the unobserved heterogeneity of the sample (Gujarati & Porter, 2009). Therefore, Year Fixed Effects are included in the regression equation. Year Effects are essential since they help account for the influence of aggregate trends on the dependent variable such as the numerous variations in market and regulation conditions over 2000-2016.

In the robustness check, additional bank characteristics are controlled for. For example, the net interest margin has been included in the regression, controlling for the banks' different business orientation.

4.3 Descriptive statistics

Figures 6a, b, c, d, graphically investigates all the dependent variables over time by different groups of banks. From the **Figures 6a** and **6b** an upward trend of both profitability measures of ROA and ROE across all banks types in the sample, until the 2014 can be clearly seen. From 2014 onwards, instead, a slight downward trend is evident within the whole Chinese banking sector. Notably, **Figures 6a** and **6b** early suggest that the Big-Five commercial banks improved their profitability performances from the 2004 and currently seem to be among the most profitable banks in China, followed by majority private domestic banks and by Non-Big Five majority State-owned banks, which comprises both JECBs, CCBs and Rural Commercial banks. Foreign institutions rank among the least profitable types of banks both in terms of ROA and ROE while Policy banks show mixed performances. However, formal tests of these hypotheses are showed below with a proper econometric analysis.

Sample Average of Return on Assets and Return on Equity by banks type, 2004-2016

Figure 6a

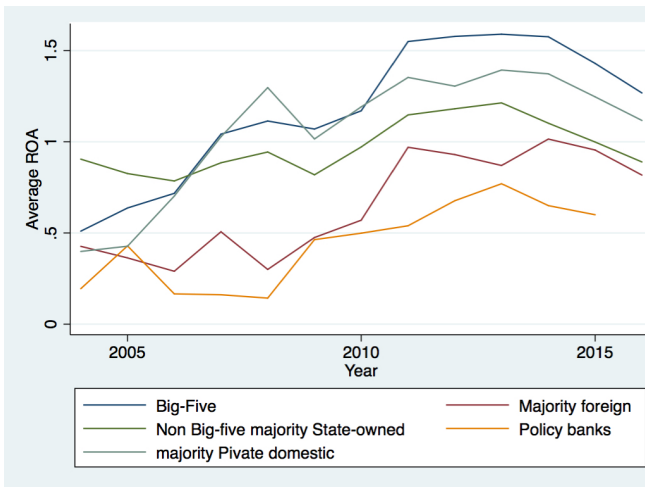
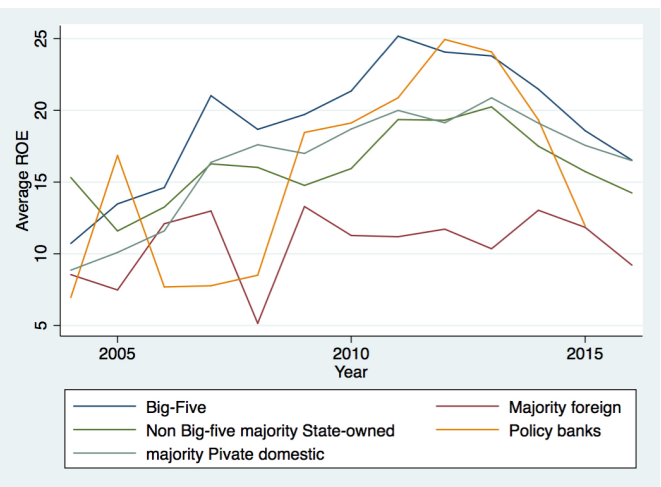


Figure 6b



Figures 6c and 6d instead show the other two main dependent variable under investigation, namely the NPL ratio and the Cost-to-Income ratio. The level of NPLs within the banks' Balance sheets dramatically decreased across all the banks types in the sample over the last 15 years, reflecting both the copious efforts of the Chinese Government in order to improve banks Asset quality and superior management experience, as widely documented in the Chapter 2. In addition, the sample weighted average level of NPLs in the banking sector is 1.51 percent in 2015, while the official statistics from the CRBC document the NPL ratio of all banking institutions at 1.60 percent during the same year. Therefore, the sample appears to be representative of the entire population of the Chinese banks.

Sample Average of NPL ratio and Cost-to-Income ratio by banks type, 2004-2016

Figure 6c

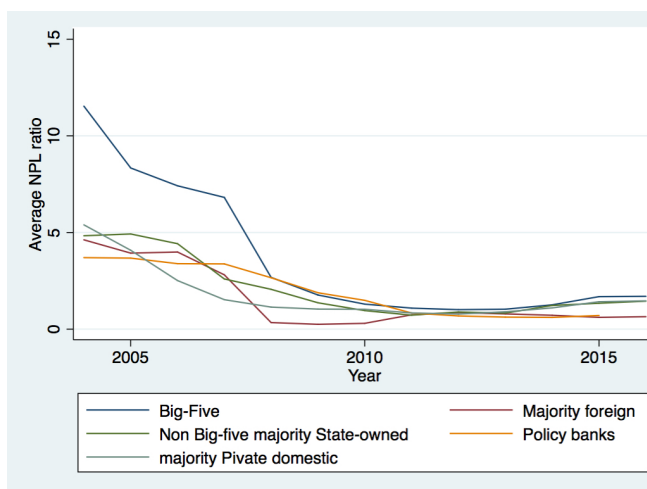
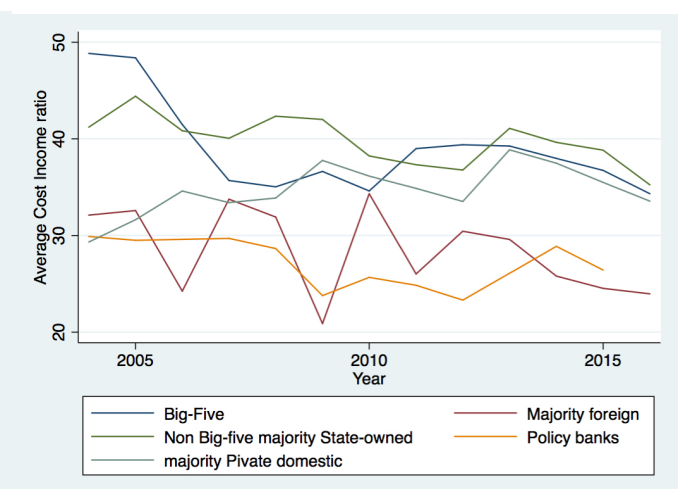


Figure 6d



However, from a closer inspection of the NPLs Figure, it seems relevant to mention another aspect. The gradual decrease of NPLs into the Big-Five Commercial banks is noticeable. Starting from a level of NPL ratio more than 10 percent in 2004 to around 2 percent in 2016. This shows the massive financial efforts from the Chinese Government in its commitment to decrease the NPLs level within the entire banking system. The sample data appear to be again consistent with the official Chinese statistics and previous empirical findings (see **Table 5** at page 20).

With regards to the Cost efficiency measure, from a graphical inspection of the sample data, Foreign banks and Policy banks seem to be the most cost efficient type of banks throughout the period under investigation, with Operating Costs at about 25 percent of the Operating Income. Recent researches have suggested that the explanation for the superior cost efficiency performance lies in the “skimping hypothesis” (Berger & de Young, 1997; Berger et al., 2009). Essentially, State-owned banks and especially Policy banks, may allocate few resources on screening and evaluating potential borrowers prior to granting credit and/or monitoring borrowers after loans are issued, since they face soft budget constraint and the eventual losses will be covered by the State bail-out, saving costs in the short term. It might also be possible that these banks benefited from government subsidies on the cost side, such as paying below-market rates on deposits or below-market rent of offices, or having some form of government protection, reflecting the relative lower costs than private banks. However, from 2013 the other bank types seem to have started a process of convergence towards more efficient banks.

Table 12 in the Appendix also presents the descriptive statistics of all the variables used in the present study, with key statistics on the entire sample. The sample is an unbalanced panel dataset including a total 57 Chinese banks for the years 2000 to 2016, with the amount of observations ranging from 490 to 551, depending on the model specification.

4.4 Tests of the Assumptions

In order to obtain consistent and efficient OLS estimates, it is necessary to carry out several diagnostic tests. They are important to ensure that the model used is appropriate.

In particular, the assumptions regarding multicollinearity and heteroscedasticity of residuals should hold. With regards to multicollinearity, using the Variance Inflation Factor (VIF) test, no problems of multicollinearity are found ($VIF = 1.42$), consistently with the correlation matrix outputs in **Table 13** (see Appendix).

Moreover, testing for the heteroscedasticity of residuals using the Likelihood Ratio Test (LR test), the probability of Constant variance is very low (0.0081), rejecting the null hypothesis of no heteroscedasticity at 1 percent level. Therefore, since the model suffers from heteroscedasticity issues, robust standard errors have been included.

In addition, the use of Fixed Effect model is supported by the result from diagnostic Hausman Test, which rejects the null hypothesis of Random Effect model as more preferable model at 1 percent significance level (Wooldridge, 2006), and as a result the analysis can continue.

Chapter 5

Empirical results

Table 14 provides the baseline regression results using Equation (1)²⁵. The number of observations for regression on ROA and ROE is 548 and 544. When NPL and COI are used as performance indicators, the number of observations decline to 532 and 509 because of missing values for some banks. The differences in average profitability, cost efficiency and asset quality measures have been tested for the five main categories of majority bank ownership – Policy banks, Big Five Commercial banks, non-Big Five majority State-owned banks, majority private domestic and foreign banks, over the same period. Also, two sub-categories have been included, namely majority State-owned banks with strategic foreign minority ownership and majority Private domestic banks with strategic foreign minority. Together, findings of these two

²⁵ Due to space requirements Table 14 shows only partial results. The complete results of the baseline specification are shown in Table 15 in the Appendix.

specifications may help address the two main hypotheses of the paper: whether the Big-Five and more generally the State-owned banks have narrowed, or even closed the gap with private banks in terms of profitability and efficiency widely documented in the literature, and whether strategic minority foreign ownership in these institutions might have played a positive role during the transition.

Table 14 Bank ownership and performance, baseline specification

	(1)	(2)	(3)	(4)	(5)	(6)
	ROA	ROE	NPL	COI	ROA	NPL
Majority private domestic	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.
Policy banks	-0.704 (0.167)***	-6.959 (2.461)***	-0.183 (0.504)	-10.670 (4.190)**	-0.665 (0.204)***	0.016 (0.651)
Big Five	-0.034 (0.167)	-5.727 (1.666)***	1.617 (1.027)	3.456 (3.717)	-0.113 (0.195)	3.135 (0.680)***
Non Big5 majority State	-0.240 (0.087)***	-3.526 (1.102)***	-0.041 (0.242)	1.939 (2.170)	-0.272 (0.103)***	0.890 (0.380)**
Foreign	-0.145 (0.118)	-4.041 (1.307)***	-0.345 (0.649)	-0.934 (2.666)	-0.083 (0.155)	-0.123 (0.571)
No majority ownership	-0.278 (0.145)*	-4.571 (3.352)	-0.265 (0.449)	0.174 (1.492)	-0.243 (0.191)	-0.074 (0.583)
Ln Assets	0.013 (0.033)	1.652 (0.391)***	-0.002 (0.071)	-0.824 (0.825)	0.010 (0.025)	0.006 (0.099)
Majority State, minority foreign					0.153 (0.063)**	-1.681 (0.357)***
Majority Private, minority foreign					0.084 (0.067)	0.438 (0.371)
(Constant)	0.372 (0.482)	-16.783 (6.251)***	5.242 (1.107)***	65.641 (13.210)***	0.425 (0.391)	3.897 (2.561)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
R-squared	0.4003	0.2988	0.4213	0.2254	0.3777	0.4484
Number of Observations	548	544	532	509	548	532

Notes: this table shows the OLS regressions of banks ownership on performance with robust standard errors clustered at bank level in parentheses. The definitions of all variables are described in Table 12. Majority private domestic banks act as the Reference category (R.c.). All specifications include Year Fixed effects. *, ** and *** denote significance at 10%, 5%, and 1% level, respectively.

In columns from (1) to (4) the first hypothesis is tested, while columns (5) and (6) investigate the second hypothesis. Majority private domestic banks overall appear to be the most profitable banks in terms of both Return on Assets and return on Equity, but with some exceptions. On the opposite, Policy banks are by far the least profitable banks, with an average ROA and ROE lower by 0.70 % and 6.95% points than private banks at 1 percent significance level, consistently with previous literature.

With regards to the first hypothesis, results from the Big-Five banks are mixed. There is no statistical difference between the Big-Five and private banks in terms of the average ROA, NPLs ratio and Cost-to-Income ratio, suggesting that the Big Five narrowed and closed the existing gap with private domestic banks at the level of profitability, cost efficiency and Assets quality. Contrariwise, Big Five are found to perform 5.72% point less than private domestic

banks in regard to ROE, at 1 percent significance level (column 2). There are three possible explanations of this inconsistency between the ROA and ROE findings of Big Five banks: the first possible explanation might be related to a more efficient use of the debt by Private banks. Second, the inconsistency might also reflect an over-capitalization of State-owned banks compared to private counterparts²⁶. Finally, the inconsistency might be also due to a considerable use of off-balance sheets activities by State-owned commercial banks, since they are not computed into the bank total Assets, as previously discussed by Rhoades (1998). Indeed, recent evidence tends to support the final hypothesis. In fact, the 2016 Guidelines on risk management issued by China Banking Regulatory Commission, it first emphasises the rapid development of banks' off-balance-sheet activities among State-owned and Locally-owned banks. Successively, CBRC forces banks to include off-balance-sheet activities in their comprehensive risk management systems, by adjusting their level of Capital ratios and requiring them to set a specific limit on off-balance-sheet activities (Xueqing, 2016).

In addition, it is essential to mention that the performance differences across bank types might also be justified by a more structural divergence. Majority State-owned banks follow de-facto a double objective, differently from majority private banks. While the latter's main objective is the profit maximization, State-owned banks also have to take into account other social aspects and goals, such as ensuring high employment levels and contributing to the national economic development.²⁷

Column (4) shows that, on average, Policy banks are significantly the top cost efficient bank type, with a Cost-to-Income ratio 10.67% points lower than private banks at 5 percent significance level, while there are no significant differences among others banks types. These findings are consistent with the “skimping” hypothesis described by Berger & de Young, (1997) and Berger et al. (2009) describing Policy banks to be supported by the State and benefiting from several advantages on the costs side.

Results from the second hypothesis show that the strategic foreign minority on State-owned banks is associated with positive effects on performance, as well as on Assets quality. In fact, State-owned banks with foreign minority experienced, on average, an increase of the Return of

²⁶ An additional robustness test has been conducted controlling for a level of banks capitalization, namely Total Asset over Shareholders Equity, but the results are similar. Therefore, the other two hypotheses seem more plausible and they might be relevant subjects for further investigations.

²⁷ For example, the 2016 Annual Report of Bank of Communication opens with the following introduction: “*We maintained an intense focus on serving the real economy. We firmly implemented the decisions of Party Central Committee and State Council and closely adhered to their most fundamental objective, serving the real economy.*”

Assets of 0.15% points than State-owned banks without foreign minority, at 5 percent significance level. However, even though this improvement might appear as irrelevant or economically not significant, actually it has a remarkable economic significance. In fact, considering the average ROA of the whole Chinese banking sector in 2015 of 0.87, an improvement by 0.15 percentage points actually leads to an increase of 17% of the Return on Assets, an economically significant outcome.

In addition, Column (3) shows that the banks' Assets quality is neither positive or negative associated with any different ownership structure. One possible explanation might be that, because the level of NPLs is already very low on average in the Chinese banking sector, it is difficult to improve or even worsen the performance of best performing banks. The only exemption is related to the second hypothesis regarding the foreign minority ownership. Indeed, the strategic foreign minority in State-owned banks is negatively associated with the NPLs ratio. In other words, the majority State-owned banks experiencing a strategic foreign minority acquisition are associated, on average, to a NPLs ratio 1.68% points lower than majority State owned banks without the foreign minority. Conversely, strategic foreign minority ownership seems to be associated with any improvement in private domestic banks, among any financial indicators. Again, it seems possible that this discrepancy is due to the difficulty of improving the performance of already best performing banks - private domestic - compared to the possibility of improving the performance of relative worse banks – State-owned banks.

Beside the baseline specification, some robustness tests have been carried out. For instance, **Table 16** in the Appendix presents results after having included the Net Interest margin in the regression in order to control for different banks' business orientations. The number of observations drops to 446 and 451 for the regressions with NPL and COI as dependent variable, since not every banks publish data on Net Interest margin. Overall, the model appears to be very robust. Even though the regression coefficients slightly changed, the expected signs as well as the significance of the findings remained unchanged or they even improved in their significance level, also reflected by the augmented R-squared.²⁸

²⁸ The econometric analysis including the common classification of Big-Four over the Big-Five banks has been also conducted and the results are similar.

Chapter 6

Conclusion

The Chinese banking sector underwent a gradual transformation over the last 40 years. It started in 1978 with a fully State-owned mono-banking sector; then it experienced the bulk of reforms between 1990s and early 2000s during the “Experimental” and “Transformational” periods, where ownership reforms opened the sector to private domestic and foreign investors and the market reforms promoted the competition between banks. Currently, the banking system can be defined as mixed ownership and modern system, more efficient and healthy than any time in the past. Overall, it can be argued that the Chinese banking sector reform program was highly successful.

The purpose of this study was twofold: on one hand it aimed to evaluate whether the efficiency and profitability gain is evenly spread across the entire banking sector or whether there are still some differences in terms of performance across bank types, with a particular focus on the Big Four State-owned Commercial banks. Several studies from late 1990s and early 2000s found State ownership to be negatively related to bank performance. In particular, Big Four banks were less profitable, less efficient and had the worse Asset quality than other banks types. The empirical section of this paper has used an unbalanced panel dataset of 57 banks with annual observations from 2000 to 2016. Findings show that Big Five banks closed that gap in terms of cost efficiency and Asset quality, and even more that these improvements are equally shared within the entire sector, with no bank types performing significantly worse than private-domestic banks. Results on profitability, however, are mixed. Majority State-owned banks, including Big Five, are found to be significantly less profitable than private banks when considering the Return on Equity. However, while considering the Return on Assets, no differences are found between Big Five and private banks.

On the other hand, the present study aimed to evaluate both empirically and theoretically the role of foreign investors during the reform process. Findings suggest that a “strategic” foreign minority is positively associated with both performance and Asset quality improvements. Several potential mechanisms have also been identified as theoretical explanations for the efficiency gains. These include the influence of the banks’ corporate governance by “leveraging” of minority positions in order to improve the corporate culture and the management of the bank.

With regards to policy implication, the present study might offer some useful suggestions for other developing countries, especially for those in transition from a fully-planned to a market economy. Contrary to other studies, the full privatisation of the Big Five banks is not suggested, since preserving the majority ownership by the State is considered beneficial in the long run. This paper also helps to better understand the uniqueness of the Chinese economy, in which economic reforms are prepared *ad hoc* for the national economy and should not be fully copied by other countries.

The most apparent limitations of this study pertains to data availability. In particular, the selection of sample is biased towards large and medium banks, as a consequence of some limitations in data availability. Hence, the category of small Chinese banks is under-represented in the sample. Also, the classification of Non-performing loans has changed over time, therefore making more difficult both time comparisons and country comparison, as already mentioned in paragraph 2.2 at page 12.

Finally, Further investigation into some key contemporary problems within the Chinese banking system, such as the inefficient credit allocation, will be fruitful for future research. While China is experiencing a gradual slowdown of the economy, an effective financial intermediation of the banking sector through a better credit allocation might be a mechanism able to keep the annual economic growth rates within the 6-7 percent range, thereby guiding China's transition towards a developed country status.

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Appendix

Table 1
Definition of Five Categories Under the Guidelines on Risk-Based Loan Classification

Category	Definition
Pass	Borrowers can honor the terms of the contracts, and there is no reason to doubt their ability to repay principal and interest of loans in full and on a timely basis.
Special-mention	Borrowers are still able to service the loans currently, although the repayment of loans might be adversely affected by some factors.
NPLs	
Substandard	Borrowers’ ability to service loans is apparently in question; cannot depend on their normal business revenues to pay back the principal and interest of loans; and certain losses might incur even when guarantees are executed.
Doubtful	Borrowers cannot pay back principal and interest of loans in full, and significant losses will incur even when guarantees are executed.
Loss	Principal and interest of loans cannot be recovered or only a small portion can be recovered after taking all possible measures and resorting to necessary legal procedures.

Source: Okazaki (2007).

Rules on Information Disclosure of Commercial Banks

Chapter III: Management of Information Disclosure

Article 27

“Commercial banks shall make sure that their shareholders and interest related parties could obtain the annual reports on a timely basis.

Commercial banks shall put their annual reports in their major operation venue and upload to Internet in time pursuant to relevant regulations of the CBRC, so as to ensure such reports are readily available for the general public to read and check. The CBRC encourage commercial banks to disclose main contents of their annual reports to the public through media.”

Table 4. IPO of Chinese commercial banks

<i>Name of the Bank</i>	<i>IPO date</i>	<i>Largest investor</i>	<i>Ownership percentage (%)</i>	<i>Second largest investor</i>	<i>Ownership percentage (%)</i>
Minsheng Bank	12/2000	Sichuan New Hope Agriculture LTD	7.98	Orient Group Incorporation	7.51
China Merchant Bank	04/2002	China Merchants Steam Navigation	17.95	China Ocean Shipping Company	8.61
Huaxia Bank	09/2003	Shougang Group Corporation HQ	10.19	Shandong Power Corporation	8.15
China Construction Bank (CCB)	10/2005	Bank of America Corporation	9.00	Fullerton Financial Holdings	5.88
Bank of Communications (BOCOM)	06/2005	HSBC Holdings PLC	19.90	Capital Airports Holding Company	2.15
Bank of China (BOC)	07/2006	MRS China RBS	8.25	Temasek Holdings Limited	5.00
ICBC	10/2006	HSBC Nominees Limited	12.90	Goldman Sachs Group Inc	4.90
Industrial Bank	02/2007	Hang Seng Bank LTD	12.78		
CITIC	04/2007	CITIC International Financial Holdings Limited	15.00	Banco Bilbao Vizcaya Argentaria	4.83
Bank of Ningbo	07/2007	Ningbo Shanshan LTD	6.21		
Bank of Nanjing	07/2007	BNP Paribas	12.61		
Bank of Beijing	09/2007	ING Bank	19.90	Beijing Energy Investment	5.98
ABC	07/2010	Qatar Holding LLC	2.10	Capital Group	1.52
China Everbright Bank	08/2010	China Everbright Group	5.18	China Reinsurance Corp	3.63

Source: Own calculation from ORBIS Bank Focus database and banks' Annual Reports, several years

Table 12. Variables employed in the regression models, descriptive statistics

Symbol	Definition	Mean (SD)	Minimum	Maximum	Number of obs.
<i>Bank Performance measures</i>					
ROA	Return on Assets: Profit/losses before tax divided by the total Assets	1,055 (0,472)	0,10	3,26	609
ROE	Return on Equity: Profit/losses before tax divided by the Shareholders' Equity	17,15 (6,67)	0,17	37,29	605
NPL	Non-Performing-Loans ratio: Impaired (non-performing) loans to total loans	2.13 (3.34)	0.004	29.54	581
COI	Cost-to-income ratio: Operating expenses divided by operating income.	38.73 (8.96)	11.86	84.6	553
<i>Ownership indicators</i>					
Policy banks	Dummy indicating a Policy bank. Equal 1 or 0 for all periods for a bank.	0.053 (0.22)	0	1	614
Big Five	Dummy indicating a Big-Five Commercial banks, namely ICBC; BOC, ABC, CBC and BOCOM. Equal 1 or 0 for all periods for a bank.	0.117 (0.32)	0	1	614
Non Big5 majority State	Dummy indicating Non Big5 majority State-owned banks. Equal 1 or 0 for all periods for a bank	0.504 (0.50)	0	1	614
Majority private	Dummy indicating majority private domestic Commercial banks. Equal 1 or 0 for all periods for a bank.	0.374 (0.484)	0	1	614
Foreign	Dummy indicating majority foreign banks. Equal 1 or 0 for all periods for a bank.	0.066 (0.249)	0	1	614
No majority ownership	Dummy indicating banks with no majority ownership. Equal 1 or 0 for all periods for a bank.	0.053 (0.225)	0	1	614
Majority State, minority foreign	Dummy indicating State-owned banks with minority foreign ownership. Equal 1 or 0 for all periods for a bank.	0.213 (0.410)	0	1	614
Majority private, minority foreign	Dummy indicating private domestic banks with minority foreign ownership. Equal 1 or 0 for all periods for a bank.	0.148 (0.355)	0	1	614
<i>Control variables</i>					
Ln Assets	Logarithm of total Assets in period t-1 for each bank	17.810 (1.826)	13.213	21.953	551
NIM	Net Interest Margin: Net Interest Income divided to Average Earning Assets	2.808 (0.969)	0.26	8.896	490
Year Fixed Effects	Year dummies, from 2000 to 2016				

Table 13 Correlation Matrix of all variable used in the regression

	ROA	ROE	COI	NPL	Policy	Big Five	NonBig5	Foreign	No major	Private	LnAssests	NII
ROA	1.000											
ROE	0.624	1.000										
COI	-0.344	-0.292	1.000									
NPL	-0.401	-0.294	0.302	1.000								
Policy	-0.303	-0.054	-0.291	-0.027	1.000							
Big Five	0.033	0.043	0.069	0.327	-0.086	1.000						
NonBig5	-0.129	-0.106	0.071	-0.048	-0.168	-0.250	1.000					
Foreign	-0.045	-0.086	0.139	-0.007	-0.063	-0.097	-0.189	1.000				
No major	-0.026	-0.045	-0.025	-0.059	-0.056	-0.086	-0.168	-0.063	1.000			
Private	0.281	0.165	-0.061	-0.133	-0.184	-0.282	-0.547	-0.207	-0.184	1.000		
Ln Assets	0.018	0.225	-0.098	0.076	0.173	0.588	-0.051	-0.018	-0.059	-0.392	1.000	
NII	0.412	0.225	0.022	-0.033	-0.257	-0.007	-0.169	-0.038	-0.028	0.343	-0.239	1.000

Table 15 Regression results, complete baseline specification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA	ROE	NPL	COI	ROA	ROE	NPL	COI
Majority private domestic	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.
Policy banks	-0.704 (0.167)***	-6.959 (2.461)***	-0.183 (0.504)	-10.670 (4.190)**	-0.665 (0.204)***	-6.854 (2.600)***	0.016 (0.651)	-9.729 (4.078)**
Big Five	-0.034 (0.167)	-5.727 (1.666)***	1.617 (1.027)	3.456 (3.717)	-0.113 (0.195)	-6.219 (2.573)**	3.135 (0.680)***	4.565 (3.911)
Non Big5 majority State	-0.240 (0.087)***	-3.526 (1.102)***	-0.041 (0.242)	1.939 (2.170)	-0.272 (0.103)***	-3.789 (1.354)***	0.890 (0.380)**	2.698 (2.043)
Foreign	-0.145 (0.118)	-4.041 (1.307)***	-0.345 (0.649)	-0.934 (2.666)	-0.083 (0.155)	-3.876 (2.109)*	-0.123 (0.571)	-0.188 (3.061)
No majority ownership	-0.278 (0.145)*	-4.571 (3.352)	-0.265 (0.449)	0.174 (1.492)	-0.243 (0.191)	-4.505 (2.385)*	-0.074 (0.583)	0.866 (3.744)
Ln Assets	0.013 (0.033)	1.652 (0.391)***	-0.002 (0.071)	-0.824 (0.825)	0.010 (0.025)	1.631 (0.349)***	0.006 (0.099)	-0.929 (0.530)*
Majority State, minority foreign					0.153 (0.063)**	0.774 (1.007)	-1.681 (0.357)***	-0.051 (1.262)
Majority Private, minority foreign					0.084 (0.067)	0.147 (1.098)	0.438 (0.371)	1.614 (1.393)
(Constant)	0.372 (0.482)	-16.783 (6.251)***	5.242 (1.107)***	65.641 (13.210)***	0.425 (0.391)	-16.294 (5.853)***	3.897 (2.561)	66.578 (8.467)***
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.4003	0.2988	0.4213	0.2254	0.3777	0.2947	0.4484	0.2219
Number of observations	548	544	532	509	548	544	532	509

Notes: this table shows the OLS regressions of banks ownership on performance with robust standard errors clustered at bank level in parentheses. The definitions of all variables are described in Table 12. Majority private domestic banks act as the Reference category (R.c.). All specifications include Year Fixed effects. *, ** and *** denote significance at 10%, 5%, and 1% level, respectively.

Table 16 Regression results, Robustness check

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA	ROE	NPL	COI	ROA	ROE	NPL	COI
Majority private domestic	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.	R.c.
Policy banks	-0.565 (0.149)***	-5.871 (2.857)**	-0.658 (0.655)	-12.048 (4.488)***	-0.528 (0.184)***	-5.508 (2.546)**	-0.523 (0.720)	-11.380 (4.211)***
Big Five	-0.017 (0.137)	-6.278 (1.581)***	1.447 (1.037)	3.583 (4.157)	-0.054 (0.177)	-5.630 (2.549)**	2.800 (0.750)***	3.547 (4.054)
Non Big5 majority State	-0.183 (0.085)**	-3.155 (1.129)***	-0.346 (0.251)	1.586 (2.512)	-0.194 (0.097)**	-2.722 (1.423)*	0.505 (0.453)	1.742 (2.194)
Majority foreign	-0.048 (0.123)	-3.311 (1.185)***	-0.781 (0.823)	-2.287 (2.702)	-0.001 (0.138)	-3.022 (2.065)	-0.607 (0.620)	-1.518 (3.119)
No majority ownership	-0.291 (0.170)*	-4.853 (3.745)	-0.489 (0.461)	-1.284 (1.706)	-0.256 (0.173)	-4.578 (2.367)*	-0.355 (0.678)	-0.694 (3.902)
Ln Assets	0.034 (0.027)	1.903 (0.367)***	-0.082 (0.080)	-1.291 (0.975)	0.031 (0.023)	1.873 (0.361)***	-0.065 (0.113)	-1.337 (0.550)**
Majority State, minority foreign					0.099 (0.058)*	-0.323 (1.074)	-1.558 (0.401)***	0.919 (1.318)
Majority Private, minority foreign					0.079 (0.064)	0.538 (1.160)	0.235 (0.420)	1.286 (1.437)
Net Interest Margin	0.108 (0.033)***	1.048 (0.680)	-0.325 (0.234)	-1.675 (0.662)**	0.104 (0.017)***	1.062 (0.336)***	-0.316 (0.135)**	-1.695 (0.403)***
(Constant)	-0.344 (0.472)	-24.744 (6.385)***	7.784 (1.813)***	80.180 (15.999)***	-0.276 (0.383)	-24.680 (6.313)***	6.428 (2.865)**	80.708 (8.953)***
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.5338	0.3775	0.4536	0.2276	0.5148	0.3751	0.4756	0.2346
Number of observations	459	454	446	451	459	454	446	451

Notes: this table shows the OLS regressions of banks ownership on performance with robust standard errors clustered at bank level in parentheses. The definitions of all variables are described in Table 12. Majority private domestic banks act as the Reference category (R.c.). All specifications include Year Fixed effects. *, ** and *** denote significance at 10%, 5%, and 1% level, respectively.