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THE ROLE OF STATE OWNERSHIP IN COMMERCIAL BANKS -EXPERIENCE OF CEE TRANSITION COUNTRIES

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Abstract

Central and Eastern Europe(CEE) is the region where the ownership of banks has been through the most fundamental and massive changes during the past two decades. This paper analyses the role of state-ownership in commercial banks, whether and why state ownership imposes negative effects on commercial banks in CEE transition countries, through both theoretical arguments and empirical testings.

The thesis summarizes previous literature and analyses the role of banking ownership and performance, particularly though a dynamic view of the banking privatisation process. It investigates the reasons why state-owned banks are harmful in CEE countries from a corporate governance point of view. Followed by empirical tests on this topic, including banking production efficiency measurement using Stochastic Frontier Analysis and second-stage regression analysis about the effects of ownership on banking efficiency and asset quality.

This paper finds out that the state ownership of banks imposes negative effects on bank performance and hinders successful privatisation of enterprises. Banking production efficiency has been improving greatly in late 1990s and stayed at a constant high level in 2000s. Through panel data regressions, we find the negative effects of state-ownership on banking production efficiency and asset quality. Foreign bank participation proves to be useful and the only viable option for most CEE countries. Instead of ownership, the most crucial role of governments in banking is the strong and independent regulation and supervision over the banking industry. This thesis contributes to the rethinking of state-ownership in commercial banks and draws policy implications for China based on CEE experience.

Keywords

Statement:

1. This statement is to confirm that this paper is a product of my own work and also to confirm that I used the listed sources in producing it.

2. I agree that the paper can be checked for research and studying purposes.

Prague, 20 May 2009   Jiao Wu

Acknowledgment

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1. Introduction

1.1. The Background

Over the past twenty years, there have been tremendous changes in the banking industry in the transition economies of Central and Eastern Europe (CEE), due to the massive privatisation and liberalisation process. The state-owned mono-bank system, a typical product of central-planning economy, has been transformed into a market-based competitive banking system with high degree of foreign bank participation. The governments in these transition countries, had relinquished direct ownership of commercial banks, and sold large amount of shares to foreign banks.

Pre-transition banking sectors in CEE were designed to meet the needs of centrally planned economies. Banks were not real profit-driven banks, but part of state apparatus, directly controlling the credit and capital allocation from savers to borrowers (usually state-owned enterprises), for purposes of investment and working capital needs which are necessary to meet the national output plan. In most centrally planned economies, the big state-owned banks were usually large specialty banks performing specific national policy functions. For example, an agricultural bank was for providing fund to the agricultural sector; a construction bank was for financing long-term capital projects and infrastructure development; a state savings bank was for collecting virtually all household deposits through an extensive branch network; a foreign trade bank was for handling all transactions involving foreign currency. Theoretically, the problem is not about state-ownership in development or policy banks, as certain national strategic sectors need government support through bank financing. The problem is the state-ownership in "commercial banks". There were no real commercial banks in centrally planned

economies, because when government became the ultimate owners of banks with the majority shares of total assets in an economy, banks were merely the tools serving the central planning of the government and all banking services were segmented along functional lines serving relevant development and policy goals of the state.

Thus the topic is about the role of state ownership in commercial banks, whether and why state ownership imposes negative effects on commercial banking. Central and Eastern Europe is the region where the ownership of banks has been through the most fundamental and massive changes during the past two decades. This makes the topic extremely interesting in the studies of transition economies.

The transformation of the banking system in CEE countries was characterized by completion of debt consolidation, restructuring and privatisation of state-owned banks, elimination of the restrictions on domestic and foreign market entries and development of regulatory frameworks and supervision.

1.2. Purpose and Limitations

Now banking privatisation has almost been completed in most CEE countries, so it is time to look back and rethink the twenty years' experience and to assess whether relinquishing state-ownership is beneficial for banking performance enhancement. It is an interesting phenomenon regarding the changing role of government in commercial banks. It is the same government, who, on one hand, gave up ownership of banks, on the other hand, spent enormous efforts building an efficient banking system and strengthening regulation. The CEE banking transition has been triggering some doubts about

whether the mode of CEE banking transition is appropriate in methods and sustainable after

privatisation. The drastic decrease of state ownership in banks was accompanied by huge wave of

foreign bank entry, signifying a seemingly withdraw of government intervention. However,

government did not step back from the stage and disappear in the world of commercial banking. The

most crucial role of governments in banking is the strong and independent regulation and supervision

over the banking industry, not only during the privatisation process, but also in the years after the

completion of the transformation.

Overtime, as process of market mechanism replacing central-planning system unfolded, the role

of governments in banking industry of those countries have been changing; new financial market,

institutions and channels of lending have been established; European integration has achieved great

progress; CEE banking industry is more closely connected with Western European banks and economic

conditions. However, as a "by-product" of market economy, market failures became inevitable, this

also demands the government to switch its role from direct control to regulation and supervision.

Prudential regulations and supervisory systems are crucial to protect what privatisation has already

achieved and sustain the future financial and economic stability.

Another significance of this topic lies in the fact that banking performance is extremely important

for overall financial development in CEE countries. Since the money and capital markets of CEE

economies are still in the early stage of development, the financial systems in this region are primarily

bank-based. Banks play a key role in financing of industries, financial development and economic

growth. Thus it is important to study how ownership could affect banking performance, for the purpose of creating better functioning banking systems.

This issue is not only an issue which CEE countries had faced before, but it is still important nowadays, in other transition countries and even in developed countries. As the biggest transition economy, China's "Big Four" state owned banks have been receiving lots of attention. Especially during the recent financial crisis, when numerous global financial giants went into difficulties and could only seek government bailout, Chinese banks, on the contrary, seemed to be performing quite well. All these make the state-ownership in commercial banks an interesting and prevalent topic again.

This paper aims to explore this topic mainly in the context of Central and Eastern European transition countries, to analyse the role of state ownership in commercial banks, why government should cede ownership in commercial banks, the methods of privatisation, and the relationship between ownership of banks and banking production efficiency in CEE countries. In the end, this paper seeks to draw valuable implications for the big state-owned banks in China, based on CEE experience.

The purpose of the paper is to contribute to the existing research on the topic in three aspects:

First, there are enormous empirical literature on bank ownership and performance, however, there are very few papers analysing "why" state ownership in banks is harmful for bank performance, especially from a corporate governance perspective, drawing on the problems of enterprise privatisation and its link with the process of bank ownership change in CEE;

Second, another gap is that most of the empirical tests on transition economies are conducted mostly in early 2000s, however, as the results of privatisation may take a long time to really emerge, the previous papers might not have included long enough periods to fully test their hypotheses;

Finally, with the main focus on CEE countries, this paper also aims to draw implications for other countries, based on CEE experience. The issue of state-ownership in banks is still important nowadays. Despite the trend toward financial industry liberalisation in recent years, state ownership of financial institutions is still widespread. Especially the banking crises of the 1990s and 2000s even led to re-nationalisations of banks in some countries. Thereof, this paper aims to contribute to the rethinking of state-ownership in commercial banks, and to draw implications for China after a compare and contrast analysis of CEE and Chinese banking privatisation, providing some insights into how state-owned financial institutions can be transformed into viable financial institutions that are crucial elements in achieving greater financial intermediation and economic development in transition countries.

The limitations regarding ownership and corporate governance studies are usually related to data availability. As Bankscope only provides ownership data for the latest financial year, it is extremely difficult to collect ownership data for individual bank in each year, especially considering the massive wave of M&A activities occurred in this region. Therefore, this paper uses country-level ownership measurements to access the effects of state-ownership on banking efficiency. Very few papers have done similar studies using aggregated data.

1.3. Structure of the Thesis

The thesis is structured as follows: the following Chapter 2 is a review of the existing literature on government ownership of banks including both the positive and negative views, the state-ownership and non-performing loans, what has been done in the previous empirical studies, and formulates the hypotheses. Chapter 3 narrows down the topic to the context of Central and Eastern Europe, summarises previous literature and analyses the role of banking ownership and performance, particularly though a dynamic view of the banking privatisation process; at the end of chapter 3, three hypotheses of the thesis are formed. Chapter 4 explains the reasons why state-owned banks are harmful in CEE countries from a corporate governance point of view, followed by Chapter 5 analysing the solutions to the problem of state-owned banks. Chapter 6 is about empirical tests on this topic, including banking production efficiency measurement and second-stage regressions. Chapter 7 draws policy implications for Chinese banking system, based on CEE experience. The final chapter concludes the thesis and marks out some research prospects in the future.

2. Literature review:

2. 1. Definitions of State Ownership of Commercial Banks

The state ownership of banks can be incorporated in the grand picture of state intervention in banks. There are different methods and degrees of state control over banks, varying from extremely light influence to all encompassing control, from highly interventionist regulations and even outright government ownership to episodes of "free" banking (Barth, Caprio and Levine, 2006, p.18) In most countries, the level of regulatory intervention in banking has increased dramatically relative to that in other sectors since the Great Depression (Calomiris, 2003. p.32).

Among all the forms of government control over banks, the most direct and complete form is outright ownership - actually becoming the dominant shareholder of banks. The definitions of "bank" in this paper need to be made clear at first. There are different types of banks, with varying goals and rules. Central banks, with special responsibility of regulating and supervising commercial banks, as well as controlling money supply and interest rates, are normally state-owned. Central bank is the symbol of a state in national economy, providing liquidity to financial markets and serving as the lender of last resort in economic crises. Development banks, different from either central banks or commercial banks, serve as a tool for government to foster economic development and to facilitate export or certain strategic industries. They derive their funds mainly from the government, other financial institutions and supranational organizations. They often concentrated on specific groups of borrowers. (Levine, Beck and Demirgüç-Kunt, 2000)

In this paper, the focus is on the state-ownership of commercial banks. A commercial bank is a financial institution that collects credit from lenders in the form of deposits, makes personal or business loans and offers related financial services.[1]

This paper is not against general state-ownership of banks, it should be distinguished that state ownership should be displaced in the correct place. There is nothing wrong with government goals such as welfare and job creation. The problem is the conflict of government aims with rules of commercial banking when the state actually owns commercial banks. The governments should make an efforts in establishing other institutions such as policy banks of various types (e.g. Development Banks, Export Banks) to achieve their goals, instead of manipulating commercial banks for other purposes against prudential banking rules.

2. 2. Government Ownership of Commercial Banks - General Theories

2.2.1. Optimistic View:

The arguments about state ownership in commercial banks have existed since a long time ago. Some early scholars held an optimistic view towards the role of government in banks. They noted that market failures are inevitable in free market economy, and the existence of imperfect information makes it difficult to motivate private banks to operate for the goal of social optimism. The public interest view argues that government ownership of banks could facilitate the mobilisation of savings and the allocation of those savings toward strategic projects with long-term beneficial effects on an economy,

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[1] Based on definitions on: http://www.investorwords.com/955/commercial_bank.html, accessed on 15th April, 2010

whereas private banks would only allocate credit in line with potentially short-run private interests in mind. According to this view, governments have adequate information and sufficient incentives to ensure socially desirable investments. (Barth, Caprio, Levine, 2006, p. 18) Consequently, government ownership of banks would help economies overcome capital market failures, exploit externalities, and invest in strategic sectors. Lewis (1950), Myrdal (1968), and Gerschenkron (1962) specifically advocated government ownership of banks to promote economic and financial development, especially in underdeveloped countries. Gerschenkron (1962) focuses on the necessity of financial development for economic growth. He argues the well-functioning institution is a prerequisite for resign of indirect state ownership in banks. Comparing developed and backward economies, he argues that privately owned commercial bank was the crucial vehicle providing capital for industries in several industrialising countries in the second half of the 19th century, especially Germany; however, in some countries where economic institutions were not sufficiently developed, state-owned banks played a more important role. (Russia as an example) In such countries, the government could step in and, through its financial institutions, jump start both financial and economic development. Gerschenkron (1962, p. 20) considers government financing of industrialisation in Russia a great success.

Governments can intervene in corporate financing in a variety of ways: providing subsidies directly, influencing private banks through regulation and supervision to lend to politically desirable projects, or actually owning dominant or partial shares of financial institutions. The advantage of actual owning banks—as opposed to regulating banks or owning all projects outright—is that ownership allows

extensive government control over the choice of projects being financed while leaving the implementation of these projects to the private sector. (La Porta, 2002)

Besides Gerschenkron's view stated above, there was a broader range of arguments in developed economics which advocated government ownership of firms in the strategic economic sectors[2], Hawtrey (1926), for example, noted the "strategic" advantages of the nationalisation of banks, besides other key industries in economy, such as utilities, coal mines, and education. (Lewis, 1950, p. 26) explicitly advocates government ownership of banks, as part of the "commanding heights" approach whereby the government would develop certain strategic industries through both direct ownership and control over finance. Myrdal (1968. p. 135) is sympathetic toward government ownership of banks in India and other Asian countries. These ideas were widely adopted around the world, especially in developing countries, as governments in the 1960s and the 1970s nationalised the existing commercial banks and established new ones in Africa, Asia, and Latin America. (La Porta, 2002)

Another recent view arguing state-owned banks should be endorsed is due to the fear that privately owned banks would concentrate credit in the hands of the few and the profit-driven private banks tend to take more risks, which might threaten financial sector stability. (World Bank, 2001)

2.2.2. Pessimistic view

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[2] See Shleifer (1998) for a summary, the following is also summarised by Shleifer (1998).

It is not difficult to notice that most academic work of the optimistic view emerged quite a long time ago. With time passing by, more and more scholars notice the disadvantages of state-owned banks. Nowadays, the pessimistic view towards direct government control over commercial banks is prevalent in both academic and policy spheres. The optimistic view advocates state ownership mainly based on the social aims of state-owned banks, while the pessimistic stream of theories argues government direct intervention from a "political" view. This stream of thoughts emphasizes political rather than social objectives of government intervention. As guided by political pursuits, governments do not have sufficient incentives to ensure economically desirable investments, but rather to intervene in banks towards politically satisfactory behaviours. This view argues that, governments need to control banks and enterprises for certain political purposes, such as to keep certain level of stable employment to ensure its legitimacy, to provide subsidies and other benefits to supporters, who are politically or economically associated with governments and might return the favor in the form of votes, political contributions, and bribes.[3] Thus government ownership of banks tends to politicize lending behaviors and soften budget constraints, resulting in bad asset quality and low efficiency of banks, and ultimately the slow down of economic development.

This phenomenon is easy to identify especially in countries with underdeveloped financial systems, poorly established institutions, lack of protected property rights, and high level of corruption. This view

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[3] see Kornai (1979), Shleifer and Vishny (1994).

of state ownership is strengthened by considerable studies analysing the inefficiency of government enterprises, the political motives behind public provision of services, and the benefits of privatisation.[4]

The incentives of government in banks include different dimensions. Instead of pure profit-driven incentive, government has other social and political goals such as keeping employment, retaining political power, controlling strategic resources, and etc. Thus, state-owned banks tend to facilitate the financing of politically attractive projects, but not necessarily economically efficient ones. On the other side, the private sector has limited ownership in banks, leading to limited incentive of monitoring state-owned banks. The dual role of state both as an owner and a regulator creates a conflict situation for governments to supervise the banks they control. The result is usually that state-owned banks would not be subject to any monitoring at all, which is the main reason of low efficiency and the diversion of state capital to satisfy a variety of private interests (World Bank, 2001).

2.2.3. State Ownership and Non-Performing Loan (NPL) Problem

The rate of Non-Performing Loans is an indicator of asset portfolio quality of a commercial bank. The aggregate rate of NPL is commonly used by international regulatory and supervisory bodies (such as IMF, World Bank and BIS) to assess the performance of the banking sector in relevant countries.

There have been lots of papers analysing the link between state-owned banks and NPLs. Novaes and Werlang (1995) report lower performance for state-owned banks in Brazil and Argentina due to

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[4] e.g., Megginson, Nash, and Randenborgh (1994), Barberis et al. (1996), Lopez-de-Silanes, Shleifer, and Vishny (1997), Frydman et al. (1999), La Porta and Lopez-de-Silanes (1999)

high proportion of NPLs generated by government borrowing. Salas and Saurina (2002), based on Spanish data, find out that ownership is one significant variable affecting credit risk of banks. They argue that state-owned banks have stronger incentive to fund riskier projects and to provide favorable credits for small and medium firms, in order to boost economic growth. This risk taking behaviour will lead to a higher level of NPLs. Later, after examining 50000 financial institutions with different ownership types across 119 countries, Micco et al. (2004) find that the level of NPLs tend to be higher for state-owned than private-owned banks, which can be explained that state-owned banks pursue development goals rather than pure economic profits, especially in developing economies, thus their credit recovery capacity is weaker than private-owned banks.

However, in a bank with large quantities of both state and private shares, the interaction between private and state shareholding could determine the risk level taken by banks. Hu et al. (2004) argue that unjustified risky behavior is lower when the two groups check and balance each other; On the opposite, when private and state shareholders collude (especially in societies with little civil disciplines), problem loans will be higher due to risky credit offering. Garciýa-Marco and Robles-Fernàndez (2007) examine the relationship between risk taking and ownership structure. They argued that commercial banks (mainly private owned) are more exposed to risk than deposit banks (mainly state owned).

2.3. Empirical Studies on Government Ownership of Banks

There have been various empirical papers studying government ownership of banks, including both single country studies and cross-country analysis.

Sapienza (1999) finds that Italian state-owned banks pursue political objectives in their lending policies, consistent with the political view. Barth, Caprio, and Levine (1999) present a comprehensive database on government regulation of banks around the world. They conclude that state ownership of banks tends to be associated with more poorly-developed banks, other financial institutions and stock markets. In a later paper, Barth, Caprio, and Levine (2001) use data on bank ownership from Bankscope, and find that greater government ownership is generally associated with less efficient and less-developed financial systems.

One of the most influential empirical studies on government ownership of banks is the paper produced by LaPorta, Lopez-de-Silanes, and Shleifer (2002). They collect data on government ownership of banks from various sources for 92 countries around the world, across a wide span of years from 1970s to 1990s. Firstly, they found out that government ownership of banks is large and pervasive around the world from 1970s until even 1990s. Second, in accordance with both the development and political theories stated above, and confirmed by other scholars[5], they point out that government ownership is closely associated with some problems that afflict developing countries, with characteristics such as low levels of GDP per capita, underdeveloped financial systems, interventionist and inefficient public sectors, and poor protection of property rights. These findings are also consistent with Gerschenkron's (1962) idea that less developed countries with poor institutions tend to have state-

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[5] See Barth et al. (2004); Beck et al.(2004); Berger et al.(2004) and Dinc (2005)

owned banks. Third, they found out that government ownership of banks in 1970s is associated with slower subsequent financial development; and finally, government ownership of banks is associated with lower subsequent growth of per capita income, and in particular with lower productivity growth rather than slower factor accumulation.

These findings generally support the political perspective on the consequences of government intervention in banks as state ownership politicizes the resource allocation process and reduces efficiency.

One possible flaw of La Porta's paper, is that its results are fragile to extending the set of conditioning variables to include more 'fundamental' determinants of economic growth such as institutional quality and quality of governance (e.g. Acemoglu et al, 2005), which previous empirical literature has found to be significant.[6]

The empirical papers summarised above mainly focus on the relation between bank ownership and macro-level indicators, such as financial development and economic growth. Even though some of them used bank-level data, but the emphasis is on the link between macroeconomic conditions and bank ownership. On a micro level, there are also lots of empirical papers exploring the ownership of banks.

Mian (2003) uses Bankscope data for about one hundred developing countries, reports evidence of the weak performance of state-owned banks, and suggests that this result is related to weak

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6 e.g. Knack and Keefer, 1995; Hall and Jones, 1999; Acemoglu et al, 2001; Rodrik et al, 2004; Demetriades and Law, 2006. Also see summary in "Andrianova,S., Demetriades,P. and Shortland,A., 2009."

incentives and political corruption. The data used in these papers, however, do not cover all banks operating in an economy.[7]

Sapienza(1999) finds that the chairs of state-owned banks affiliate to certain political parties and this affiliation has a positive impact on the interest rate discount given by state-owned banks in provinces with stronger associated party. The empirical results in Dinc (2005) suggest that state-owned banks increase lending in election years compared to private banks in major emerging markets in the 1990s, and these lending behaviours are more driven by political motivations other pure efficiency and profit purposes. Brown and Dinc (2005) find that failing banks are much less likely to be taken over by the government or to lose their licenses before elections than after. In addition, Khwaja and Mian (2005) provide evidence that in Pakistan, firms with politicians on their boards receive larger loans from government banks and these loans tend to have higher default rates.

To sum up, previous papers on government ownership of banks can be classified into three categories: first, papers examining the effect of government ownership on the financial and economic development of various countries (e.g. La Porta et al., 2002); second, papers examining the difference in lending behavior between state-owned and privately-owned banks for a particular country (e.g., Sapienza (2004) and Khwaja and Mian (2005)); third, papers investigating the change in behavior of government-owned banks relative to privately-owned banks around some particular event such as elections in various countries (e.g. Dinc (2005)).

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[7] La Porta et al. use only the ten largest banks, whereas the coverage of the Bankscope data varies from country to country

The literature review above deals both theoretically and empirically with state ownership of banks all over the world. Less competition, greater political intervention and weaker corporate governance are strong theoretical arguments against state ownership, but it does not necessarily mean that privatisation will solve all these problems. The same government actors responsible for the poor performance of state-owned banks are also responsible for the design and execution of the privatisation program. Political objectives, poor information, and principal-agent problems could prevent the privatised firm from performing as well as a de novo private bank or foreign green-field bank. Besides, transition countries have special characteristics different from developed countries and other developing countries.

In the context of privatisation process, the state ownership of banks imposes negative effects on bank performance and hinders successful privatisation of enterprises. Normally, even in developed countries, it is not impossible to have state-owned banks, but in the transition process of CEE countries, new problems emerged in the state-owned banks. Large literature has analysed the banking privatisation process and the general disadvantages of state-owned banks, however, very few has explained the changing role of state-owned banks in transition process in great depth.

3. Ownership change and bank performance in privatisation process

First of all, we should distinguish those interconnected concepts used in literature: developing countries, transition countries and emerging economies.

It should be noted that a number of studies examine privatisation in developing nations that are not transition economies. Developing country is a term generally used to describe a nation with a low level of material well being. The World Bank considers all low- and middle- income countries as "developing".[8]

In the context of economics, a key factor to define a transition country is that the economy is changing from central planning economy to market based economy. Transition countries are supposed to go through certain process, such as economic liberalisation, where prices are determined by market mechanism instead of central planning apparatus, trade barriers are removed, state-owned enterprises are privatised, and a modern efficient financial sector is created to serve as the channel for the movement of private capital. The process has been applied in Central and Eastern Europe, which used to be in the former Soviet Union and Communist bloc, China, and many other countries. The key to successful transition is usually the essential change in the role of the state, which means the creation of fundamentally different governments and institutions, to promote private-owned enterprises, markets and independent financial institutions.

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[8] See World Bank website: http://www.worldbank.org/depweb/english/beyond/global/glossary.html accessed on 9th, May, 2010

3.1. Process of bank privatisation in Central and Eastern European countries

In the early stage of economic transition, it was recognised that privatisation will not be successful without an efficient banking system. An economic system with a high level of information asymmetry and an inefficient legal system lacking satisfactory sanction instruments for concluding contracts are destined to create an environment in which the banking sector develops faster than the capital market.

According to Bonin and Wachtel (1999), there are basically three stages of banking privatisation in CEE: the first is establishing separately commercial banks as joint stock companies and a central bank, breaking Soviet-era mono bank system; the second stage is restructuring of bank portfolios and recapitalisation of banks, to deal with bad loan problems; the third is the final privatisation, a transfer of ownership from the government.

Most of the transition countries took identical steps in the first stage of transition, when a two-tier banking system was created from a monobank that performed both central and commercial banking activities under a command economy. A separation of central and commercial banking was identical for most of the former communist countries undergoing banking sector transformation. Commercial banking operations were carved out of the monobank and its asset and liabilities transferred to newly created commercial banks (Buch, 1996). This process was followed by further expansion and openness of banking systems.

Saunders and Sommariva (1993) analyse the difficulties of transferring from state control to a market system with specific reference to Eastern Europe. They address various restructuring approaches including recapitalisation, "loan hospitals" (bad bank approach), and various types of debt-

for-debt and equity-for-debt exchange. Their analysis demonstrates clearly the difficulty of managing and dealing with only one problem in the bank privatization process, namely the troubled loan issue in the monobank systems. Bonin and Wachtel (1998b) provide an excellent analysis of the difficulties of achieving market-based banking systems in transition economies. They emphasize that bank privatisation is only one step in the long and painful process of disengaging the state from virtually complete control over the banking system.

Other studies on the process of bank privatisation in Eastern Europe is provided in Abarbanell and Bonin (1997), Abarbanell and Meyendorff (1997), Snyder and Kormendi (1997), Svejnar (1997), and Thorne (1993). These studies provide evidence of the difficulty of bank privatisation in economies in transition from central planned economies to market economies, making bank privatisation even more difficult because of the problems of political instability, lack of banking expertise in the financial system and in the economy overall, difficulties in assessing the depth of troubled loans (estimated as high as 50% of total loans in some cases), the problem of carving up the monobank system into a competitive system, and the inherent problem of placing a value on the organisation to be privatised.

Meyendorff and Snyder (1997) study the "transactional structures" of banking privatisations in CEE, and they identified three elements: (1) antecedent actions that determine the characteristics of the unit being privatized; (2) ownership transfer and governance after privatisation; and (3) follow-on actions and ongoing government intervention. They note that most governments in the region made similar policy choices when they started privatising their banking systems, which have proven highly detrimental over time. For example, most governments chose not to seriously break up the socialist

monobank system or severely restricted new competition, particularly foreign banks from entering. For these reasons, the former monobanks retain dominant market shares in most of the transition economies almost a decade after reforms were initiated. Further, none of the politically-feasible ownership transfer methods (voucher privatisation, insider sales, etc.) brought in new capital or talent, so the banking systemsall in this region still remained weak and uncompetitive.

However, after the creation of two-tier banking system, during the second and third stages, methods taken for the aim of developing a viable and efficient banking sector varied among transition economies and were dependent on a number of endogenous and exogenous factors. The most important factors were the starting conditions, macroeconomic environment and the pace of other reforms, such as enterprise restructuring, institutional and legal reform, and the last but not least, the political consensus in support of market-based institutions. Macroeconomic conditions and the microeconomic restructuring process have become fundamental factors affecting the development, stability and soundness of banking systems.

The transformation of banking systems was accomplished either by the rehabilitation approach or the new entry approach. The former was predominantly based on recapitalisation and consolidation of state banks including the gradual privatisation. This approach was used in Hungary, Poland and, to some extent, in the Czech Republic and Slovak Republic. (Assaf, Barros and Matousek, 2009)

The new entry approach for developing the banking sector, used by the Baltic States and other countries of the former Soviet Union, is based on relatively unrestricted entry of new banks, including rapid privatisation.

Banking is a regulated industry so that the agency framework is more relevant to the relationship between the regulator and the bank. Second, market discipline is presumed to be imposed on banks mainly through the appropriate pricing of risk by depositors. With the correct combination of regulation and competition, ownership will not matter if management has little opportunity for rent seeking. Hence, differences in performances across banks of varying ownership types may reflect more their different objectives than different levels of efficiency. (Bonin 2005b)

3.2. Previous Studies on the Relationship between Bank Ownership and Performance during Privatisation Process

A number of studies examine the relationship between bank ownership and performance during privatisation period in transition economies, but the findings are mixed.

On the Micro-level, some scholars have conducted country-specific studies such as Croatia[9], the Czech Republic[10], Hungary[11], and Poland[12]. These studies, which examine the relationship between bank ownership and performance and association between ownership and efficiency, produce mixed results. For instance, Hasan and Marton (2003), Jemric and Vujcic (2002), and Weill (2003) find that bank efficiency is positively related to foreign as opposed to state ownership, while Nikiel and Opiela observe that foreign banks are less profit efficient than domestic private banks. Further, Kraft and Tirtiroglu document that newly established banks are less efficient but offer better profit performance

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[9] See Kraft and Tirtiroglu, (1998); Jemric and Vujcic, (2002).

[10] See Matousek and Taci, (2002); Weill, (2003).

[11] See Hasan and Marton, (2003).

[12] See Nikiel and Opiela, (2002); Weill, (2003)

than either privatized or state-owned banks, whereas Jemric and Vujcic find that new banks are more efficient.

On the macro-level, a number of cross-country studies also investigate the impact of ownership on banking in transition countries. While these empirical studies vary in terms of the countries and periods under analysis, as in the single-country studies they also focus on Central and Eastern Europe. In investigating the determinants of bank efficiency and performance, Grigorian and Manole (2002), Yildirim and Philippatos (2002), and Bonin et al. (2005a,b) all find that foreign-owned banks are significantly more cost efficient than domestic banks. Bonin et al. (2002) Examine the impact of ownership structure (state, private and foreign ownership) on bank performance in the six transition economies of Bulgaria, Croatia, the Czech Republic, Hungary, Poland and Romania. Their sample has 222 observations with financial and ownership data from these six countries for the years 1999 and 2000. The authors find robust evidence that profitability—measured by return on assets and return on equity—is higher for fully private banks than for banks with some state ownership, and is the highest of all for wholly foreign-owned banks. Foreign banks also experience the most rapid increase in customer loans.

In addition, Bonin et al. (2005b) find that government-owned banks are least efficient and Grigorian and Manole (2006) report that private banks which are established during the transition process are no more cost efficient than old banks established before. Drakos (2002) concludes that foreign entry could improve the overall performance of the banking system.

Cross-country evidence from transitional economies also suggests foreign acquisition of state-owned banks has an important effect on post privatisation performance. While privately owned banks are unambiguously more efficient than government banks in a study of 11 transitional economies (Bulgaria, Czech Republic, Estonia, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia), foreign-owned banks outperformed other private banks in the chosen countries. Foreign bank entry has generated more competitive and efficient banking systems in these countries and this is associated with higher GDP growth as well. (Bonin, Hasan and Wachtel 2003).

Fries and Taci (2005) looked at a more detailed breakdown of bank ownership. They find that private banks are more efficient than state-owned banks, and that privatised banks with majority foreign ownership are the most efficient while the banks with majority domestic ownership are the least efficient. In summary, the research on the impact of transitions from a planned economy to a market economy on a country's banking system indicate that both foreign ownership and private ownership can generate better performance than state ownership. Clarke et al. (2005) find that some measures of bank performance improved as a result of privatisation in CEE countries.

Indirect evidence on the effects of timing, and in particular the costs of delay, comes from comparisons of transition countries. As analysed by Cull, Matesova, and Shirley (2002), Hungary moved most decisively to privatise state-owned banks as early as in the first half of 1990s, and permitted the large wave of foreign entry. The strategy paid off and provided the country with a strong, stable banking system long before its neighbors. However, speed only is not sufficient to ensure success of bank privatisation. The Czech government was quick to sell some of its ownership stakes in

the four large state-owned banks that dominated the financial system, but they also chose to retain a

controlling interest in these banks. There was no obvious performance improvement, as the banks

maintained their old links with their most influential former clients, who were often borrowing to

channel funds into their private uses or to support unproductive firms. It was not until in the late 1990s

when a second round of bank privatisation largely reduced state-ownership in those banks that

performance obviously improved. In the case of Poland, the government adopted a more gradual path

moved more slowly than in the Czech Republic, but they avoided the tough situation incurred due to

mass privatisation of firms during early 1990s as the case in Czech Republic.

Green et al. (2004) modeled the efficiency of domestic and foreign banks in Central and Eastern

Europe, in terms of economies of scale and scope. They estimated and tested the model on a panel of

273 foreign and domestic banks located in nine European transition economies during 1995–99. They

rejected the hypothesis that foreign banks are more efficient than domestic banks in these economies,

and foreign ownership is hardly an important factor in reducing the banks' total costs.

Table 3.1 summarised the empirical work on banking efficiency in transition countries.

Table 3.1: Summary of Results from Panel Data Studies on Banking Efficiency in Transition Economies

	Grigorian & Manole (2006)	Yildirim & Philippatos (2002)	Rossi, Schwaiger & Winkler (2004)	Bonin, Hasan & Wachtel (2005)	Fries & Taci (2005)
Sample	1995-1998	1993-2000	1995-2002	1996-2000	1994-2001
Number of banks	585	325	272	225	289
Number of observations	1074	2042	1070	856	1897
Number of countries	17	12	9	11	15
Methods	DEA	SFA & DFA	SFA	SFA	SFA
Efficiency types	DEA(1)-profit generation DEA(2)-service provision	Cost and Profit	Cost and Profit	Cost and Profit	Cost
Mean efficiency					
Cost	0.39-0.71	DFA-0.72; SFA-0.76	0.36-0.87	0.41-0.78	0.40-0.75
Profit	N/A	DFA-0.66; SFA-0.5	0.32-0.71	0.5-0.82	N/A
Country-level factors					
GDP growth	Positive	Positive	N/A	N/A	Insignificant
Inflation rate	Insignificant	N/A	N/A	N/A	N/A
Monetary depth	Insignificant	N/A	N/A	N/A	Positive
Stock market capitalisation	Positive	N/A	N/A	N/A	N/A
Market concentration	Positive	Negative(cost); Positive(profit)	N/A	N/A	Insignificant
Banking sector reform	Positive	N/A	N/A	N/A	Positive(level); Negative(squared)
Non-banking sector reform	Positive	N/A	N/A	N/A	N/A
Interest rate	Insignificant	N/A	N/A	N/A	Positive
Bank-level factors					
Capitalisation	Positive	Negative(cost); Insignificant(profit)	N/A	Positive	Positive
Foreign ownership	Positive	Positive(cost); Negative(profit)	N/A	Positive	Positive
Total assets (in log)	N/A	Positive(cost); Negative(profit)	N/A	N/A	N/A
Share of loans	N/A	Positive(cost); Negative(profit)	N/A	N/A	N/A
Share of non-loan assets	N/A	N/A	N/A	N/A	Negative
Share of non-performing loans	N/A	N/A	N/A	N/A	Negative
Deposit market share of banks	N/A	N/A	N/A	N/A	Positive

Source: Author's compilation based on relevant papers

3.3. Summary of Literature and Formed Hypotheses

To sum up, contrary to the optimistic view, lots of literature has argued the negative effects of government ownership in banks. It might be expected that governments act quickly to phase out state ownership of banks. However, during the privatisation period in CEE, some countries decreased state ownership very quickly, while others had been reluctant and maintained certain level of state ownership for some time. Besides, the banking crises of the 1990s and 2000s even led to re-nationalisations in some countries. This triggers the old yet still important topic: what is the role of state ownership in commercial banks?

The questions remain to be further explored such as why state ownership imposes strong negative effects on bank performance in CEE region, whether and under what circumstances privatisation of banks will improve performance and what factors determine the design and timing of privatisation. Even though there has been lots of literature discussing those issues, very rare of those have used the most recent data for empirical testings on this topic because of data availability restraints. However, privatisation usually takes a long time to yield gains, because more time may be required by management to overcome the organisational inertia and resistance to change that are common characteristics of newly privatised firms (Otchere, 2005). Therefore, only with more observable years available, it becomes possible to analyse the different patterns of bank performance improvement before and post privatisation.

Formed Hypotheses:

Hypothesis 1: State ownership in commercial banks harms privatisation results in CEE countries.

Hypothesis 1 will be tested both theoretically and empirically in later chapters. For the theoretical analysis, this paper differentiates itself from massive other papers dealing with state-ownership and bank performance, through the perspective of corporate governance view (including corporate governance issues both in banks and newly-privatised enterprises)

Hypothesis 2: Bank efficiency improves as a result of state-ownership phasing out in commercial banks.

Hypothesis 2 will be tested by empirical analysis, starting with the measurement of banking production efficiency, followed by second stage regression tests.

Hypothesis 3: Selling State-Owned banks to foreign strategic investors is the best way of privatisation for CEE banks and foreign bank participation improves bank performance.

Hypothesis 3 will be tested by both theoretical argument and empirical testings. Then the proved hypothesis can be helpful drawing implications for other transition countries facing similar and different situations.

4. Why State-Owned Banks are Harmful in CEE countries - From a Corporate Governance Point of View

Based on literature review and CEE privatisation process review, it is reasonable to assume that state ownership brings about negative influences over bank performance. The question is why state ownership is problematic in CEE Countries, especially during privatisation period.

For the first hypothesis, besides general theories above, this paper provides some detailed analysis in the context of CEE countries from a enterprise corporate governance point of view, which is lacking in literature.

The performance of banking sector is closely connected with corporate sector. Especially in CEE bank-based economies, where bank loans are the main source of financing in the corporate world. Thus corporate governance issues in enterprises are closely related to the quality of banking assets. Good banks should be very careful choosing clients, need to know who they are lending money to. A corporate governance analysis of the corporate sector in CEE countries will reveal the key reasons why state-owned banks is harmful in CEE transition countries.

4.1. Different Corporate Governance Models in Enterprises

Keasey et al (1997) incorporated in the definition of corporate governance the following: "the structures, process, cultures and systems that engender the successful operation of the organizations" that is line with a notion of firm as a set of contracts (Jensen and Meckling, 1976). The Principal-Agent Model is the dominant academic view of corporation. Agency relationships occur when one party, the principal, employs another party, the agent, to perform a task on their behalf. In particular, directors

(agents) act on behalf of shareholders (principals). The theory of interaction between an agent and the principal for whom they act, aims to structure incentives so that the agent will act to benefit the principal.[13]

The Stakeholder Model of corporate governance is a challenging approach reflecting mostly German and Japanese environment. In contrast to Principal-Agent Model, it is based on the assumption that the goal or objective of the corporate is wider than the maximisation of shareholder welfare alone. CEE is more like German style corporate governance rather than American style.

4.2. Introduction of Privatisation Methods in CEE

There had been different kinds of enterprise privatisation methods, in different periods of privatisation in CEE countries. Those privatisation methods had greatly changed the corporate governance structure in privatised firms. Studies present various major types of privatisation methods as following: (summarised by Peev, 2008)

(i) Employee ownership programmes and management buy-outs (insiders privatisation);

(ii) Voucher (mass) privatisation;

Eligible citizens can use vouchers that are distributed free or at nominal cost to bid for shares in State-Owned Enterprises (SOEs) or other assets. It was merely a form of artificial primary issue (IPO - Initial Public Offering) or means of distributing ownership interests from the state to private entities quickly and equitably. (Mejstřík, 2004, p31)

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[13] see http://www-personal.umich.edu/~alandear/glossary/p.html, accessed on 4th May, 2010

(iii) Sales to local and foreign strategic investors;

Government sells it ownership stakes for profits through direct sales or asset sales of state-owned enterprises to an individual, an existing corporation, or a group of investors.

(iv) Privatization initial public offerings (PIPOs);

Some or a government's entire stake in an SOE is sold to investors through a public share offering. PIPOs are structured to raise money and to respond to some political pressure.

(v) Restitution (return of assets to either the original owners or their heirs).

This method is appropriate when land or other easily identifiable property that was expropriated in years past can be returned to either the original owners or to their heirs. The major difficulty with this method is that the records needed to prove ownership are often inadequate or conflicting.

The detailed privatisation methods for each country are provided in table 4.1.

Table 4.1. Privatisation Methods by Country				
Country	Classification of Privatisation	Year of Privatisation	Primary Method	Secondary Method
Albania	Mixed	1995	MEBO	Vouchers
Armenia	Mass	1994	Vouchers	MEBO
Azerbaijan	Mass	1997	Vouchers	Direct sales
Belarus	Mixed	1994	MEBO	Vouchers
Bulgaria	Full	1993	Direct sales	Vouchers
Croatia	Mixed	1992	MEBO	Vouchers
Czech Republic	Mass	1992	Vouchers	Direct sales
Estonia	Full	1993	Direct sales	Vouchers
Macedonia	Mixed	1993	MEBO	Direct sales
Georgia	Mass	1995	Vouchers	Direct sales
Hungary	Full	1990	Direct sales	MEBO
Kazakhstan	Full	1994	Direct sales	Vouchers
Kyrgyzstan	Mass	1996	Vouchers	MEBO

Latvia	Full	1992	Direct sales	Vouchers
Lithuania	Mass	1991	Vouchers	Direct sales
Moldova	Mass	1995	Vouchers	Direct sales
Poland	Full	1990	Direct sales	MEBO
Romania	Mixed	1992	MEBO	Direct sales
Slovak Republic	Full	1995	Direct sales	Vouchers
Slovenia	Mixed	1998	MEBO	Vouchers
Ukraine	Mass	1994	Vouchers	MEBO
Uzbekistan	Mixed	1996	MEBO	Direct sales

Note: Year of privatisation was established based on EBRD information on Primary Method of privatisation and its privatisation chronicle. Date of privatisation is consistent with primary method of privatisation.

Source: Bennet et al, 2004.

The majority of CEE countries initiated enterprise privatisation in the early 1990s, before the massive banking privatisation. However, many of those newly privatised firms failed to establish standard corporate governance structures. Three situations will be illustrate in the following section.

4.3. Why State-Owned Banks are Harmful in CEE Region - Analysis Through Corporate Governance Models

4.3.1. Scenario 1: State-Owned banks and State-Owned Enterprises

The first situation existed when state-owned enterprises were the main "clients" of state-owned banks. State-owned enterprises have multiple incentives regarding social welfare (such as keeping employment, etc.) and political aims, instead of pure profit-making purposes. Thus this kind of clients often ended up in not making profits, turning the money borrowed from banks non-performing loans (NPLs). It is in line with the theories against state-ownership in commercial banks.

From a corporate governance point of view, this could be analysed through the stakeholder model. As the state stayed as the major stakeholder in state-owned banks, through informal channels,

politicians and bureaucrats could successfully convince the executives of these banks to provide loans to large companies which were also dominated by the state, arguing that this was necessary to "support privatisation" or to "rescue" such companies by creating a buffer zone while they were adjusting to the new market economy requirements. These loans easily turned out to be unrecoverable and the recipients then went into either bankruptcy or pre-bankruptcy proceedings. (Mejstřík, 1999) This huge sum of non-performing loans violated the rule of hard budget constraints and imposed greater costs for the government and the minority shareholders of state-owned banks.

4.3.2. Scenario 2: Prudential Banking : the Anglo-Saxon Principal-Agent Model

This model, typical in Anglo-Saxon developed countries, has met great difficulties being implemented in CEE countries. The underlying reason is the lack of suitable preconditions.

As the stock market was underdeveloped in this region in 1990s, there was little access to liquid stock markets that would give the shareholders unrestricted, low cost exit opportunities. Particularly, the liquidity of trading small fragments of shareholdings was negligible. Thus there was no take-over barrier to management discretion and enormous acquisition premia. Buy-out prices, based on easily manipulable public market price, were remarkably low. Usually, however, distribution of shareholding into the hands of two or three legal entities was sufficient to preclude any buy-out at all. There had been a general tendency to leave public markets and go private not only for small and medium size firms, but also for many large companies for which this model was supposed to be appropriate. This was evidence of mistrust and loss of interest in the relation-based corporate governance financing model. (further developed in Mejstřík, 2003, p.375-401)

4.3.3. Scenario 3: Dispersed Ownership Behaves Like A Single Owner

The third situation, which had rarely been addressed regarding banking privatisation, is different from the incentive argument presented above. It is a special and siginificant characteristic of banking problems in Central and Eastern European countries. Those enterprises with this special form of corporate governance structure appeared during process of transition to a market economy. Most authors share the view that the pure act of transferring ownership of assets from state to the private sector does not establish by itself the conditions for enhanced corporate governance.

In this situation, state-owned banks, which lack proper established credit scanning mechanism, had a blurred vision of who they were actually lending money to. This also explains why the advanced technology and transparent loan allocation methods brought by foreign banks are of great importance.

Standard agency theory argues that when there is a controlling shareholder (with 20% or more of the shares), his interest in providing the public good of corporate oversight and management should increase the firm's market value (Stiglitz, 1999). Different from the theoretical notions and assumptions of corporate governance based on certain institutional prerequisites and practice, because of the transition process, some CEE countries have a unique form of corporate governance, such as the "Czech biased bivalent" form of corporate governance. (Mejstřík, 1999) In Czech Republic, controlling interests gives the controller the right to strip assets, without any legal punishment. Thus, it was often the case that when a single shareholder took control of a firm, market value of the firm plummeted,

reflecting the market's perception that control is more associated with asset stripping than with wealth creation. (Stiglitz, 1999)

Problems arise because of several reasons: Firstly, privatisation is an unrepeatable process and has conflicting economic, financial and political objectives of particular interest groups (foreign vs. domestic buyers – either insiders or outsiders) (Mejstřík, 1999), therefore, it was difficult to reconcile the interests of each group, as well as to create a well functional corporate governance model in newly privatised enterprises. Secondly, effective financial institutions, either in Anglo-Saxon style, or in continental style, had been absent. Thirdly, underdeveloped institutional and legal frameworks mean that important necessary conditions for effective corporate governance had been absent. Most contracts were incomplete and difficult to be enforced; Non-banking financial institutions were left without proper regulation and supervision. Those financial institutions were the collective investment vehicles, such as mutual or investment funds, pension funds, insurance companies, the decisive domestic "investors" born mostly by share redistribution in privatisation. Finally, there was no incentive for the state to enforce the limited existing law to regulate enterprises and financial institutions. Due to those reasons, a vicious circle had been set up. Owning privatised firms provided enormous benefits. Because if the firm outperformed in value than purchase price, the owner gained the value; if the firm underperformed, the worst situation was just bankrupt with the owner intact. The worst situation is that owning the firm provided enormous opportunities for theft. The lack of proper legal structure provided enormous opportunities for diverting the wealth of the firm into the hands of the "owner", with the owner having only limited personal liability. In many countries, the returns per unit effort to such theft,

given the weak legal structure, clearly exceeded the returns to efforts devoted at wealth creation.(Stiglitz, 1999)

4.3.4. How the Transitory Corporate Governance model Affects Bank Performance

The transitory corporate governance model, when large shareholder behaving as a single owner, has a bivalent form when only "0" or "1" are the values for corporate control. As there is no mature corporate governance structure for largely dispersed quantities of shareholdings and there is only a single owner as a dominant block holder, even though the single owner's shares only take up comparative majority instead of absolute majority of total equities, yet in reality the "relative majority" shareholder feel that the entire profit ("1") of the company is at his disposal. (Mejstřík, 1999)

What makes things worse is that, the cross ownership problem existed widely in transition countries in early years of privatisation. For example, In Czech Republic, as a result of the voucher privatisation, about two-thirds of the privatised shares were controlled by newly founded privatisation investment funds. The most powerful among those were the funds established and controlled by the biggest Czech banking houses, which were in state hands. (Havel, p. 176)

Given the unrepeatable character of privatisation, in transition economies with incomplete institutional framework and inefficient regulation, many actors in the corporate sector, not only in industries, but also in financial sector such as investment funds and asset management companies, played a one-off game to maximise their own profits, at the expense of the companies they managed and other minority shareholders. Most of the time they were driven by unethical self-interests and

forced the company they control to sign unfavarable contracts with some investment funds set up by the dominant shareholder. Therefore, profits and assets of the company fell into the single owners' own pockets. Besides, in a transition country without proper legal and institutional constraints at that time, those behaviours escaped the legal punishment. Furthermore, because of underdeveloped stock market, the remaining shareholders had been unable to sell out their shares in the capital market, or unwilling to do so to prevent shares being concentrated further in the hands of dominant shareholders. Those behaviours are further encouraged in absence of take-over threat. (Mejstřík, 1999)

As is common for CEE bank-based economies, the weakness in the securities market means that bank loans are the main financing source for firms. The "cheating" practices of the single dominator mentioned above mean that there exist huge unethical abnormal gains associated with bank loans. In this situation, as banks under the former socialist system were not real banks and not driven by pure commercial incentives, they simply allocated credit as directed by the government. In some cases, they became a new source of soft-budget constraints; in other cases, they became the vehicle through which state wealth was diverted to the hands of the related dominate owners (Stiglitz, 1999). State-owned banks, with opaque lending channels, poor risk management, inefficient loan rating scheme, and beaucratic corruptive culture, find it difficult to know who are their true clients. Those banks could not assess the credit of the borrows; Furthermore, some staff at state-owned banks even had private relations with those unethical dominate shareholders, resulting in related lending.Thus state-owned banks, which were not guided by prudential banking rules, could not perform a monitoring role and distinguished the sound companies from those with asset-stripping owners. (Stiglitz, 1999). Therefore,

the loans granted by state-owned banks would easily turn into Non-Performing Loans; what is worse, the collaterals of bank loans were usually shares of the company, which ended up worthless when the owners gave up running the company after stripping off the assets.

4.3.5. The Rationale for Governments to Finally Give up State-ownership of Banks

In Schmidt (1996a, 1996b), the government is rational and interested in the cost and benefit of a nationalisation or privatisation policy. Privatisation serves as a tool of the government to harden the soft budget constraint of state-owned firms. By privatising, the government can get rid of huge subsidising burden. Schmidt's main conclusion is that the allocative efficiency is high but productive efficiency is poor in nationalised situation. On the other hand, allocative efficiency is lower while productive efficiency is higher under privatization due to a harder budget constraint.

The logic is the same for banks. Based on the theoretical arguments in the last session, the delay of banking privatisation proved to be very costly for newly privatised enterprises, banks and the governments.

From a investment point of view, The presence of state banks has deterred prime-rated foreign investment from the banking market, and the potential distortions resulting from patronage or preferential treatment of state banks have deterred these and other banks from taking on more risk. Where banks are still used for non-commercial purposes—such as directed lending to enterprises— these practices have more often than not led to a severe financial crisis in the banking system, high levels of corruption, and big costs for the government. (Sherif, 2003, p 24)

The banking industry is seen as an engine of institutional change in many countries because of their strong interest in enforcing the law. The banks suffer greatly as a result of the weaknesses in contractual law, problems with pledges, bankruptcy and composition procedures and delays in the courts etc. The scheme is reasonable as part of the private banking model, but much weaker when the state is the owner. A state bank does not like to criticise its owner, the state itself. (Havel, p. 196)

5. Solutions to the Problem of State-Ownership in Banks

5.1. Consolidation of Non-Performing Loans(NPLs)

The Non-Performing loans in CEE transition countries were not only inherited from the communist past but also generated as a result of initial privatisation process, where there had been problematic corporate governance models mentioned in the last session. Those transition economies fell into deep recession due to the collapse of thousands of state-owned enterprises and the weak performance of newly privatised firms. In this situation, state-owned banks could not perform as an efficient credit scanner and capital allocator; surprisingly, the newly established domestic private banks, which did not suffer from "old" NPLs, overstaffing and high expectation of future government bailouts, faced solvency problems after a few years of operation, due to the lack of sufficient capital and the related lending to privatised firms. Therefore, NPL level was very high in late 1990s. It accumulated very quickly in the balance sheets of almost all banks.

There exists close association between NPLs and state-owned banks. On the one hand, the NPLs were associated with state-owned bank presence, on the other hand, it also hindered the banking modernisation. CEE transition economies have taken different approaches to solve the problem of NPLs to build viable banking systems. Methods like transferring NPLs to special institutions and writing-off bad loans directly from bank balance sheets are only preliminary process, by which alone cannot cure the illness of bad loans. Governments need to tackle not only the stock problem, i.e. the inherited NPLs from the past, but also the flow problem, i.e. the need to destroy the channel that NPLs were generated, in order to prevent new NPLs from accumulating again. (Kaufmann, Kraay and Mastruzzi, 2005)

Achieving the goal of keeping NPLs at a constantly low level depends on a group of factors, such as stable business environments, functioning institutions, stable macroeconomic frameworks, creditworthy and "equity worthy" enterprises and households. (Kaufmann, Kraay and Mastruzzi, 2005) Not only the corporate governance of banks matters when dealing with NPLs, not also the corporate governance in newly privatised enterprises. Without a healthy enterprise sector, NPLs will not easily been solved even when other macro-economic conditions have been stablised.

To fundamentally prevent NPLs from accumulating again, governments should place themselves in the appropriate position. After the preliminary clearing-off, they should focus on correcting the incentives of banks and privatised enterprises, to cut off the related or blind lending. Besides, they should focus on institution building, bankruptcy legislation enforcement, supervision and regulation.

Figure 5.1. : The Trend of Non-Performing Loans
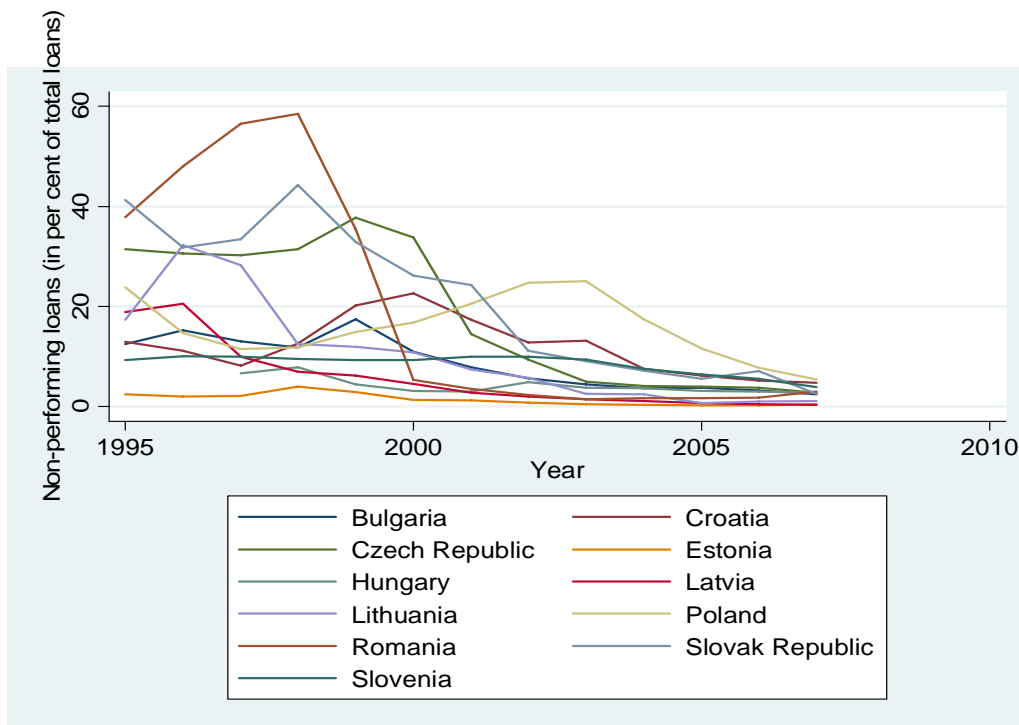
Source: author's own compilation based on EBRD Statistics [14]

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[14] See website: http://www.ebrd.com/country/sector/econo/stats/index.htm, detailed data sources presented in the appendix

From Figure 5.1., different trends of NPL growth in 1990s and 2000s can be identified. Before 2001, even though governments transferred large amount of bad debts out of banks to consolidation agencies, the NPL level was still high and kept bouncing back, indicating that simply transferring NPLs is not the ultimate solution to NPL problem. However, cleaning bad debts functioned as a precondition for foreign acquisition of domestic commercial banks, as few foreign banks would accept the accumulated debt burdens. After 2001, seen from Figure 5.1, the NPL level is going down and staying at a constantly low percentage of total loans. The different NPL growth patterns in the two periods provide some hints about the final solution to bad debt problem in this region. The withdraw of direct state-ownership in banks helped establish the appropriate incentive scheme in commercial banks; besides, foreign bank entry consolidated the correct incentive and finally cut off related lending. The role of foreign banks will be discussed in the next session.

5.2. The Role of Foreign Banks-A Solution to the Problem in CEE privatisation

5.2.1. Acquisitions of State-owned Banks by Foreign Banks

One interesting phenomenon during banking privatisation process in CEE countries is that, the decrease in state ownership is accompanied by increase of foreign ownership. During the 1990s, there existed some reluctance to sell state-owned banks to foreigners. It is more of a political issue than economic issue. As banks are crucial channels of financial intermediation in bank-based CEE economies, and state-owned banks were considered strategic assets of a country, governments wanted to keep some equities of state-owned banks at least in domestic if not in state hands. However, as the need to further substantially recapitalise problematic state-owned banks and fundamentally solve corporate governance issues in the closely-related societies, government had no better choice other than

inviting large foreign strategic investors in most countries.

In an increasingly integrated Europe, foreign bank participation in CEE countries also shows some geographical preferences. Swedish banks, like Swedbank and SEB, acquired a dominant position in the Baltic states; Austrian banks, like Raiffeisen, Erste Bank and Volksbank, and the Flemish KBC purchased strategic assets in Central Europe; Italian banks, like Intesa and now UniCredit, as well as some Greek and Turkish banks gained important strongholds in Southeastern Europe over time. After 20 years of transition and liberalisation, over 75% of assets across the region (in Central Europe, Southeastern Europe, Baltic states, but not in CIS countries) are now held by foreign banks.[15] All former state or partially state-owned banks were bought by the foreign banks. Overall, this is an unprecedented level of foreign bank penetration worldwide.

5.2.2. The Rationale for Foreign Ownership of Banks

Before the analysis of foreign ownership, it should be made clear that, in CEE transition economies, formerly state-owned but subsequently privatised banks bought by the foreign strategic owners should be distinguished from foreign greenfield banks when analysing bank privatisation. The focus in the section is about why governments finally turned to strategic foreign investors to solve the problems of state-owned banks? It can be argued based on the following reasons:

First, generally speaking, in underdeveloped financial markets, foreign banks can bring in new capital, increase the availability of credit to the private sector in those countries. Domestic capital was scarce in CEE countries during transition process, thus newly privatised banks usually faced

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[15] Focus on European Economic Integration, Special issue 2009 www.oenb.at/de/img/feei_2009_si_6_bokros_tcm14-143555.pdf. Accessed on 4th, May, 2010

bankruptcy risks in the volatile economic situation. Foreign banks with sufficient capital and strong support from parent banks in developed western European countries, can help establish well-functioning financial market, expand credit and increase competition. De Haas and Lelyveld (2002) study foreign bank ownership in five Central European economies, and conclude that there is a positive relationship between foreign banks and private sector credit growth. Clarke et al (2003) show that foreign banks are not restricted by domestic market conditions, and this allows them to increase their lending much faster than the domestic banks. Lensink and Hermes (2004) show that foreign banks increase competition in CEE banking systems, thus causing an outward shift in the supply of credit. This shift in the supply of credit reduces the equilibrium spread between bank lending and borrowing rates and increases equilibrium borrowing in the country.

Second, strategic foreign investors could bring financial know-how, upgrading of technology, modern banking culture and networks into a transition country. These are especially important for transition countries as they had no experience in running modern banking institutions in capitalist economies. This resulted in improving the efficiency and quality of financial intermediation in general and of credit provision in particular. Micco et al (2004) show that foreign bank entry to less developed markets is important in improving efficiency, and Bonin et al (2005) present evidence of foreign banks bringing know-how into the CEE countries.

Third and the most important factor when considering the advantages of foreign ownership is that incentive problem can be solved by the the transfer of ownership from state to strategic foreign investors. The privatised banks are supposed to be more profit efficient because of a change in objectives. As discussed in previous sections, state-owned banks suffered from inefficiency due to

multiple incentives apart from pure profit-seeking. Even though diffused ownership with the state retaining the only controlling share still leaves the government in a strong position to continue running the bank. Voucher privatisation in the Czech Republic is an illustration of this phenomenon. Besides, if the state retains certain shares while selling a large share to a private owner, even a foreign owner, managers of the bank may still get insider control of the bank by playing off one large owner against the other. Abarbanell and Bonin (1997) provide a detailed description of the partial privatisation of a Polish bank as an illustration of this situation. Thus, foreign investors acquired majority shares of targeted state-owned banks and established correct incentive scheme in banking activities.

Next, to fully understand why selling to foreigners was the main choice and selling to domestic owners was not a viable option for CEE countries, one should understand the special characteristics of the local markets and societies. Related lending existed not only between state-owned banks and borrowers but also between domestically privatised banks and creditors in a interconnected society, as owners of privatised firms were not clearly visible and sometimes had close ties with government officials. Foreign banks greatly solved this problem, as they are more independent of the local networks, thus it is easier to cut off related lending. Privatised firms with opaque ownership structures failed to get loans from properly managed banks. Thus foreign-owned banks seem to represent long-term standard of behaviour, with new internal and external contractual architecture.

Finally, ongoing European integration is also a pulling force for foreign bank participation in CEE countries. The accession into the EU made quick and sound privatisation a priority on the agenda of some CEE countries. Government had to make a decision and boost economic performance in a short span of time. Besides, most of the strategic foreign investors were trustworthy banks in Western

European countries with great geographical proximity; most of those banks have great stakes in CEE region and could not withdraw capital investment easily. Therefore, selling to foreigners became the appropriate option.

From the perspective of foreign buyers, the successful purchases also depends on certain key factors. According to Dlouhy (2004), five factors are important. The first is portfolio quality. The government had to demonstrate clearly its pro-active attitude to solving the deteriorating asset quality of banks. Government needs to transfer NPLs or provide guarantees or other type of security to potential investors. The second is new capital injection by the government, instead of by the foreign investors themselves. The third is public and political aspects of the process. For example, there might be some concern about that the government would prefer domestic capital and domestic investors, or only investors from certain foreign countries. The fourth is the structure of the privatisation process the government adopts, which needs to meet two partly contradictory criteria: (a) transparency of the process and trust of investors; (b) maximum flexibility of the negotiating position of themselves. The final factor is timing. Banks with the greatest market share and strongest international profile should be the first, in order to maintain a sufficient level of interests on the part of investors.

5.2.3. Experiences of Privatisation in Different Parts of Transition Economies

The three more advanced transition economies, i.e., Czech Republic, Hungary, and Poland, embarked on significantly different bank privatization programs during the first half of the 1990s. Even before the political change, the Hungarian government had been receptive to foreign bank activity as it allowed three foreign banks to operate in the country from 1985. By the end of 1996, three of the four large state-owned banks in Hungary had attracted strategic foreign owners. In the Czech Republic,

three of the largest four banks participated in the first wave of voucher privatisation in 1992 and no

Czech bank was sold to a foreign owner until 1998 (Bonin, Hasan, Wachtel, 2005b). Investment funds,

the largest of which were created by these banks, were an integral part of the Czech voucher

privatisation program. Hence, this initial divestiture of state holdings resulted in interlocking ownership

with the state retaining large controlling stakes of voucherprivatized Czech banks. Polish authorities set

a three-year timetable at the beginning of 1993 for privatising the nine medium-sized, regional, state-

owned banks that were created from the commercial portfolio of the national bank. However, by the

end of 1996, only one of these banks had a foreign owner holding a controlling stake. (Bonin, Hasan,

Wachtel, 2005b)

From figure 5.2, we can see the difference of foreign-owned banking asset share of total bank

assets in the three advanced transition economies. It was not until 2000 that Czech Republic had sold

the majority of banks to foreign investors and the share of foreing-owned bank assets is close to 90

percentage in total assets across 2000s. Hungary sold the majority of state-owned banks at a very early

stage in mid-1990s.

Figure5.2 Assets of State-owned Banks (asob) and Assets of Foreign Owned Banks (afob) in Percent of Total Assets in Three Advanced Transition Countries
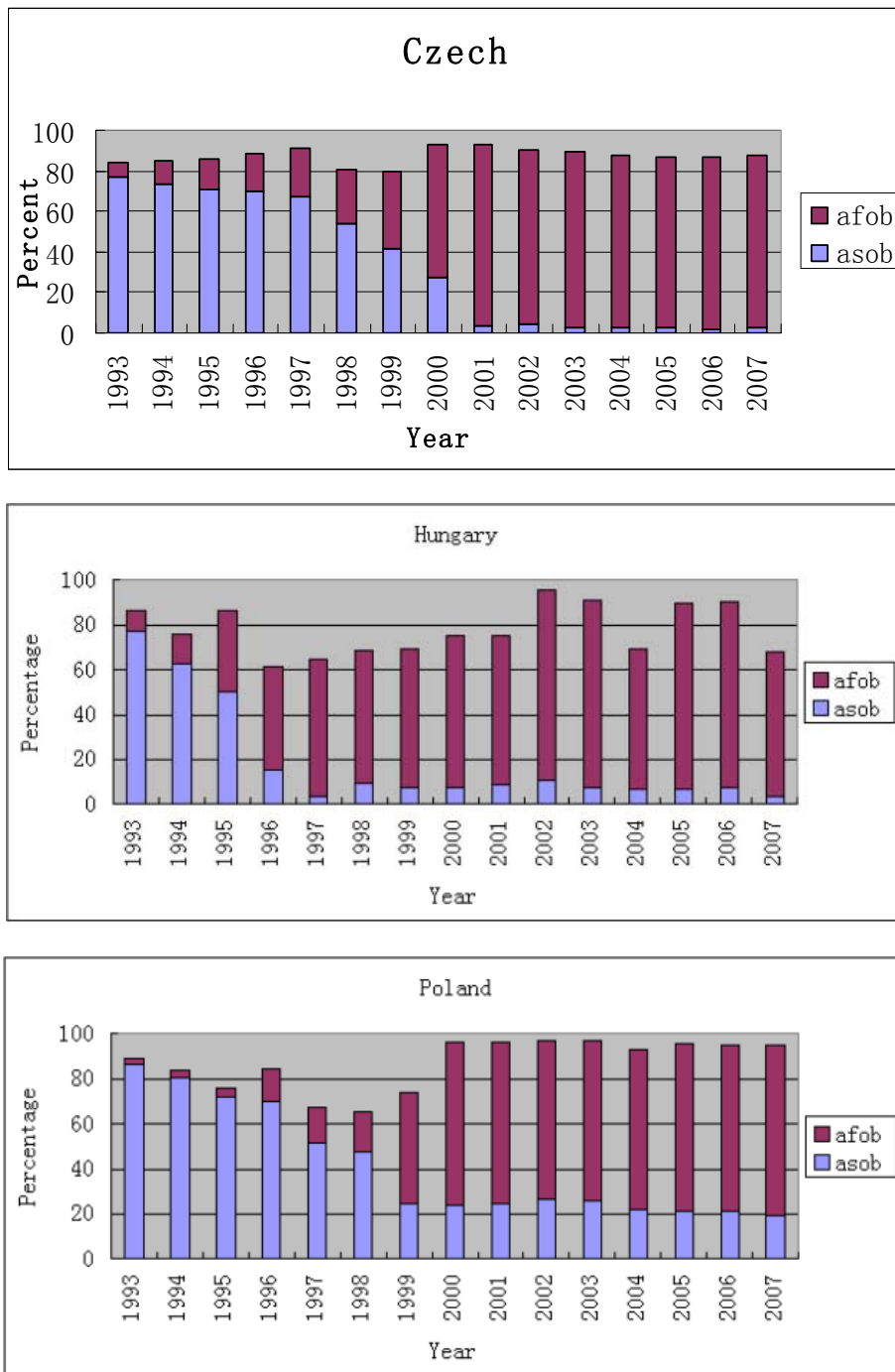
Source: Author's own compilation based on data from EBRD statistics[16]

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[16] See website: http://www.ebrd.com/country/sector/econo/stats/index.htm, detailed data sources will be presented in the appendix

From the figure above, we can see that Poland privatised the majority state-owned banks firstly by selling to domestic owners before 1999, followed by selling large shares to foreign investors. However, in 2000s, Poland still kept around 20 percentage of total bank assets in state's hands.

Figure 5.3: the Growing Trend of Foreign Bank Asset Share in Sample Countries
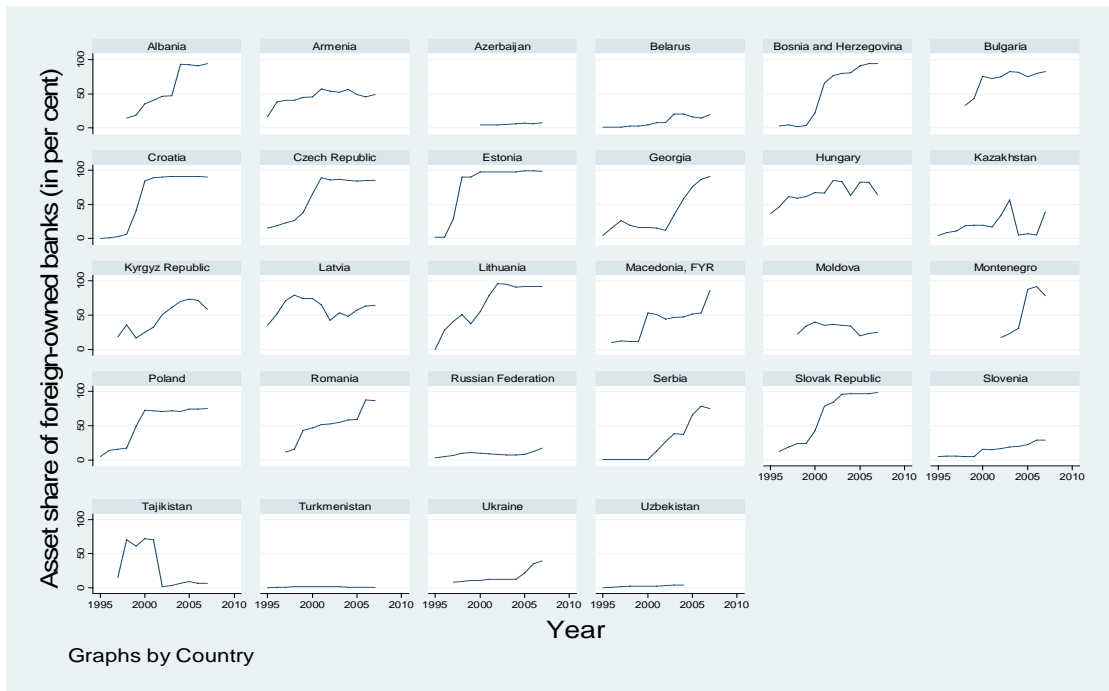
Source: Author's own compilation by stata, based on EBRD statistics

From Figure 5.3 above, we can see the growth trend of foreign-owned bank asset share in percent of total assets for individual country. For most of the CIS countries, the foreign-owned bank asset share in percent of total assets has been growing not as rapidly as the advanced Central European countries. For SEE countries, i.e., Bulgaria, Croatia, and Romania, because of macroeconomic instability and financial distress, banking privatisation was not feasible before 1995. After instituting a currency board and stabilising the macroeconomic environment, the Bulgarian government privatised its first bank to a consortium of investors in 1997. By the end of 2000, eight of the ten largest banks in Bulgaria were foreign owned. In Croatia, only one small foreign bank was operating in 1995 and foreign ownership of banking assets was less than 0.5%. However, in later 1990s there was a huge wave of bank

privatisation in these countries. By 2002, in five of the six countries, at least 75% of the total banking assets have become under foreign control. Romania was the laggard in bank privatisation in our sample; the three largest banks were state owned until 1999. (Bonin, Hasan and Wachtel, 2005b)

There have been lots of papers investigating the benefits and losses of foreign bank participation. Bonin used cost and profit efficiency measures and suggests that, although banks sold to foreign owners are not more cost-efficient immediately after privatisation, they do manage revenues more efficiently. (Bonin, Hasan and Wachtel, 1999) Foreign-owned banks pursue more fee-for-service business and do so more successfully after privatisation. Empirical results suggest that privatised banks with strategic foreign owners redirect their attention to profitable business.

5.3. The Changing Role of Government in Banking Industry - From Direct Ownership to Supervision and Regulation

As discussed at the beginning of this paper, there are two different roles of government in banking sector ─ direct ownership and supervision. However, these two roles sometimes conflict with each other. State-owned banks may be less subject to monitoring by depositors, because in a financial crisis they are more likely to be bailed out by the government, which gives depositors less incentive to pay attention to the operation and management quality of banks. Besides, government, as owner of banks, could appoint personnel and manipulate credit rationing, can hardly be subject to the effective supervision of itself.

Therefore, the strong and independent regulation and supervision function of a government is crucial for the healthy development of banking sector in transition countries. The transformed role of government from owners to regulators is an extremely important determinant in the success of not only banking privatisation but also banking development afterwards.

Privatisation of state-owned bank resulted in a fundamental change of the financial services landscape in CEE countries. Nowadays, as most of the banking sectors in CEE are already firmly in the hands of international banking groups, banks started to offer western-style quality services to different industries and integrate this region into mainstream world financial market. Corporate as well as retail customers were able to finance themselves through creditable bank loans on a competitive and pure business basis, and put savings into safe and sound institutions. The central planning economy had been transformed into a consumer-based business environment. However, the integration also caused problems, such as unprecedented credit boom, substantial overheating of these economies and financial crisis contagion. Despite all problems, even today, it is clear that foreign banks are still the most solid backbones of the CEE economies.

There are still a few state banks existing in CEE economies, According to the latest CEE sector banking report in 2009, Poland's largest bank, PKO still remains majority state-owned, and Poland is not expected to give up its majority stake in the foreseeable future. Majority state-owned banks also still hold a relatively large market share in Slovenia.[17] The privatisation process is almost complete in SEE. In Serbia, large scale banking privatisation was completed with the final sale of Vojvodanska

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[17] CEE banking sector report 2009, Raiffeisen Research RZB Group

banka to the National Bank of Greece in November 2006. In Bulgaria, the privatisation process was already finalised in 2003. BCR, the largest Romanian bank, was sold to Erste Bank in late 2005.[18]

Over the past few years, the focus has been shifting from fundamental to more advanced reforms in the banking sector. The implementation of international accounting standards and Basel II require the government to enforce more efficient regulation and supervision of the banking industry. Stability and growth of the financial sector in lots of CEE transition countries were achieved not only by recapitalisation and privatisation, but also from great improvement in regulation and supervision to ensure the rule of prudential banking. Successful privatisation needs standard regulatory and supervisory framework, which is independent from political interference and powerful business group's interests.

Furthermore, European integration also strengthened the domestic arrangements of banking regulation and supervision in CEE countries. To meet the fundamental requirements of EU accession, several CEE countries have adopted the western-style banking regulation structure. Besides, as most banks are owned by western European countries, there are triple layers of regulations in those banks - Local central bank, parent bank, and central bank in the parent country. The contrast between CEE and CIS countries is obvious in this sense. In CIS countries, regulatory and supervisory institutions are still lacking, thus banks are still largely manipulated by strong political and business power and fail to practice prudential rules.

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[18] CEE banking sector report 2009, Raiffeisen Research RZB Group

6. Empirical Tests

The empirical tests, composed of both micro-level and macro-level specifications, are conducted to evaluate the banking sector efficiency, and estimate the influence of ownership on banking performance.

6.1. Measurement of Bank Production Efficiency

On the micro-level, we use Stochastic Frontier Analysis (SFA) to measure the production efficiency of selected banks in CEE countries.

The Stochastic Frontier production function was first proposed by Aigner, Lovell and Schmidt(1977), Meeusen and Van den Broek (1977), Battese and Corra (1977) independently. The original specification can be expressed in log form as

$$\ln(Y_i) = \beta \ln(x_i) + V_i - U_i \quad i=1,2,...,N. \quad (1)$$

Where Y_i is the production of the i-th firm;

x_i is an input vector for firm j;

β is an vector of unknown parameters.

V_i accounts for random effects affecting the value of the output variable, they are variables assumed to be iid;

$U_{i,}$ which are non-negative random variables, are assumed to account for technical inefficiency in production and often assumed to be iid.

The model is stochastic because the upper limit is determined by the stochastic variable $\exp(x_i + V_i)$. The random error, v_j, can be positive or negative and so the stochastic frontier outputs vary relative to the deterministic part of the frontier model, $\exp(x_j)$ (Coelli et al., 1997, p. 45).

The production function we are going to use to estimate bank efficiency is the Cobb-Douglas production frontier assuming a half-normal distribution. (Coelli, 1996)

$$\ln(Q_i) = \beta_0 + \beta_1 \ln(K_i) + \beta_2 \ln(L_i) + V_i - U_i \qquad i = 1, 2, ..., N. \qquad \textbf{(2)}$$

Where Q_i, K_i, L_i are output, capital and labour, respectively, and V_i and U_i are assumed normal and half-normal distributed, respectively.

As there are various services and products of commercial banks, there have been no consistent implementations choosing specific variables for bank output and input. Inspired by Bonin, Hasan&Wachtel (2005), we use the criterion of value adding to determine which bank products or services to include as outputs. Banking activities that produce a flow of banking services associated with a substantial labour or physical capital expenditure are identified as outputs. After synthesizing the variables used by Hansan&Marton (2003), Bonin, Hasan&Wachtel (2005), and Fries &Taci (2005), we define Output Qi as the aggregate of total loans, total investments (other earning assets), non-interest or fee-related income, and total interest bearing borrowed funds (total deposit).

Ideally, the production function require two input prices, one for labour and the other for physical capital input, which are denoted as "personnel expenses divided by the number of full-time equivalent workers" and "the ratio of non-interest expenses to total fixed assets", respectively. However, the bank-level data for personnel expenses and number of employees is much less available than other variables needed for the function. This caused a loss of more than 1000 observations, resulting in the failure of

the regression. We also tried to calculate the ratio of personnel expense to total assets as a proxy for the price of labour, but this also resulted in the loss of about 900 observations because of missing values. Therefore, we followed Bonin, Hasan and Wachtel (2005) and Hasan and Marton (2003) to include the price of fund, measured by "the ratio of total interest expenses to total interest bearing borrowed funds (total deposits)", into our function. So our refined Cobb-Douglas production frontier function is the following:

$$\ln(Q_i)=\beta_0 + \beta_1\ln(K_i) + \beta_2\ln(F_i) + V_i - U_i \qquad i=1,2,...,N. \qquad (3)$$

Where **Output (Q_i)** = loans + other earning assets + non-interest income + deposit;

Inputs includes:

Capital price (**K_i**) = ratio of non-interest expenses to total fixed assets;

Fund price (**F_i**)= total interest expense divided by total deposits.

Data

The micro-level data for individual bank used for SFA is from Bankscope(Bureau Van Dijk, DVD March 2010 version). BANKSCOPE is a comprehensive, global database containing financial and other information about over 11,000 public and private banks. (See Bureau Van Dijk's Bankscope Brochure). Considering availability and accountability of financial data, we selected consolidated yearly financial report (global format) data for banks in 11 relatively advanced CEE countries, from year 1995 to 2007. However, the data for transition countries require careful reviewing to construct a reliable sample. We used banks with consolidated financial reports to avoid the duplication of institutions, chose the global presentation of financial report to get the consistent data across different

countries, and made sure that only commercial banks are included in the sample, excluding non-bank

financial institutions of various kinds. After the screening process, there are 296 banks in the sample,

including 26 banks in Bulgaria, 38 in Croatia, 30 in Czech Republic, 11 in Estonia, 35 in Hungary, 24

in Latvia, 10 in Lithuania, 55 in Poland, 25 in Romania, 19 in Slovakia and 23 in Slovenia.

Table 6.1 Descriptive Statistics of Variables for Calculating Banking Production Efficiency

Bank Variables	Obs	Mean	Std.Dev.	Min	Max
Interest Expense	2053	14183.55	54168.54	-0.061	802258.7
Operating Expense	2056	18370.12	78720.29	-1205.8	1303285
Total Customer Loans	2052	275707.4	1309613	0	3.06E+07
Total Other Earning Assets	2061	195997	958956.8	0	1.81E+07
Total Operating Income	2056	26611.52	122678.8	-48.9	2238070
Other Operating Income	1990	3418.68	18805.07	-102053.4	282464.1
Total Deposits	2056	383592	1819542	0	4.19E+07
Personnel Expenses	1766	7975.853	35536.5	0	573922
Other Operating Expenses	2056	9617.852	40244.32	-3141	592484.6
Number of Employees	1263	1628.658	4414.632	2	78291
Total Fixed Assets	2049	10230.45	46593.24	-0.4	829979.5
Constructed variables	**Obs**	**Mean**	**Std.Dev.**	**Min**	**Max**
Output (Q)	1937	927525.5	4246661	0.066	9.31E+07
Capital Price (K)	1937	2.752068	16.37835	0.0589825	652.4
Labour Price (L)	1157	7.521137	19.67712	0	342.148
Cost of Fund (F)	1937	0.068683	0.3309144	0.0010557	14
ln(Q)	1937	8.246316	4.177158	-2.718101	18.34895
ln(K)	1937	0.1371768	1.055594	-2.830514	6.480658
ln(F)	1937	-3.135959	0.7802818	-6.853542	2.639057

Source: author's own calculation based on Bankscope data.

We use the software Frontier 4.1 —which is specific for SFA— to calculate the production

efficiency score.This program follows a three-step procedure to estimate the maximum likelihood

estimates of the parameters of a stochastic frontier production function. Firstly, Ordinary Least

Squares(OLS) estimates of the function are obtained. Secondly, a two-phase grid search of γ is

conducted, with the β parameters set to the OLS values and β_0 and σ^2 parameters adjusted according to

the corrected OLS formula presented in Coelli (1995). The last step is that the values selected in the

grid search are used as starting values in an iterative procedure to produce the maximum likelihood

estimates. (Coelli, 1996)

After obtaining the Production Efficiency estimates for each bank in the sample, the average scores

for individual country in each year are calculated and presented in the Appendix Table A1. The average

scores are exhibited also in Figure 6.1 Below.

Figure 6.1: Banking Production Efficiency Score
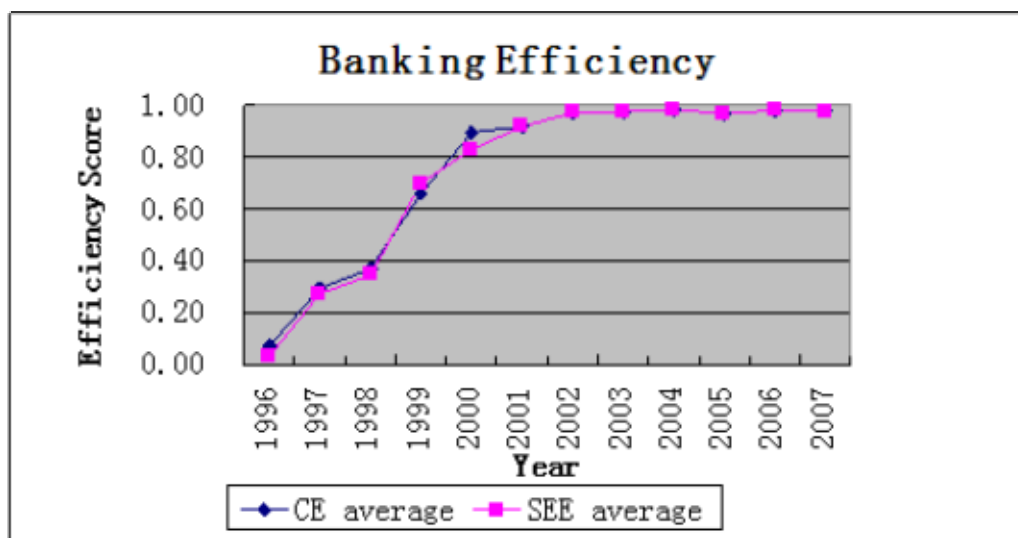
Source: Author's own compilation

From Figure 6.1, a clear and sharp increasing trend from 1996 to 2001 can be identified. After 2001,

banking efficiency level stayed at a constantly high level. It is consistent with the expectation. During

the early years of banking privatisation in late 1990s, banking efficiency experienced great

improvement, starting from a very low efficiency level. Very few papers have dealt with the most

recent years in 2000s. The graph shows that after 2001, when most of privatisation process has been

through, the banking production efficiency level becomes very high and the trend stays very stable. The

possible reason is that, as lots of state-owned banks were sold to foreign strategic owners, besides large

number of foreign bank entry (green-field), the banking sector in this region finally started to catch up

with international standard banking efficiency level. Another interesting phenomenon is that the efficiency estimates of each country after year 2001 are highly homogeneous. This might indicate the similar high efficiency level achieved in the selected banks in those 11 advanced transition countries.

It should not be ignored that, there might be some flaws regarding our sample and methodology in the process of calculating production efficiency estimates. Because there had been lots of Mergers&Acquisitions and restructuring during banking privatisation period, the consistency of bank's financial data across yeas is relatively weak compared to banks in developed economies. To avoid duplication of information, the financial data of the banks we selected are based on consolidated financial reports.

6.2. An Overview, Sources and Description of Other Aggregated Variables

Besides the obtained banking production efficiency scores presented above, based on the literature review and data availability, we managed to collect country-level data regarding aggregate banking performance indicators, banking ownership, reform index and other macro-economic variables. Table 6.2 provides a basic descriptions about those data, and more detailed description and analysis of the data is provided in the Appendix.

Table 6.2. Aggregated Country-level Data Descriptions and Sources

Variable	Code	Measurement	Source
Net interest margin	*netintmargin*	Accounting value of a bank's net interest revenue as a share of its total assets	New Database on Financial Development and Structure (Beck, Demirgüç-Kunt and Levine, 2000)
Overhead cost	*overhead*	Accounting value of a bank's overhead costs as share of its total assets	(Beck, Demirgüç-Kunt and Levine, 2000)
ROA	*roa*	Bank return on Assets	(Beck, Demirgüç-Kunt and Levine, 2001)

ROE	*roe*	Bank return on Equity	(Beck, Demirgüç-Kunt and Levine, 2002)
Bank Concentration ratio	*concentration*	It is defined as the ratio of the three largest banks' assets to total banking sector assets.	(Beck, Demirgüç-Kunt and Levine, 2003)
Deposit Money Bank Assets / GDP	*dbagdp*	Measurement of Banking sector size	(Beck, Demirgüç-Kunt and Levine, 2004)
Private Credit by Deposit Money Banks to GDP	*pcrdbgdp*	Credit issued to the private sector as opposed to governments and public enterprises.	(Beck, Demirgüç-Kunt and Levine, 2005)
Bank Credit / Bank Deposits	*bcbd*	Accounting value of bank credit to deposit	(Beck, Demirgüç-Kunt and Levine, 2006)
Asset share of state-owned banks (in per cent)	*asob*	The share of majority state-owned bank(state ownership exceeding 50 per cent) assets in total bank sector assets.	Source: EBRD Statisitics;
Asset share of foreign-owned banks (in per cent)	*afob*	The share of total bank sector assets in banks with foreign ownership exceeding 50 per cent, end-of-year.	Source: EBRD Statisitics;
Non-performing loans (in percent of total loans)	*npl*	The ratio of non-performing loans to total loans	Source: EBRD Statisitics;
Large-scale privatisation	*lspri*	Privatisation index	Source: EBRD Statisitics;
Governance and enterprise restructuring	*res*	Privatisation index	Source: EBRD Statisitics;
Banking reform and interest rate liberalisation	*breform*	Privatisation index	Source: EBRD Statisitics;
Domestic credit to private sector(in per cent of GDP)	*dcrepr*	Ratio of total bank credit to private sector at end-of-year, including households and enterprises, to GDP.	Source: EBRD Statisitics;
Domestic credit to households (in per cent of GDP)	*dcreh*	Ratio of total outstanding bank credit to households, at end-of-year, to GDP.	Source: EBRD Statisitics;
GDP growth	*gdpg*	Annual GDP growth rate	EBRD transition report
Inflation	*inf*	Annual Inflation rate	EBRD transition report

Source: Author's own compilation

6.3. Some Flaws about Available Data

The problem regarding bankscope database also applies here. Although on average around 90% of

the banking sector assets in a given country and year are covered in Bankscope, the possibility of

sampling error and bias should not be underestimated. (also noted by Beck,T. Demirgüç-Kunt,A. and

Levine,R., 2000). Variables like "net interest margin" and "overhead costs" are calculated as averages of all banks in a country in a given year. This may not truly represent the efficiency level in a given country. Moreover, the two efficiency measures are based on unconsolidated balance sheets, while the concentration index is based on data in both unconsolidated and consolidated balance sheets. As we compile our dataset from various sources, the data consistency is not very strong.

6.4. Data Analysis for Regression Purposes

It was originally scheduled to include CE, SEE, Baltic States and CIS countries in our panel dataset, however, as the key dependent variable "Banking Production Efficiency Score (*effscore*)" has been calculated only for 11 advanced transition countries in CE, SEE and Baltics, based on the accountability and availability of financial data in Bankscope. Besides, for another key dependent variable "NPLs", CIS data is excluded because the NPL data for CIS countries has been greatly understated and thus unreliable, let alone the large amount of missing data. Therefore, the constructed panel dataset includes 11 transition countries in Central Europe (CE), Southeastern Europe (SEE), and Baltics, from year 1995 to 2007. The panel dataset is strongly balanced.

6.4.1 An Overview of Key Variables

The main aim of the empirical analysis is to test the relationship between bank efficiency and ownership (State-ownership and Foreign-ownership) in CEE countries. Other banking performance indicators such as profitability measures (ROE, ROA) and credit supply measure are also tested.

From the graphs of ROE and ROA, presented in Figure 6.2 and 6.3 below, the patterns of ROE/ROA before 2000 and after 2000 is drastically different. The country difference is more obvious in early years, with more volatile ROE/ROA. After 2000, it tends to converge to a moderate positive level and keeps a stable flat growth pattern.
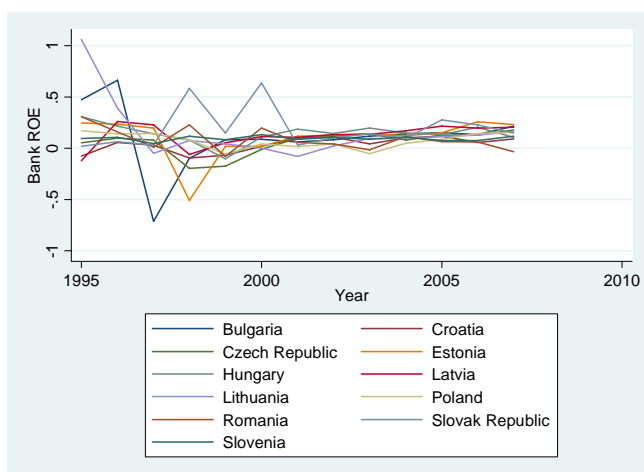
Figure 6.2: Bank ROE　　　　　　　　　　**Figure 6.3: Bank ROA**
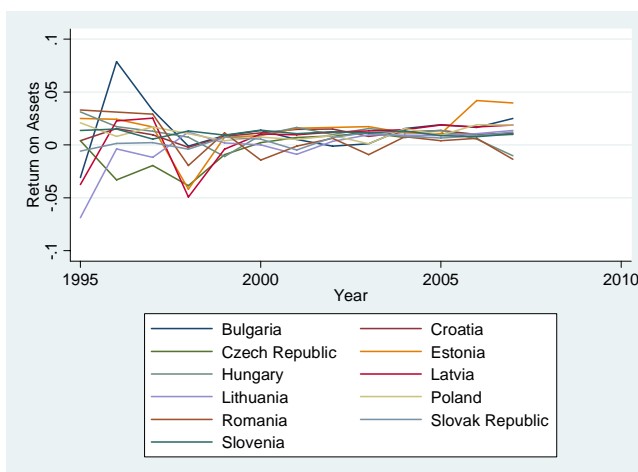
Source: author's own compilation based on EBRD statistics (both)

The main dependent variable - Banking Production Efficiency (*effscore*) has been discussed in detail in the previous section. Another variable measuring "domestic credit to private sector" (*dcrepr*) is presented in Figure 6.5. During the late 1990s, credit to private sector stayed at a low level, with only the exception of a few countries like Czech Republic. After the majority of banks were sold to foreign investors, there was only moderate growth of credit supply, and even some negative growth in some countries, signifying the standard rule of prudential banking. Only in late 2000s, credit supply started to grow rapidly.

Figure 6.4 : Banking Production Efficiency　　**Figure 6.5: Domestic Credit to Private Sector (% of GDP)**
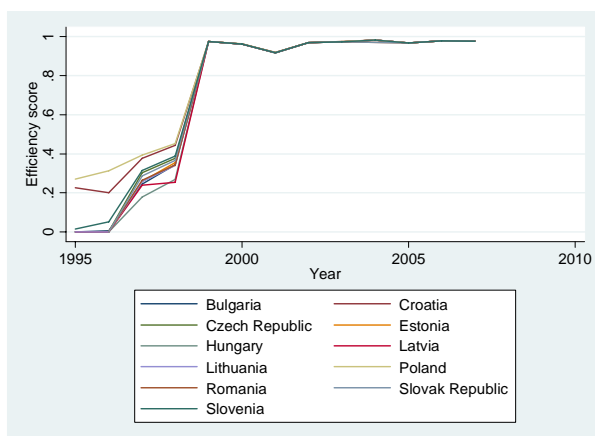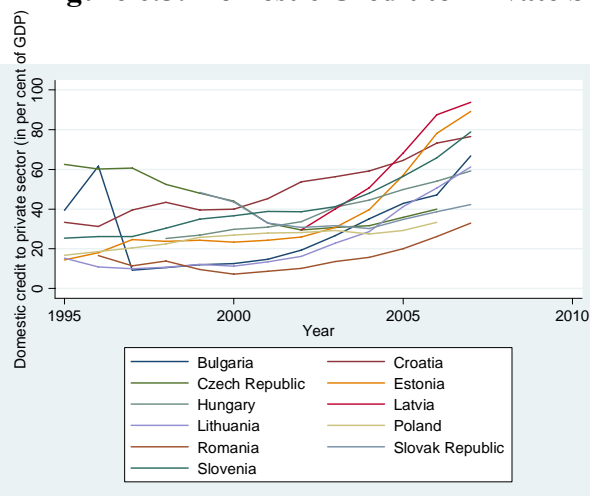
Source: author's own compilation.　　　　*Source: author's own compilation based on EBRD data.*

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Ownership variables, "Asset share of State-Owned Banks in percent of total assets (*asob*)" and "Asset share of Foreign-Owned Banks in percent of total assets (*afob*)" have opposite trends as presented by Figure 6.6 and Figure 6.7. The decrease of state-owned bank assets is accompanied by the increase of foreign-owned bank asset share. This is consistent with descriptions and analysis in earlier part of the paper.

Figure 6.6: Asset Share of State-Ownd Banks in Percent of Total Assets (*asob*)
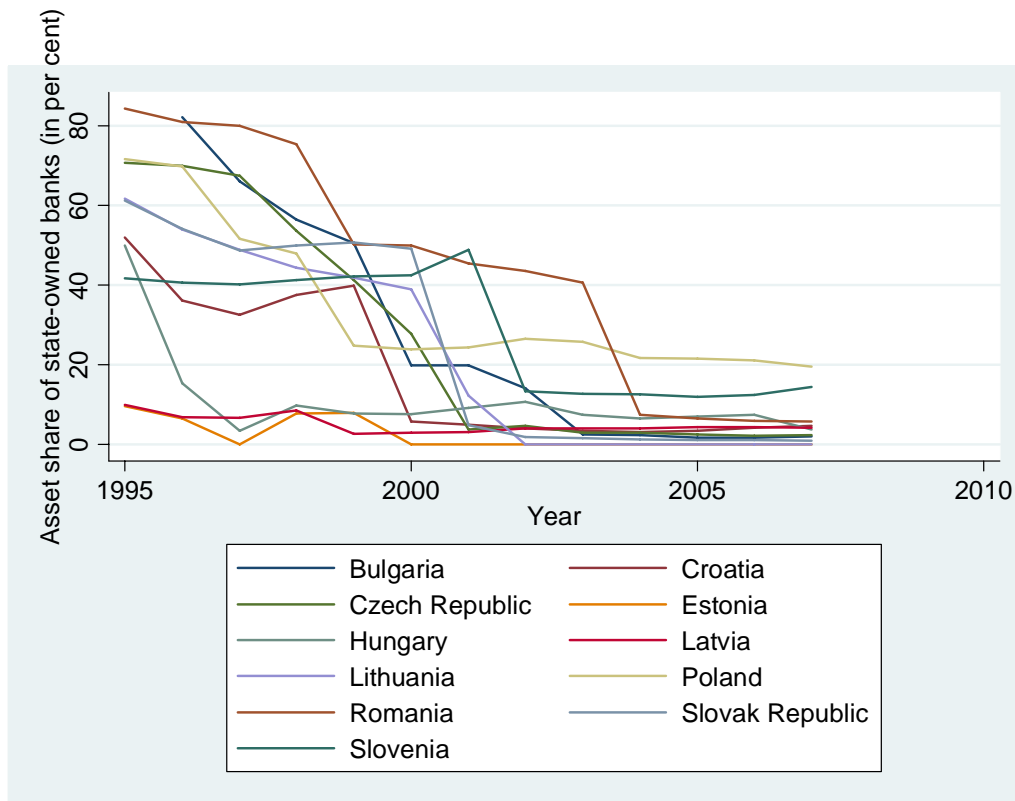
Source: author's own compilation based on EBRD data.[19]

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[19] See website: http://www.ebrd.com/country/sector/econo/stats/index.htm, detailed data sources will be presented in the appendix

Figure 6.7: Asset Share of Foreign-owned Banks in Percent of Total Assets (*afob*)
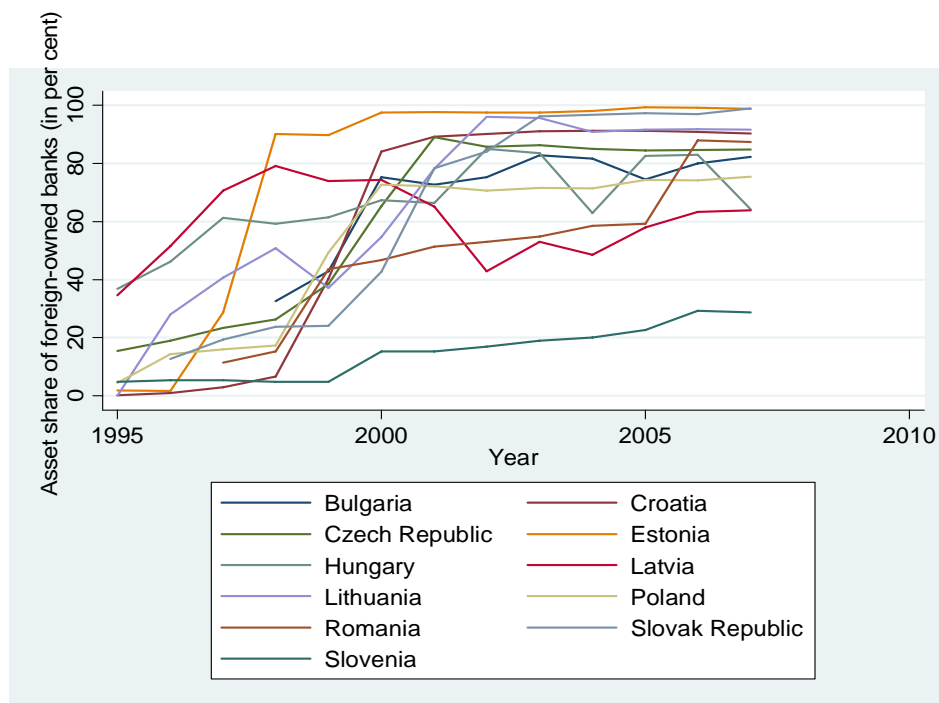
Source: author's own compilation based on EBRD data.

Table 6.3 :Descriptive Statistics of Variables

Variable	Obs	Mean	Std.Dev.	Min	Max	Unit
dbagdp	143	0.4081848	0.1918437	0.109554	0.8428232	Ratio
pcrdbgdp	141	0.314784	0.1674577	0.0633196	0.8278704	Ratio
pcrdbofgdp	141	0.314784	0.1674577	0.0633196	0.8278704	Ratio
bdgdp	143	0.3548006	0.1488505	0.1030815	0.6718888	Ratio
bcbd	142	0.9302016	0.3664305	0.3615819	2.390115	Ratio
overhead	142	0.0484878	0.0224497	0.0164302	0.1188328	Ratio
concentration	143	0.6711096	0.1500978	0.3803535	1	Ratio
netintmargin	141	0.0461346	0.0215635	0.019513	0.1534247	Ratio
roa	142	0.0074363	0.0164635	-0.0685714	0.0786778	Ratio
roe	142	0.1076013	0.1716516	-0.71126	1.060129	Ratio
asob	142	22.37254	23.83024	0	84.3	%
afob	137	58.07956	31.29857	0	99.4	%
npl	141	11.56383	12.02736	0.2	58.5	%
dcrepr	126	35.7127	19.01751	7.2	93.9	%
dcreh	118	11.34915	9.819732	0.7	43.3	%
res	143	2.907622	0.4460783	2	3.67	Index
lspri	143	3.275105	0.8641628	1	4	Index
breform	143	3.313986	0.4641517	2	4	Index
gdpg	132	5.174242	3.135676	-6.1	12.4	%
inf	132	18.18485	95.1321	-1.1	1082	%
efficiencyscore	138	0.7386618	0.3630379	8.15e-07	0.9828764	0-1

Source: author's own compilation in stata

Table 6.3 above reports the descriptive statistics of the variables being experimented in the regression analysis. Table 6.4 below presents the correlation matrix for all the variables. Non-Performing Loans (**npl**) and Asset Share of State-Owned Banks (**asob**) are highly positively correlated (coefficient = 0.7194 > 0.50); Among the possible influencing factors of efficiency, Efficiency Score (**effscore**) and Asset Share of State-Owned Banks (**asob**) are negatively correlated (coefficient= -0.499 ≈ 0.5); Efficiency Score (**effscore**) and Asset Share of Foreign-Owned Banks (**afob**) are highly positively correlated (coefficient= 0.5137 > 0.5); Banking reform (**breform**) is positively correlated to Efficiency Score (**effscore**), and inflation (**inf**) is highly negatively correlated with **effscore**. The two ownership indicators — **asob** and **afob** — are strongly negatively correlated. Regarding the privatisation index, banking reform (**breform**) and large scale privatisation (**lspri**) are both highly positively correlated with **res,** but correlation between **lspri** and **breform** is low.

Table 6.4 Correlation Matrix for the Variables

	dbagdp	pcrdbgdp	bcbd	bdgdp	overhead	concentration	netintmargin
dbagdp	1						
pcrdbgdp	0.9466	1					
bcbd	0.2456	0.4603	1				
bdgdp	0.8319	0.7083	-0.1858	1			
overhead	-0.3868	-0.3714	-0.1547	-0.424	1		
concentration	-0.1677	-0.0744	0.3072	-0.2042	0.0928	1	
netintmargin	-0.257	-0.1987	0.0247	-0.3911	0.6409	-0.0721	1
roa	0.1312	0.1191	0.2088	0.0423	-0.4184	-0.0907	0.0067
roe	0.2116	0.2151	0.172	0.1497	-0.3433	-0.061	-0.088
asob	-0.0868	-0.0875	-0.2227	-0.1201	0.369	-0.06	0.2
afob	-0.0207	0.0349	0.0806	0.1227	-0.2008	0.2801	-0.1184
npl	0.1129	0.0897	-0.315	0.2008	0.2448	-0.1375	0.0302
dcrepr	0.8561	0.9261	0.5323	0.5542	-0.4617	-0.1328	-0.2243
dcreh	0.6558	0.7301	0.5518	0.3917	-0.3994	-0.0532	-0.0797
res	0.3859	0.3528	0.1957	0.3746	-0.3501	0.2696	-0.2965
lspri	0.4194	0.3878	0.2304	0.3346	-0.1703	0.1696	-0.2105
breform	0.3734	0.4037	0.3179	0.3678	-0.4169	0.0223	-0.2282
gdpg	0.2384	0.2576	0.1025	0.1121	-0.2951	-0.4423	-0.0639
inf	-0.1532	-0.0958	0.0283	-0.2112	0.4328	-0.0283	0.3964
effscore	0.1935	0.1561	-0.0356	0.2618	-0.3889	-0.0611	-0.2516

	roa	roe	asob	afob	npl	dcrepr	dcreh
roa	1						
roe	0.6071	1					
asob	**-0.4696**	-0.1809	1				
afob	0.2104	0.0726	**-0.6972**	1			
npl	-0.464	-0.188	**0.7194**	**-0.3872**	1		
dcrepr	0.2594	0.2581	-0.2123	0.0553	-0.1164	1	
dcreh	0.4437	0.2494	-0.417	0.3164	-0.3562	0.8549	1
res	0.2091	0.2796	-0.3303	0.3267	-0.1265	0.2937	0.254
lspri	-0.0704	0.0393	-0.1353	0.1148	0.0842	0.3218	0.2444
breform	0.3907	0.2889	-0.682	0.5945	-0.5123	**0.4534**	**0.5668**
gdpg	0.3103	0.1805	-0.1074	0.0181	-0.2033	**0.4177**	**0.4774**
Inf	-0.1593	0.1364	0.3426	-0.4036	0.1571	-0.1374	-0.2163
effscore	0.3841	0.1523	**-0.499**	**0.5137**	-0.3409	0.2146	0.3306
	res	**lspri**	**breform**	**gdpg**	**inf**	**effscore**	
res	1						
lspri	**0.5192**	1					
breform	**0.632**	0.2871	1				
gdpg	-0.1213	-0.1397	0.1323	1			
Inf	-0.2008	-0.1675	-0.2557	-0.1316	1		
effscore	0.1727	-0.0049	**0.4346**	0.1114	**-0.576**	1	

Source: Stata calculated results from the compiled data.

6.5. The Empirical Results

6.5.1. The Model Specifications and Methodology

Model specification:

We will experiment with the following models suitable for panel data.

(1). Pooled model:

$$Y_{it} = \beta_1 X_{it} + \beta_0 + u_{it}$$

$$i= 1,...,n$$
$$t= 1,..,T$$

(2). Fixed Effects model with Country Effects:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

(3). Fixed Effects model with Country and Time effects:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + (\beta_0 + \beta_3 S_t) + u_{it}$$

(4). Fixed Effects Model with Country and Time Effects and other explanatory variables:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + (\beta_0 + \beta_3 S_t) + \sum_{k=1}^{m} \gamma_{it} Z_{it}(k) + u_{it}$$

One of the most important strengths of the panel data approach is the combination of both the time dimension and the cross-section dimension. This combination leads to more observations, increasing the degrees of freedom and hopefully reducing the collinearity among explanatory variables – hence improving the efficiency of econometric estimates (Hsiao 2003, p.3). Furthermore, the panel data approach enables to control for omitted variables that are persistent over time. "By utilizing information on both the inter-temporal dynamics and the individuality of the entities being investigated, one is able to control in a more natural way for the effects of missing or unobserved variables" (Hsiao 2003, p. 5).

6.5.2 Regression Analysis For Banking Production Efficiency:

Dependent variable: Banking Productivity Efficiency Score (***effscore***)

Key Independent variables: Asset Share of State-Owned Banks in Percent of Total Assets (***asob***)

Figure 6.8 :Fixed Effects - Country effect

Source: Author's own compilation by Stata

74
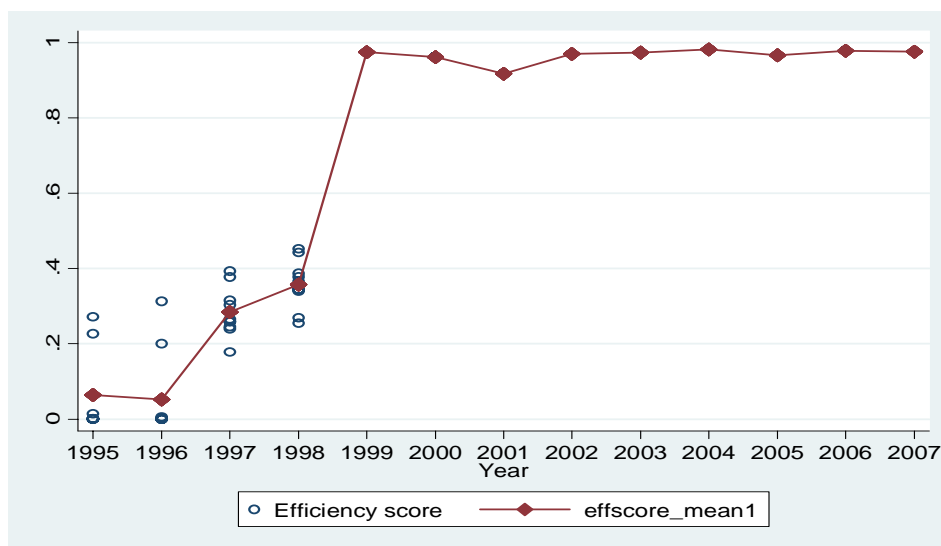
Figure 6.8 shows the trend of efficiency score across the years, controlling for country effects. It is consistent with previous figures about efficiency score. During late 1990s, the production efficiency is quite low and country differences are obvious. During 2000s, efficiency has been greatly improved with the convergence of country differences.

Figure 6.9 : Fitted Line of Efficiency Score (*effscore*) and State Ownership (*asob*)
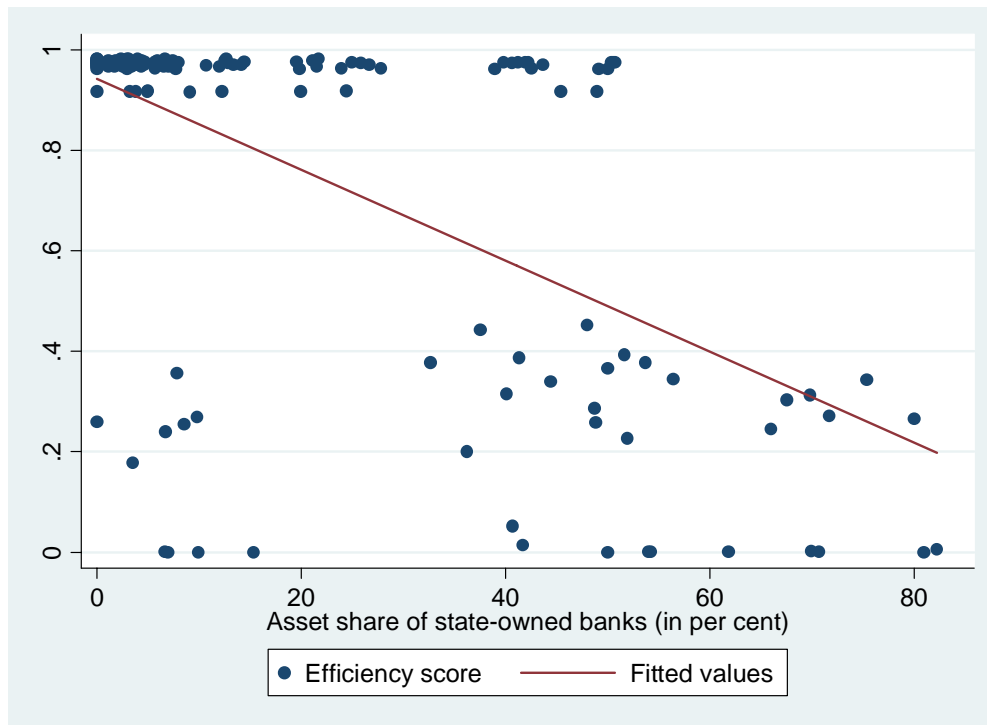
Sources: Author's own compilation by Stata

Following Stock and Watson, as a rule-of-thumb, we should always assume heteroskedasticiy in your model (see Stock and Watson, 2007, chapter 4). Results about heteroskedasticity will be checked in later part. Thus, this paper uses heteroskedasticity- and autocorrelation-consistent (clustered) standard errors in case that u_{it} could be correlated over time. Table 6.4 shows the regression results of various model speculations. In table 6.4, each column reports a different regression and each row reports a coefficient estimate and standard error, and p-value.

The core task here is to test the overall impacts of ownership on banking production efficiency in

CEE, as stated in the Hypothesis 2.The first two columns (1.1 - 1.2) report the results of the pooled model. Columns 1.3 - 1.7 report the results of country fixed effects model; the rest columns (1.8-1.9) present the results of both country and time fixed effects model.

A relevant issue to be concerned about in a multivariate regression analysis is the collinearity of regressors with each other. From the correlation matrix presented in the last part, some of the important regressors are highly correlated, such as between the two kinds of ownership and between the three privatisation indicators. In order to eliminate multicollinearity problem, this paper places highly and significantly correlated variables in separate regression specifications.

In table 6.5 below, for the pooled OLS regressions presented in 1.1 and 1.2 equations, it is shown that the coefficients of *asob* is -0.009068 and -0.0055233, respectively, which is negative and statistically significant at 1% significance level; while the other possible influencing factors of efficiency included in column 1.2 are not significant, with the exception of breform, which has a positive coefficient statistically significant at 5% significance level. The adjusted R^2 for both of the two pooled OLS regressions are not very high, which indicate the weak explaining power of the equations. Nevertheless, focusing on the main regressor *asob*, the pooled model provides preliminary evidence supporting Hypothesis 2 that the impacts of state ownership on banking production efficiency is negative. This is also consistent with the theoretical prediction.

Table 6.5: Regression Analysis of effects on Banking Production Efficiency									
Dependent Variable: Banking Production Efficiency (*effscore*)									
Regressor	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
asob	-.009068*** (0.000962)	-.0055233*** (.001939)	-.0124483*** (.001165)	-.0076868*** (.0019745)	-.006788*** (.001897)	-.0065463*** (.0018822)		.0005156* (.0002876)	.0008292** (.0004004)
afob							.0034995*** (.0012117)		
breform		.2727082** (.1245217)		.3273119*** (.0979532)	.3263105*** (.1137196)	.3056239*** (.0988159)	.3299998*** (.0940086)		-.0052348 (.0200399)
lspri					.2773619** (.1214031)	.2740071** (.1216096)	.1807574* (.1066472)		.0365003** (.0162981)
res		-.138348 (.0847606)			-.0747167 (.1646163)				
gdpg		-.001911 (.0072947)	-.0041363 (.0085702)	-.0106885 (.0084549)	-.0166466* (.0090888)	-.0173498** (.0085276)	-.0265866*** (.0068939)		
concentration			.7617054** (.2979325)	.5978884* (.3142709)	.5503724* (.3207753)	.5202459* (.3054723)	.6755429** (.2597776)		-.1039312** (.0525078)
inf				-.0003309* (.0001948)	-.0003343* (.0001864)	-.0003327* (.0001846)	-.0077145*** (.0019826)		
Constant	0.943481*** (0.029141)	.3959751 (.3348085)	.5474507 (.2122402)	-.4979546 (.4385059)	-1.146509** (.5304349)	-1.267331*** (.4839068)	-1.373778*** (.3731921)	.0428502 (.0349394)	.0003675 .0801699
Country effects?	no	no	yes	yes	yes	yes	yes	yes	yes
Time effects?	no	no	no	no	no	no	no	yes	yes
Adjusted R²	0.3470	0.3531	0.4208	0.4840	0.5062	0.5094	0.6041	0.9864	0.9871
No. Of Obs	137	130	130	130	130	130	127	137	137

Source: Stata calculated results from the compiled data.

Notes: Standard errors in the parentheses.

* Statistically significant at 10% level;

** Statistically significant at 5% level;

*** Statistically significant at 1% level.

From columns 1.3 to 1.7, we can see that all the R^2 for country fixed effects OLS regressions are higher than the adjusted R^2 in pooled model. which suggests that the national characteristics of the individual countries in our sample are of significance in banking production efficiency improvement additional to the trend of ceding state-ownership in banks. It is easy to identify that, across 1.3 to 1.6, all coefficients of ***asob*** are negative and statistically significant at 1% significance level. Besides the key regressor asob, other fundamental variables as indicated by literature review, are added in gradually, resulting in an increasing adjusted R^2 from 1.3 to 1.5. Then in 1.6 equation, in order to eliminate the the problem of collinearity between ***res*** and ***breform/lspri***, we excluded ***res*** and achieved an eve higher adjusted R^2. In equation 1.7, in order to eliminate the the problem of collinearity between state ownership (***asob***) and foreign ownership (***afob***), we excluded ***asob*** and used ***afob*** instead. The coefficient for Banking Reform Index (***breform***) is positive and significant at 1% level in all equations from 1.4 to 1.7. This signifies the positive influence of banking sector reform on efficiency improvement. The coefficient of large scale privatisation (***lspri***) is also positive and significant at 5% in 1.5 and 1.6 and at 10% in 1.7, which indicates the large scale privatisation had helped improve banking production efficiency. The macroeconomic variable inflation (***inf***) has negative coefficients significant at 10 % level and at 1% level only in equation 1.7, indicating the negative effects of inflation on banking production efficiency.

All the results above are consistent with what theory and previous empirical studies implicates; however, the sign of GDP growth (***gpdg***) and Bank concentration (***concentration***) are against our

expectations. The GDP growth has a negative sign while the concentration has a positive sign. The problem with GDP growth is probably because of the years included in our sample. GDP in CEE countries grew the fastest in the late 1990s and early 2000s, when the massive privatisation methods started to yield pleasant results; while in mid and late 2000s, the growth rate stayed at a moderate level. But the efficiency score is generally low in 1990s and very high in 2000s. This might have caused the statistic result which is not consistent to our expectation. For the **concentration** variable, the problem is that, it does not vary a lot across years and countries, especially years. It is because after foreign banks acquired the domestic banks in CEE, the market structure did not change drastically as most banks still kept their independence under the governance of foreign owners, instead of merging into conglomerates.

The equation 1.6 is the best attempt so far, with all variables significant and a R^2 of 0.5094. For understanding the magnitude of state-ownership (**asob**), it should be noted that the **asob** is a number between 0-100 (unit: %) while Efficiency Score (**effscore**) is a number between 0-1.

The equation 1.7 is also good specification for testing the impact of foreign ownership on banking production efficiency. As the sign of foreign ownership (**afob**) has positive sign and is significant at 1% level, which indicates the positive influence of foreign ownership in the total bank assets on overall banking production efficiency.

The columns 1.8 and 1.9 present the results of both country and time fixed effects OLS regressions. The R^2 is much higher than pervious specifications; The coefficients for asob are also

negative, but they are only significant at a higher level at 10% and 5%, respectively, let alone the magnitudes are much smaller.

To sum up, comparing the impacts of state-ownership (*asob*) on the banking production efficiency scores (*effscore*) in the advanced 11 CEE transition countries, which have been estimated with the pooled OLS and fixed country and time effects OLS methods, we can see that the fixed effects OLS regression results are stronger than those from the pooled OLS. Summarizing the all the regression equations, judged from both the pooled OLS and fixed effects OLS estimations, we find that the impact of state-ownership (*asob*) on the banking production efficiency scores (*effscore*) in the advanced 11 CEE transition countries has been negative. This provides strong support for the acceptance of the Hypothesis 2. In addition, it also provides evidence for the positive impact of foreign-ownership on banking production efficiency improvement, which is stated in Hypothesis 3.

6.5.3. Regression Analysis for Non-Performing Loans

Due to the importance of Non-Performing Loans as an indicator of prudential banking and efficiency, another set of regressions are experimented to understand the affecting factors of NPLs. The dependent variable is Non-Performing Loans (*npl*), and the key independent variable is Asset share of state-owned banks (in per cent) (*asob*). The same methodology as in Regression Analysis One is used. The results are presented in Table 6.6 below.

Table 6.6: Regression Analysis of effects on Non-Performing Loans							
Dependent Variable: Non-Performing Loans(***npl***)							
Regressor	2.1	2.2	2.3	2.4	2.5	2.6	2.7
asob	0.2677*** (0.0551)	0.2883*** (0.0571)	0.2196*** (0.0635)	0.2138*** (0.0615)	0.0999* (0.0584)		
afob						-0.1037** (0.0488)	-0.0199 (0.0417)
gdpg		-1.1725*** (0.4242)	- 1.2403*** (0.4532)	-1.2378*** (0.4407)	-0.8592** (0.3563)	-1.2723** (0.5487)	-1.0898*** (0.3656)
dcrepr			0.2093** (0.0834)	0.2461*** (0.0740)	0.3989*** (0.0737)		0.5093*** (0.0619)
res				11.48316** (5.4032)	12.1732** (5.1300)		
lspri					-19.5745*** (4.6318)		-19.572*** (4.6518)
Constant	7.2080* (3.7693)	10.6865*** (3.3081)	-2.6911 (5.4565)	-41.8746** (17.4627)	12.4358 (18.6015)	21.3151*** (6.7849)	14.827 (19.25115)
Country effects?	yes	yes	yes	yes	yes	yes	yes
Time effects?	yes	yes	yes	yes	yes	yes	yes
Adjusted R²	0.5917	0.6171	0.6241	0.6371	0.6993	0.5380	0.7038
No. Of Obs	140	131	119	119	119	131	116

Source: Stata calculated results from the compiled data.

Notes: Standard errors in the parentheses.

* Statistically significant at 10% level;

** Statistically significant at 5% level;

*** Statistically significant at 1% level.

Only panel data fixed effects OLS regression results are presented in Table 6.6, as pooled regression did not produce any strong results. Columns 2.1 to 2.5 present equations with state-ownership as the main regressor. For the first four equations, the coefficients of state ownership (***asob***) is positive and highly significant at 1% level. With more regressors added in, the adjusted R^2 increases gradually from 0.5917 to 0.6371 and all newly added variables have significant coefficients. In Equation 2.5, with more explaining variables added in, the the coefficient of state ownership (***asob***)

became significant only at 10% level. The most important result is that, there are positive and highly significant signs for ***asob*** in all the five specifications. This strongly supports the acceptance of Hypothesis 2.

From Equations 2.6, we can see that the coefficients of foreign ownership (***afob***) have negative signs and are significant at 5% level when only foreign ownership (***afob***) and GDP growth (***gdpg***) are included in the formula. This indicates that with more foreign-owned banks in the sector, there are fewer NPLs. As foreign owned banks have more standard corporate governance models and adhere to the rule of prudential banking. This also provides evidence for the acceptance of Hypothesis 3.

However, when more variables are included in the formula, the coefficient of state-ownership (***asob***) become insignificant.

The signs of other explaining variables are also reasonable. The "domestic credit to private sector" (***dcrepr***) have positive coefficients significant at 5% and 1% levels. This means that more credit supply will easily result in bad loans, especially without proper banking regulation and corporate governance models. The enterprise restructuring (***res***) variable also has positive sign, which can be explained that the restructuring process was accompanied by insolvencies of many enterprises, resulting in mounting NPLs.

The possible problem with the regression is that, large amount of NPLs had been written off and shifted from state-owned banks. This flaw in the NPL data might render the regressions less robust. However, even though there were large amount of bad loan writing off during the late 1990s, we found

out that, based on the dataset, there were more positive growth of NPLs year-on-year in 1990s than in 2000s. In 2000s, there was few tranfer of NPLs, however, the NPLs stayed at a low and stable level, compared to 1990s.

6.5.4. Other Empirical Testings on Credit Supply

Though the focus of empirical tests is on banking efficiency and ownership, there are other attempts and findings from regression analysis, based on the data available.

As we managed to have collected "domestic credit to private sector" for 23 transition countries, including CE, SEE, Baltics and CIS. We tested for the effects of ownership on credit supply. In order to eliminate the impact of any large fluctuations in the macroeconomic variables during the 1990s, we divided the sample period (1995−2007) into two sub-periods: consolidation period (1995−2001) which is characterised by the completion of debt consolidation, recapitalisation of banks, and privatisation of major banks. and post-consolidation period (2002−2007), which corresponds to the impacts of these developments and changes on net interest margins in the transition process. The econometric analysis is also applied separately for the 1990s and the 2000s.

The results presented in table 6.7 are reasonable, as for the first period, in fixed effects OLS model, state-ownership and domestic credit to private sector has significant positive relation, which can be explained by previous theories that, the lack of prudential banking in state-owned banks resulted in the increase of credit supply. Besides, as seen from model 3.2, the GDP growth has no significant influence over credit supply in the first period; while the state ownership has positive influence on credit supply

in both model 3.1 and 3.2. This might hint the counter-cyclical lending behaviour of state-owned banks.

For the second period, as there are very few state-owned banks left during this period, no significant relations were found between state-ownership (*asob*) and domestic credit (*dcrepr*). There is large percentage of foreign bank presence, however, no significant relationship were found between foreign ownership (*afob*) and domestic credit (*dcrepr*) either. No significant relations were found between state ownership (*asob*) and domestic credit (*dcrepr*). On the other hand, when excluding those ownership variables and adding other variables, we find that, bank concentration has negative effects on banking credit while net interest margin has positive effects on credit supply. This could be explained that, in the second period, banking lending behavior is approaching normal standard under foreign ownership, thus credit supply are affected mainly by competition conditions and net interest margin, instead of ownership conditions.

Table 6.7: Regression Analysis of effects on Domestic Credit to Private Sector						
Dependent Variable: Domestic Credit to Private Sector(*dcrepr*)						
Regressor	3.1	3.2	3.3	3.4	3.5	3.6
	Early Years (1995-2001)			Later Years (2002-2007)		
asob	0.1737***	0.2366***		0.0228		
	(0.0528)	(0.0733)		(0.0778)		
afob			-0.0341		0.0105	
			(0.0308)		(0.0483)	
gdpg		0.0092				-0.3961*
		(0.1345)				(0.2275)
concentration						-13.8610*
						(8.0494)
netintmargin						167.2961**
						(66.7209)
Constant	6.5946**	10.5043***	15.8802	19.2175***	19.2736***	21.6661***
	(3.2830)	(2.6545)	(1.2395)		(2.8718)	(7.4063)
Country effects?	yes	yes	yes	yes	yes	yes
Time effects?	yes	yes	yes	yes	yes	yes
Adjusted R²	0.8525	0.8422	0.9300	0.8398	0.8397	0.8457
No. Of Obs	121	107	108	178	178	158

 Source: Stata calculated results from the compiled data.

 Notes: Standard errors in the parentheses.

* Statistically significant at 10% level;

** Statistically significant at 5% level;

*** Statistically significant at 1% level.

6.6. Robustness Check

An important concern about the applicability of the ordinary least squares (OLS) regression is the potential problem of heteroskedasticity. If there is no constant variable in the error term, then the OLS assumption will be violated. To check the heteroskedasticity of the respective regression specifications, the Breusch-Pagan/Cook-Weisberg tests have been carried out in the Stata after respective OLS regressions to check the potential problem of heteroskedasticity. For the pooled OLS models, the Estat hettest pvalues are larger than 0.05, which enables to accept the "H_0: Constant Variance" for the Breusch-Pagan/Cook-Weisberg test at 95% confidence level. Therefore, there is no existence of heteroskedasticity for the pooled OLS regressions.

Another important assumption of the regression model (OLS) that impact the validity of all tests (p, t and F) is that residuals behave 'normal'. Residuals are the difference between the observed values (Y) and the predicted values. Kernel density estimate has been conducted and residuals behave close to normal distribution.

7. Lessons and Policy Implications for China

The CEE country's banking privatisation experiences have been given valuable lessons for the world largest transition economy - China. The banking system in China is the largest and most complex among the countries in transition from central planning to market-based economies. Even though China started a remarkable reform process more than thirty years ago, long before CEE transition countries, but it has followed an gradual approach to change and only started major reforms in banking sector during the recent decade.

The China banking industry is still dominated by the big four state-owned commercial banks. During the recent worldwide financial crisis, almost all major banking giants in the western world suffered great losses; however, China's banks, supported by a series of government measures, recorded a surge in growth in 2008 despite the global credit crisis.China's banks surprisingly soured to the top 5 places by market capitalisation and by pre-tax profits. (see Figure 7.1) This may create an illusion that state-ownership might be useful and state-owned banks are more advantageous and powerful over private banks. Therefore, questions arose such as should privatisation of state-owned banks still be the best option for China? If so, should the big economy follow the useful lessons of CEE transition economies? What measures can be adopted and what cannot, and why?

Figure 7.1. World's Largest Bank Ranking by Market Capitalisation and by Pre-Tax Profit

Ranking	Bank	Country	Mkt cap	Last year		Ranking	Bank	Country
1	ICBC	China	254,840.7	248,830		1	ICBC	China
2	China Construction Bank	China	174,522.8	197,068		2	China Construction Bank Corporation	China
3	Bank of China	China	154,889.4	147,671		3	Santander Central Hispano	Spain
4	HSBC Holdings	UK	143,077.3	192,380		4	Bank of China	China
5	JPMorgan Chase & Co	US	123,337.9	128,408		5	BBVA	Spain
6	Wells Fargo & Co	US	109,765.6	84,382		6	HSBC Holdings	UK
7	Bank of America	US	98,776.5	128,463		7	Barclays Bank	UK
8	Santander Central Hispano	Spain	94,590.56	117,473		8	Agricultural Bank of China	China
9	Mitsubishi UFJ Financial Group	Japan	70,961.13	107,411		9	UniCredit	Italy
10	BNP Paribas	France	69,461.63	83,932		10	Royal Bank of Canada	Canada
11	Bank of Communications	China	62,147.64	57,431		11	Société Générale	France
12	Itaú Unibanco Banco Múltiplo	Brazil	59,021.8	*		12	Commonwealth Bank Group	Australia
13	Royal Bank of Canada	Canada	58,805.75	64,106		13	BNP Paribas	France
14	Barclays	UK	53,656.52	*		14	Dexia	Belgium
15	Credit Suisse Group	Switzerland	51,906.19	*		15	Crédit Agricole Group	France
16	China Merchants Bank	China	50,405.73	*		16	Bank of Communications	China
17	Toronto-Dominion Bank	Canada	46,239.64	55,235		17	Mizuho Financial Group	Japan
18	BBVA	Spain	46,176.94	76,220		18	Standard Chartered	UK
19	Westpac Banking Corporation	Australia	45,772.79	*		19	Nordea Group	Sweden
20	Commonwealth Bank of Australia	Australia	44,966.22	*		20	Banco Bradesco	Brazil
21	UniCredit	Italy	40,765.71	82,866		21	Westpac Banking Corporation	Australia
22	Banco Bradesco	Brazil	39,786.06	*		22	Bank of America Corp	USA
23	Sumitomo Mitsui Financial Group	Japan	39,752.3	65,766		23	Sberbank	Russia
24	Bank of Nova Scotia	Canada	38,969.75	*		24	Toronto-Dominion Bank	Canada
25	Intesa Sanpaolo	Italy	38,772.92	74,694		25	US Bancorp	US

*not on last year's list   Source: Thomson Reuters Datastream (figures from July 8, 2009)

Source: The Banker[20]

7.1. Review of Chinese Banking System

Prior to 1978, the year when the reform and opening up policy started, the same as other communist central planning economies, a mono-bank model was dominant in the Chinese financial system, whereby all banks were arranged as administrative hierarchy and controlled by People's Bank of China.

Though banking reform was put on the agenda as early as in 1978, the reform process has been lasing for a long time and following a slow incremental path. The initial reform measures, which are

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[20] See *http://www.thebanker.com,* accessed on 13rd, Jul, 2009. It should be noted that the calculation of marketcap is based on listed shares, but for state-owned banks, not all shares are listed. So the result is the market price of listed shares multiple by total shares (including state shares). So the marketcap for Chinese state-owned banks are only the approximate estimates.

similar to CEE countries' methods, focused creating a two-tiered banking system out of the mono-bank system. Banks then were expected to become more profit-oriented and diversified banking functions were separated from the central bank - People's Bank of China (PBOC). Four specialised state-owned banks were created, which are the Bank of China (BOC), the Industrial and Commercial Bank of China (ICBC), the Construction Bank of China (CBC) and the Agriculture Bank of China (ABC); they are called the the ''Big Four'' state-owned commercial banks.

Banking ownership reform was not introduced until the mid- and late-1980s, during this period, there was no radical change in the existing banking system structure. Nevertheless, some new private banks had been established alongside with the ongoing dominant position of state-owned banks. Furthermore, in order to remove the policy-oriented burden off the state-owned commercial banks, the government established three specialised ''policy'' banks in 1994, namely the Agricultural Development Bank of China (ADBC), China Development Bank (CDB), and the Export–Import Bank of China (China Eximbank). In 1995, the Central Bank Law and the Commercial Bank Law were enacted. With the implementation of the Commercial Bank Law, urban and rural credit cooperatives started to merge and form city-level commercial banks, which are owned by the state, state-owned enterprises, or in some cases private capital. (Xiaochi L., Yi Z., 2009)

In late 1990s, banking reform has been accelerated due to the WTO entry requirement and the liberalisation of China banking industry. In order to prepare China banks to face the fierce competition from global financial players, Chinese government made huge efforts in improving banking efficiency and profitability. The bad debt problem is among the most urgent issues to be solved. Because of

weakness inherent in the state-ownership of commercial banks, such as large policy loans and weak corporate governance, NPLs are inevitable and have been receiving the most attention on the reform agenda since the late 1990s.

Table 7.1: Estimates of Capital Injections Into the Big Three Since 1998

Actions undertaken		Government borrowing	Government assets	AMC borrowing	Total financing provided
		RMB billion			
Capital injection	1998	270	0	0	270
Sale of bad loans	1999	0	0	1400	1400
Capital injection: CBC, BOC	2003	0	373	0	373
Sale of bad loans by CBC and BOC	2004	0	0	128	128
Capital injection ICBC	2005	0	124	0	124
ICBC NPL disposal	2005	0	0	680	680
Total of above		270	497	2208	2975
Total (% of 2004 GDP)		2%	4%	16%	22%

Source: Xiaochi L., Yi Z., (2009)

From Table 7.1, it is astonishing that, from 1998 to 2005, the Chinese government has injected nearly 3000 billion RMB, which takes up 22 percent of total GDP in 2004, into the big three state-owned banks. The AMC (Asset Management Companies)[21] had been lending large sum of funds to those banks. There are four AMCs, each one corresponding to one of the big four state owned banks.[22] The inefficiency of those big state-owned banks had brought great costs to the government and the economy overall.

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[21] AMC means "Assets Management Company", which is also called "Bad bank", is a term for a financial institution created to hold nonperforming assets owned by a state guaranteed bank.

[22] Bank of China's AMC is called Dongfang. Cinda AMC is for China Construction Bank. Industrial and Commercial Bank had Hurong. The Agriculture Bank of China has Great Wall.

Figure 7.2. Aggregated NPL Ratio in the "Big Four" State-owned Banks

Figure 7.2 shows that the aggregated NPLs in percent of total loans and of GDP are very high from 1997 to 2005. The huge decrease in 1998 is mainly because of the massive transfer of bad debts to Asset Management Companies. After that, NPLs surged again, to the ratio as high as 32.9% of total loans in 2000. In early 2000s, to prepare those big banks to be listed on the stock market, the government continued shifting bad debts as well as diversified minority ownership of banks. Thus the NPL ratio kept falling during this period.

Figure7.3. NPLs of the "Big Four" State-owned Banks

NPL RATIO TO TOTAL LOANS - INDUSTRIAL & COMMERCIAL BANK OF CHINA : China
NPL RATIO TO TOTAL LOANS - CHINA CONSTRUCTION BANK : China
NPL RATIO TO TOTAL LOANS - AGRICULTURE BANK OF CHINA : China
NPL RATIO TO TOTAL LOANS - BANK OF CHINA : China

Source: Thomson Reuters Datastream
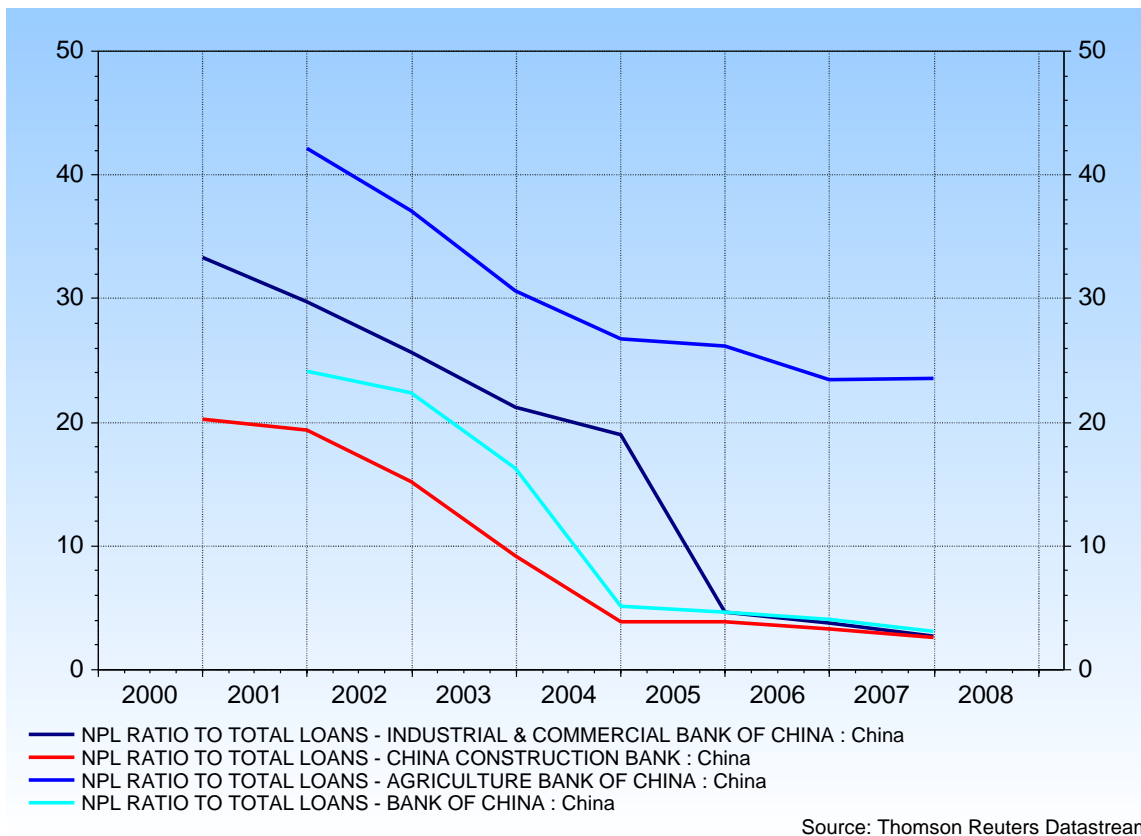
Source: Datastream

Figure 7.3 shows the NPL trend for each of the big four state-owned banks in China from 2000 to 2007. Except the Agriculture Banks, all other banks have shown great progress in reducing NPLs.

The improvement of NPL levels prepared for further reform of banks. Now all four state-owned banks are listed on the stock market and a small percentage of shared were sold to foreign investors. Other smaller banks were privatised using a mixture of methods. More than five domestic joint-equity banks were publicly listed and another 10 banks were partially sold to foreign investors, including city commercial banks and domestic joint-equity banks. Nowadays, there exists a three-tier domestic banking system in China. The first tier consists of mainly of the "Big Four" state-owned banks and other domestic banks; the second tier includes 12 national-level domestic joint-equity banks; the third

tier includes about 100 city-level commercial banks the third tier. The system also includes policy banks, newly established Chinese-foreign joint-equity banks, banks capitalized entirely by foreign funds, and other non-bank financial institutions such as urban and rural credit cooperatives, trust and investment companies, finance companies, and leasing companies.

After reviewing the reform process, it can be argued that the outstanding performance of Chinese banks during recent years is not an evidence of state-ownership advantage, but the ownership reform measures government has taken. Alternatively, the weakness of state-ownership is still obvious during the financial crisis. China banks stayed almost intact mainly because the relative isolation of Chinese financial system from global financial markets, not particularly because of state-ownership. The growth of China's banking sector is being driven by a huge increase in new lending (equivalent to 25% of annual gross domestic product in the first six months of 2009.[23] The recent credit boom exactly proves the government's counter-cyclical controlling power of banking lending in state-owned banks in China, which is against the rule of prudential banking and will highly likely result in NPLs in the future.

7.2. The Problems of Chinese State-Owned Banks

A recent study by Xiaochi Lin, Yi Zhang (2009) indicates that the "Big Four" state-owned commercial banks are less profitable, are less efficient, and have worse asset quality than city-level commercial banks, domestic joint-equity banks, newly established Chinese- foreign joint-equity banks, and banks capitalized entirely by foreign funds.

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[23] www.thebankers.com accessed on 11 April, 2010

The problems with Chinese state-owned banks are similar to what CEE banks used to have, such as conflicts of political purposes and pure economic goals, soft budget constraints, ineffective appointment of personnel and weak risk management.

Because of the government control power in commercial banks, the banking lending in China shows a counter-cyclical trend. In good times, government tightened the credit supply for fear of economy becoming overheating; however, in bad times, government stimulated credit to pull economy out of cyclical downturn. During the recent crisis, China's massive credit stimulus will highly likely lead to a future surge in non-performing loans. This build-up of bad debt may exacerbate China's domestic imbalances and will only be cleared up at huge costs, which will ultimately fall on the low-consuming households.

The key to solving the problem is to alter the ownership of commercial banks. However, it is not easy in the context of China.

The most notable difference regarding state-owned banks is about State-Owned Enterprise (SOE) privatisation. While CEE countries suffered greatly from related lending and poor corporate governance of newly-privatised enterprises; China still keeps a certain number of state-owned enterprises especially in strategically important industries, such as iron, oil and gas. Therefore the government is reluctant to privatise state-owned banks as there is still the need to lend "policy" loans to those state-owned enterprises.

7.3 The Rationale for Different Privatisation Methods

In the past two decades, Chinese state-owned banks have undergone a remarkable privatisation program, which shares some similarities with CEE transition countries, but is still quite different. The distinctions regarding the reform process can be explained by the differences in various economic,

political and cultural factors.

The banking reform strategy contained in Pilot Guidelines rests on three pillars: (i) creation of elementary governance bodies, (ii) invitation of foreign strategic investors and (iii) listing of banks at Hong Kong Stock Exchange (HKSE). It is inspired by international standards at least as much as the regulatory reform strategy. (Z. Kudrna, 2008)

Factors that influence the differences in the privatization methods between CEE and China are analysed as the following:

1. The privatisation results of State-Owned Enterprises (SOEs)

The state-owned enterprise privatisation in China still needs further progress. China adopted a "gradualist" approach to privatisation, which helped it to achieve spectacular economic growth. During the early period of privatisation, the government focused on small SOEs and allowed liquidation of the loss-making entities. However, there still remains the big SOEs in key industries indicating strong government control and interests in strategic assets in the economy , which are difficult to fully privatise. Thus the government has been progressing slowly on the path of fully privatising the state-owned banks. The theoretical explanations of corporate governance problems applied to the early years of privatisation in CEE countries are also applied here. As the state-owned enterprises have other political and social aims instead of commercial pursuits, the business profits are hard to guarantee. The big banks, which are also owned by the same government, would support those usually large state-owned firms. Therefore, the credit supplied by state-owned banks could easily turn into non-

performing loans. If those state-owned firms are not privatised, there will always be the incentive for the government to keep the controlling stakes in commercial banks.

2. The government's position in the economy and ideological view of markets.

The political situation is quite different between CEE and China. Even though they are all transition economies, but politically, China is still far from democracy. The special combination of economic liberalisation and political authoritarianism determined the special path of banking sector reform.

3. The past, present, and potential future regulatory structure in the country

The regulatory structure in China had been quite inefficient but is making progress these years. One attempt of the government to achieve better monitoring of the banking industry is the creation of China Banking Regulatory Commission (CBRC) in 2003 to oversee reforms and regulaions. (Xiaochi L., Yi Z., 2009)

4. The cost of privatisation — the need to pay off important interest groups in the privatisation.

As the main legitimacy of Chinese government is constant economic growth, stability is the primary goal and gradual reform is the optimal path of Chinese economic reform. The cost of privatising and restructuring state-owned banks is very high and the result is still difficult to predict. Thereof, fully privatising state-owned banks is too risky and costly in China's political economy context.

5. Institution perfection.

The government's ability to credibly commit itself to respect investors' property rights after divestiture is important for successful privatisation. The existing institutional framework for corporate

governance in the country is also a key factor determining the time, methods and pace of banking privatisation. Chinese government is putting great efforts in creating healthy institutional environment for the huge market economy. China Banking Regulatory Commission is playing a greater role in regulating and supervising Chinese banks besides the central bank.

6. The capital market conditions

Different from bank-based economies of CEE transition countries, China's stock market has undergone great improvement and is working as good substitute of banking financing method. In order to facilitate and promote the overall reforms of SOEs, the authorities permitted two stock exchanges to be established in early 1990s, namely, the Shanghai Stock Exchange in 1990, and the Shenzhen Stock Exchange in 1991. Since then, the equity issuance has been a popular financing method for the Chinese firms. In this way, privatising banks domestically is a good option in China.

The quality of stock market also affects the reform methods of state-owned banks. For the Chinese big four state-owned banks, three have been listed on the Hong Kong stock exchange. The HKSE, more developed than its counterparts on the mainland, is a bigger and better-regulated market, where all participants have to comply with the Code of Corporate Governance Practices. The expectations for listing on HKSE is that it would help to sustain pressure for improvements in bank corporate governance. The listing caused noticeable improvements in transparency.

7. The government's unwillingness to sell large percentage of shares to foreign strategic investors

The most notable difference between CEE countries and China is their willingness towards foreign ownership of domestic banks. China is certainly learning from CEE experiences by selling minority

shares of domestic banks (including state-owned banks) to international big players. Several international banks have taken on minority stakes in the Big Four. However, Chinese government set a limit for foreign ownership in state-owned banks at 20%. Moreover, There are no representatives of strategic investors below board level with the exception of a few consultants working on new product lines and staff training. The day to day management, credit approval, risk management and other essential functions remain firmly in the hands of managers appointed and monitored by the Chinese shareholders. (Z. Kudrna, 2008)

The benefits of foreign bank involvement have been tested and confirmed. Recently, Chinese Banking Regulation Commission (CBRC) examined the changes of the Chinese banks which introduced foreign investors and found that the foreign strategic investors have been playing an active and positive role in improving the Chinese banks' corporate governance, cost control, risk management, operation technologies, and growth sustainability. (Xiaochi L., Yi Z., 2009) The document, "Chinese Banking Sector's Reform and Opening, and New Progress of Regulations," issued by CBRC on Dec 5, 2005 further details the major problem associated with state ownership in the banking sector is that the lack of incentives in monitoring state banks create "black holes" especially with regards to corporate governance.[24] CBRC's perspective here could be that despite an imitation of investment by foreign entities, it still likely that such association will improve Chinese banks' performance from increased incentive of monitoring by outside owners as well as by the exposure to new ideas, modern technology transfer, and other advanced banking skills. Additionally, the foreign investment in equity holdings of

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[24] CBRC website http://www.cbrc.gov.cn/english/home/jsp/index.jsp, accessed on 10th, May, 2010

these Chinese banks, especially the associated foreign buyers' commitment of better human capital,

increased monitoring and technology transfer has strongly reinforced the credit worthiness of these

banks as evidenced by the recent upgrade of credit ratings by international credit rating agencies, such

as S&P (Li, 2005).

Despite the progress brought by minority foreign shareholdings, Chinese government will not

willingly nor necessarily privatise state-owned banks by totally relying on foreign owners. The reasons

include cultural differences, geographical politics and potential economic risks. Because of cultural

traditions and lack of investment channels, both private and corporate savings in China are

exceptionally high. Thus the banking sector is crucial for economic development of China. Any form

of banking crisis would threaten steady economic development and security of jobs on a massive scale.

That could easily destabilise the communist party rule that derives legitimacy largely from sustained

growth and improvement of economic circumstances. (Kudrna, 2008)

To summarise, only the basic format of standard bank governance has been achieved in Chinese

banking reform. Banks have been turned into corporate bodies, where foreign investors are allowed to

participate at a certain level and three of the big four SOBs are listed on A- and H-markets. (The last

one to be listed soon.) Those efforts of banking reform have resulted in substantial enhancement of

bank performance, especially regarding NPLs and efficiency. Nevertheless, fundamental change in

ownership from state to private still faces great obstacles. The periphery role of foreign strategic

investors in banking governance and management greatly prevented SOBs from benefiting from

banking FDI in a similar way as CEE transition economies. As the dominance of state ownership

persists, when there is any conflict of interests between government and private shareholders, the power of the state prevails. Besides, the government is basically dominated by the single party, thus the party also controls over the personnel nomination, which ensures that policy objectives will be followed.

To strengthen one point again, the paper is not to argue against the policy aims of state in banks, but rather to support the importance that there should be clearer separation of policy banks and commercial banks, as the incentives of government are not always accord with banking efficiency, but most of the time conflict with standard prudential rules of banking. Even though China has established several policy and development banks for certain national strategic sectors, there is still large influence of the government on the commercial banks lending, through the channel of the state-ownership in the biggest four banks.

After considering the various factors influencing privatisating methods, we can conclude that the optimal policy choice for China is that, firstly, progress SOE privatisation; secondly, privatising banks based on a sound and well-functioning stock market; thirdly, improve corporate governance and advanced banking technology by certain acceptable degree of foreign bank participation.

8. Conclusions

Central and Eastern Europe is the region where the ownership of banks has been through the most fundamental and massive changes during the past two decades.

The governments had ceded direct ownership of commercial banks, and sold large amount of shares to foreign banks. Large literature has analysed the banking privatisation process and the general disadvantages of state-owned banks. This paper adds value to the existing literature by analysing the state-ownership in commercial banks in transition process, whether and why state ownership imposes negative effects on commercial banking, through both theories of corporate governance and empirical testings. It contributes to the rethinking of state-ownership in commercial banks, draws implications for China based on CEE experience, and provides some insights into how state-owned banks can be transformed into well-functioning financial institutions which are crucial for achieving greater financial intermediation and economic development in transition countries.

The main conclusions are the following:

First, in the context of transition country privatisation process, the state ownership of banks imposes negative effects on bank performance and hinders successful privatisation of enterprises. Through the perspective of corporate governance view (including corporate governance issues both in banks and newly-privatised enterprises), in the special transitory corporate governance model in newly privatised firms in CEE countries, the state-owned banks, because of their internal flaw of incentives,

lack of standard banking practices, and complicated abnormal relationships with their current or potential clients, were unable to allocate credit to the proper clients, thus generated large non-performing loans and jeopardised banking efficiency.

Second, by means of SFA method, we find out that banking production efficiency has been improving greatly in late 1990s and stayed at a constant high level in 2000s. Through second stage panel data pooled OLS and fixed effects OLS regressions, we find the negative effects of "asset share of state-owned banks in total assets" on overall banking production efficiency score calculated , and asset quality (in terms of NPLs). Besides, the large presence of state-owned banks is also associated with domestic credit boom in late 1990s, due to the non-prudential lending behaviours.

Third, as supported by both theories and empirical testings, foreign bank participation proves to be useful and the only viable option for most CEE countries. It cut off related lending and caused a fundamental change of corporate governance models and transformed CEE banks into western style modern financial institutions guided by prudential banking rules. The empirical tests also confirmed that foreign bank participation improves bank performance.

Next, the giving up of state ownership in banks does not mean the insignificance of government's role in the banking sector. Government should position itself in the right place. The most crucial role of governments in banking is the strong and independent regulation and supervision over the banking industry. Therefore, for transition countries, the transformed role of government from owners to

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regulators is an extremely important determinant in the success of not only banking privatisation but also banking development afterwards.

Finally, this paper draws policy implications for China, based on CEE experience. For Chinese banking transformation, the key is still about the ownership change. This paper argues that the outstanding performance of Chinese banks during recent years is not an evidence of state-ownership advantage, but the ownership reform measures the government has taken. Alternatively, the weakness of state-ownership is still obvious during the financial crisis. The recent credit boom exactly proves the government's counter-cyclical controlling power of banking lending in state-owned banks in China, which is against the rule of prudential banking and will highly likely result in NPLs in the future. Based on the similarities and differences between CEE and China, the paper proposed future banking reform measures for China.

Turning back to the doubts over the nationalisation of some western banks during the financial crisis starting from 2007. We should not confuse the two different situations in which the banks are under government control: One is because the current or previous regime maintains near-complete control of all businesses in a country, which is what this paper aims to study, in the context of transition and privatisation; the other situation is during severely difficult economic crisis, bank nationalisation is largely used as an emergency method to help banks avoid immediate insolvency and to solve the pressing problem of potential systematic risks. Thus, during the current crisis, bank nationalisation is only a temporary measure, and most nationalised banks during the period are expected to be privatised after the economy recovers.

For further research, the role of government as a regulator and supervisor over banking sector can be further analysed in greater depth. Besides, after obtaining the bank-level ownership data across sample years, both in CEE countries and in China, a comparative study could be a good suggestion.

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Appendix:

Table A1: Average Banking Production Efficiency Estimates for individual country each year

TCentral Europe (CE)	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Czech Republic	0.001937	0.304163	0.377863	0.575378	0.862723	0.917996	0.970052	0.973877	0.982812	0.966945	0.979273	0.976048
Hungary	0.000001	0.178328	0.269374	0.775257	0.962407	0.916350	0.969856	0.973735	0.982759	0.966721	0.979200	0.975948
Poland	0.313545	0.394020	0.452460	0.655089	0.823006	0.919319	0.970247	0.974031	0.982876	0.967182	0.979373	0.976193
Slovak Republic	0.000545	0.287075	0.366179	0.695354	0.962670	0.917879	0.970027	0.973859	N/A	0.966926	0.979264	0.976037
Slovenia	0.051985	0.315592	0.387921	0.595392	0.862766	0.918037	0.970047	0.973898	0.982817	0.966952	0.979269	0.976043
CE average	0.073603	0.295836	0.370759	0.659294	0.894714	0.917916	0.970046	0.973880	0.982816	0.966945	0.979276	0.976054
Southeastern Europe (SEE) and Baltics												
Bulgaria	0.005137	0.245466	0.344009	0.675327	0.762604	0.917389	0.969966	0.973823	0.982790	0.966863	0.979245	0.976023
Croatia	0.200566	0.377828	0.442811	0.675470	0.762936	0.919198	0.970218	0.974015	0.982864	0.967137	0.979354	0.976156
Estonia	0.000169	0.259150	0.355911	0.575338	0.862617	0.917646	0.969999	0.973851	0.982795	0.966896	0.979249	0.976021
Latvia	0.000082	0.239665	0.254906	0.975318	0.962602	0.917541	0.969995	0.973835	0.982793	0.966881	0.979243	0.976018
Lithuania	0.000119	0.257944	0.339860	0.675304	0.862583	0.917520	0.969978	0.973844	0.982801	0.966926	0.979259	0.976038
Romania	0.000040	0.265459	0.342659	0.615325	0.762584	0.917446	0.969986	0.973833	N/A	0.966883	0.979257	0.976028
SEE average	0.034352	0.274252	0.346693	0.698680	0.829321	0.917790	0.970024	0.973867	0.982809	0.966931	0.979268	0.976047

Source: Author's own calculation.

1. Variables Regarding Financial Development and Structure

   Beck, Demirgüç-Kunt and Levine, (2000) Constructed a "New Database on Financial Development

and Structure", and it was recently updated in Nov. 2008. Based on several trustworthy sources, it

provides a comprehensive assessment of the development, structure and performance of the financial

sector. Especially useful to our research is that, this database uses bank-specific data to construct

indicators of the market structure and efficiency of commercial banks. Furthermore, it is the first

systematic compilation of data which splits public from private ownership in the banking sector.

   Based on the introduction paper of Beck,T. Demirgüç-Kunt,A. and Levine,R. (2000), we classify

those variables into four sections as following:

A. Size of Financial Institutions

   The data base distinguishes three groups of financial institutions: central banks, deposit money banks

and other financial institutions. Based on IMF's International Financial Statistics (IFS), it measures

both relative size and absolute size of each group of financial institutions. These measures provide

evidence on the importance of the financial services performed by the three types of financial

institutions relative to the size of the economy. Those measures are:

 -Deposit Money Bank Assets / (Deposit Money + Central) Bank Assets (code: ***dbacba***);   - Deposit

Money Bank Assets / GDP (code: ***dbagdp***);

 - Other Financial Institutions Assets / GDP (code: ***ofagdp***)

B. Activity of Financial Intermediaries:

 As one of the main function of financial intermediaries is channeling savings to investors.

- Private Credit by Deposit Money Banks to GDP (code: ***pcrdbgdp***)

- Private Credit by Deposit Money Banks and Other Financial Institutions to GDP(code: ***pcrdbofg***)

Both measures isolate credit issued to the private sector as opposed to credit issued to governments and public enterprises. Furthermore, they concentrate on credit issued by intermediaries other than the central bank.

 - Bank Credit / Bank Deposits (***bcbd***)

 - Bank Deposits / GDP (***bdgdp***)

C. Efficiency and profitability of Commercial Banks

   Besides the production efficiency estimator created originally in the previous section, this database also provides some alternative aggregated measures of bank efficiency and profitability, which is also based on Bankscope database and individual country sources such as central bank and supervisory body publications.

Measures of Efficiency

 - Net interest margin (coded: ***netintmargin***):equals the accounting value of a bank's net interest revenue as a share of its total assets.

 - Overhead cost (code: ***overhead***):equals the accounting value of a bank's overhead costs as share of its total assets.

Measures of Profitability:

 - ROE: Bank return on Equity (coded: ***roe***)

- ROA: Bank Return on Assets (coded: *roa*)

D. Measures of Market Structure

- Bank Concentration ratio (coded: *concentration*)

It is defined as the ratio of the three largest banks' assets to total banking sector assets.

As pointed out by Beck,T. Demirgüç-Kunt,A. and Levine,R. (2000), a highly concentrated commercial

banking sector might result in lack of competitive pressure to attract savings and channel them

efficiently to investors; while a highly fragmented market might be evidence for undercapitalised

banking sector.

2. EBRD data

From EBRD website, we obtained the crucial data for country-level aggregated variables of

ownership, asset quality, privatisation index and domestic credit. (see EBRD website)

A. **Ownership**

The problem is that bankscope only collects the ownership information from the most recent

accounting year.

- Asset share of state-owned banks (in per cent) (code: *asob*)

It measures the share of majority state-owned banks' assets in total bank sector assets. The definition of

state here includes the federal, regional and municipal levels, as well as the state property fund and the

state pension fund. State-owned banks are defined as banks with state ownership exceeding 50 per cent,

end-of-year. (Source: EBRD survey of central banks.)

- Asset share of foreign-owned banks (in per cent) (code: *afob*)

It measures the share of total bank sector assets in banks with foreign ownership exceeding 50 per cent, end-of-year. Source: EBRD survey of central banks.

- Number of banks (foreign-owned)

It shows the number of commercial and savings banks, excluding cooperative banks. Foreign-owned banks are defined as those with foreign ownership exceeding 50 per cent, end-of-year. Source: EBRD survey of central banks.

B. Asset Quality:

Non-performing loans (in per cent of total loans) (code: *npl*)

It measures the ratio of non-performing loans to total loans. Non-performing loans include sub-standard, doubtful and loss classification categories of loans, but excludes loans transferred to a state rehabilitation agency or consolidation bank, end-of-year. Source: EBRD survey of central banks.

C. Privatisation index

Table 6.2 Privatisation index

Index	Large-scale privatisation (code: *lspri*)	Governance and enterprise restructuring(Code: *res*)	Banking reform and interest rate liberalisation(code:*breform*)
1	Little private ownership.	Soft budget constraints (lax credit and subsidy policies weakening financial discipline at the enterprise level); few other reforms to promote corporate governance.	Little progress beyond establishment of a two-tier system;.
2	Comprehensive scheme almost ready for implementation; some sales completed.	Moderately tight credit and subsidy policy, but weak enforcement of bankruptcy legislation and little action taken to strengthen competition and corporate governance.	Significant liberalization of interest rates and credit allocation; limited use of directed credit or interest rate ceilings.
3	More than 25 percent of large-scale enterprise assets in private hands or in the process of being privatised (with the process having reached a stage at which	Significant and sustained actions to harden budget constraints and to promote corporate governance effectively (for example, privatisation combined with tight credit and subsidy policies and/or enforcement of	Substantial progress in establishment of bank solvency and of a framework for prudential supervision and regulation; full interest rate liberalization with little preferential

	the state has effectively ceded its ownership rights), but possibly with major unresolved issues regarding corporate governance.	bankruptcy legislation).	access to cheap refinancing, significant lending to private enterprises and significant presence of private banks.
4	More than 50 percent of state-owned enterprise and farm assets in private ownership and significant progress with corporate governance of these enterprises.	Substantial improvement in corporate governance and significant new investment at the enterprise level, including minority holdings by financial investors.	Significant movement of banking laws and regulations towards BIS standards, well-functioning banking competition and effective prudential supervision, significant term lending to private enterprises, substantial financial deepening.
4+	Standards and performance typical of advanced industrial economies: more than 75 per cent of enterprise assets in private ownership with effective corporate governance.	Standards and performance typical of advanced industrial economies: effective corporate control exercised through domestic financial institutions and markets, fostering market-driven restructuring.	Standards and performance norms of advanced industrial economies, full convergence of banking laws and regulations with BIS standards, provision of full set of competitive banking services.

Source: compiled based on EBRD transition indicators description.

D. Banking credit

- Domestic credit to private sector (in per cent of GDP)

Ratio of total outstanding bank credit to private sector at end-of-year, including households and

enterprises, to GDP.

Source: EBRD survey of central banks.

- Domestic credit to households (in per cent of GDP)

Ratio of total outstanding bank credit to households, at end-of-year, to GDP.

Source: EBRD survey of central banks.

3: Macroeconomic variables:

Macroeconomic variables such as Inflation and GDP growth are collected from EBRD statistics.