Partial privatization and its effect on structure, conduct, performance in the Indonesian commercial banking market

By

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A thesis submitted for the degree of Doctor of Philosophy in Economics of the University of Canberra

August 2013
Abstract

This study aims to evaluate the link between partial privatization of state-owned banks and the impact on the performance of firms and also to examine the relationship between partial privatization of state-owned banks and the impact on market structure. In order to examine the effect of partial privatization of state-owned banks on market structure, conduct and performance, this study divides the time frame into three phases: the deregulation phase, the restructuring and partial privatization phase, and the divestment phase. Initially, the study examines the effect of partial privatization of state-owned banks on market structure and indirectly on firms' behaviour using the Panzar and Rosse model. Then the study separately evaluates the impact of the partial privatization on firms' performance using the performance variables. The results from the Indonesian banking market structure show that the commercial banking market is found to be highly competitive during 1997 to 2003 or in period 2, yet, the $H$ statistics from 1992 to 2011 were in the area of monopolistic competition. The results from the performance of Indonesian state-owned banks post partial privatization during 2004 to 2011 or in period 3 suggest that merged banks significantly improved profitability and economic efficiency and also decreased credit risk exposure. Overall state-owned banks performances after partially privatized in the short term, however, decreased economic efficiency. In the long run, the performance of state-owned bank improved profitability and efficiency.

Keywords: partial privatization, state-owned banks, market structure, firm conduct, firm performance, market of competition, Industrial organization theory, Panzar and Rosse model, performance variables, quantitative approach.
This thesis is dedicated to my father, Bapak Soekotjo. My memories of your support, love, affection, and faith will always live on.
Acknowledgement

All the praise be to Allah SWT, who has given me opportunity, strength and ability to complete this milestone and made my wishes come true.

For his support, guidance, mentoring, encouragement and faith, I would like to thank my primary supervisor, Associate Professor Cameron Gordon. Thank you so much for sharing your thoughts, knowledge, and experiences during my study and thesis writing process. I also would like to thank Dr Chris Sadleir, my secondary supervisor, for his ideas and coaching.

My deepest gratitude goes to the Indonesian Higher Education General Directorate (DIKTI) for the scholarship to pursue a doctoral degree at the University of Canberra. A particular thank you is given to the Department of Business Administration, Faculty of Administrative Science, University of Brawijaya, where I work as a lecturer. For giving an opportunity to me to have further study in overseas. I would like to thank mbak Ima and mbak Parti, Bank Indonesia staffs, who spent their effort and time to provide a specific data that is mostly needed in this study.

Appreciation also extended to my colleagues in the faculty, particularly those who supported a lot through good and bad time. I would like to thank Wike, Firda Hidayati, Yeney Prihatiningtias, Kunta Nugraha, Melyanti and Fiona Buick. I would like also to thank Diane Philips, for giving me an opportunity to work as a tutor in the faculty. Hope our friendship will last forever.
Family contributes the greatest part of my PhD journey. I would like to express my deepest gratitude and appreciation for the support and encouragement of my family. For their love, support and patience, I would like to thank my husband (Heri Prayitno), my mum (Nuke Soekotjo), and my three lovely kids: Adela, Ferdy and Dimas. I am truly thankful for their amazing support, encouragement, tears and laughs together you always extended to me.
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Abbreviation

ADB : Asian Development Banks
AFR : Average Funding Rate
ATM : Automated Teller Machine
Bank EXIM : Bank Export Import
BBD : Bank Bumi Daya
BCA : Bank Central Asia
BDN : Bank Dagang Negara
BDMN : Bank Danamon
BII : Bank International Indonesia
BNI : Bank Negara Indonesia
BAPINDO : Bank Pembangunan Indonesia
BRI : Bank Rakyat Indonesia
BSF : Bank-Specific exogenous Factors
BTN : Bank Tabungan Negara
CAMEL : Capital, Asset, Management, Earning, and Liquidity
CAR : Capital Adequacy Ratio
CD : Certificate of Deposit
CR : Concentration Ratio
DM : Deposit Mix
EH : Efficiency Hypothesis
EU : European United
FSDP : Financial Sector Development Project
GDP : Gross Domestic Product
HI : Herfindahl Index
IBRA : Indonesian Banking Restructuring Agency
<table>
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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>IBS</td>
<td>Indonesian Banking Statistics</td>
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<tr>
<td>IDX</td>
<td>Indonesian Stock Exchange</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>IR</td>
<td>Interest Revenue</td>
</tr>
<tr>
<td>JCI</td>
<td>Jakarta Composite Index</td>
</tr>
<tr>
<td>MSME</td>
<td>Micro, Small, and Medium Enterprises</td>
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<tr>
<td>NIM</td>
<td>Net Interest Margin</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
</tr>
<tr>
<td>OI</td>
<td>Other Income</td>
</tr>
<tr>
<td>PCE</td>
<td>Price of Capital Expenditure</td>
</tr>
<tr>
<td>PNB</td>
<td>Private National Bank</td>
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<tr>
<td>PPE</td>
<td>Price of Personnel Expenses</td>
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<td>P-R</td>
<td>Panzar and Rosse</td>
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<td>REPELITA</td>
<td>The Government five-year economic plan</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
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<tr>
<td>SBCSC</td>
<td>State Bank Credit Supervision Committee</td>
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<tr>
<td>SCP</td>
<td>Structure-Conduct-Performance</td>
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<td>SOB</td>
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Chapter 1

Introduction

1.1 Background

Privatization in Indonesian state-owned banks aims to generate revenue for the state budget and also put these institutions under market discipline or market-base as the driver for efficiency (Wicaksono, 2008). Over time, state-owned banks in Indonesia have been known for being mismanaged, inefficient, lacking freedom in making important decisions and suffers from political interference to finance specific sectors of the economy. In order to improve the state-owned banks’ performance, privatization took place. However, privatization in Indonesian state-owned banks has always been partial; with the government remaining the majority ownership in these privatized assets. Privatization has been done through a public offering of shares.

The role of state-owned banks in the Indonesian economy is important. Before the 1988 reforms, state-owned banks dominated the banking system assets and deposits with nearly 80 per cent and approximately 85 per cent of loans (Srinivas and Sitorus, 2003). These banks had the widest number of branches all over the country. As an agent of development, these banks were tasked with channelling subsidized credit to specific sectors of the economy. Nevertheless, the state-owned banks were also misused by the government for political reasons. The Government owned banks aimed to provide benefits for their supporters in order to support politician in getting votes, providing political contributions and paying bribes (Megginsen et al. 1994; and La porta and Lopez-de-Silanes 1999). In return, these banks obtained preferred access to cheap funding from Bank Indonesia (Indonesian central bank).
As a result state-owned banks have grown inefficiently, and the structure of the banking market was highly concentrated.

A set of reform were undertaken by the Government to expand the role of private banks so that the banking system was less structured and the state-owned banks became more market-based banks. The reforms did evolve the role of state-owned banks. Initially, state-owned banks controlled nearly 80 percent of the banking assets and deposits, however after the reforms this slowly decreased to approximately 40 per cent before the financial crisis in late 1997 (Indonesian Banking Statistics, various years). Furthermore, the number of private banks, joint-venture banks and their branches went up from 666 in 1988 to 3,286 in 1994 (Indonesian Banking Statistics, various years). Having the increasing combined number of private banks, and Bank Indonesia limiting its direct lending had encouraged state-owned banks to compete with private banks in attracting deposits. This was the stage where state-owned banks became market-based banks. An important moment also happened during the reform periods, when Bank Negara Indonesia was partially privatized in 1996. Nonetheless, these packages of reforms were lacking intensive supervision by Bank Indonesia because of its lack of independence.

Stemming from the lack of credit analysis and a combination of unseparated functions among owners, private banks lending to group of companies, deficiencies in bank supervision and lack of good corporate governance led to bank failures just before the 1997 crisis. When the crisis crunched at the end of 1997, state-owned banks as well as major private banks were revealed to be the main cause of ruining the banking system. Through an external and independent audit supported by the International Monetary of Fund (IMF), the level of non-performing loans reached a level that could not have anticipated by the authorities. One of the
major problems was private banks connected loans, using the state-owned banks to channel the credit to private banks' owner (Srinivas and Sitorus, 2003).

To create soundness in the banking system, the government announced a recapitalization of state-owned banks and required these banks to undertake several operational changes. In order to recapitalize state-owned banks, the government spent two third of the recapitalization resources. The state-owned banks recapitalization accounted for the greatest expense in Indonesian bank restructuring compared to the private banks recapitalization during the crisis.

After the crisis, the number of banks, as opposed to the total number banks and branches combined, slowly declined from 240 before the crisis to 138 in 2003 (Indonesian Banking Statistics, various years). Some private banks were closed and merged with larger ones. The four weakest state-owned banks were merged into the newly created Bank Mandiri. Another partial privatization took place, with Bank Mandiri partially privatized in 2002 and Bank Rakyat Indonesia partially privatized in 2003. In early 2004, the state-owned banks controlled 45 per cent of assets, 42 per cent of deposits and 40 per cent of loans. Bank Mandiri and Bank Negara Indonesia absorbed one third of total assets. In 2009, Bank Tabungan Negara became the last state-owned bank that was partially privatized.

Given the past history of state-owned banks poor performance and the less competitive banking market, this study focuses on those two important variables in order to improve the Indonesian commercial banking system.
1.2 What this study is about

This study is examining the effect of partial privatization of state-owned banks on market structure, conduct and performance during the deregulation phase, the restructuring and partial privatization phase, and the divestment phase. Initially, the study examines the effect of the partial privatization of state-owned banks on market structure and indirectly on firms’ behaviour. Then the study separately evaluates the impact of the partial privatization on firms' performance. The results from those two analyses will be used to evaluate the validity of the proposed structure-conduct-performance model in Indonesian commercial banks.

1.3 The research objectives

The current study has two objectives:

1. To evaluate the link between partial privatization of state-owned banks and the impact on the performance of firms.
2. To examine the relationship between partial privatization of state-owned banks and the impact on market structure.

Since the twelve major commercial banks in Indonesia control 70 per cent of total banks deposits and loans, this study limits the number of banks in the analysis of market structure to these twelve major banks’ deposits and loans.

The underlying reasons why the state-owned banks partial privatization is important to this study are because: 1) political and economic reasons: state banks aim to counter the economic and political power of large private banks, yet, the common view states that these banks have been misused to dominate the country's banking market share (Hanson, 2003), 2) state-owned banks lead to a country's economic development, 3) the use of state-owned banks task to
distribute credit to underserved groups, such as micro-small-medium credit, 4) the creation of state-owned banks that may occur from takeovers or merged banks after a crisis.

1.4 Justification of the study

State-owned banks in this proposed study have had a minority of their assets sold to the private sector owners. Little is known about the effect of partial privatization, where the government remains the controlling owner, on the structure-conduct-performance of banks in developing countries.

Previous empirical studies of banks competition have mainly focused on a few developed countries such as the United States and Austria; little has been done in developing countries with significant institutional change. Prior studies on banks’ privatization performance were mostly focused on cross-country studies, little has been done in a country which used partial privatization as a method of privatization. The findings from the research will be important in understanding the theory when applied to state-owned banks partial privatization in Indonesia, as an example of significant institutional changes in an emerging developing country.

To come to conclusion the current role of state-owned banks, post partial privatization, based on market structure and behaviour as well as their performance.

1.5 Contribution of the study

The current study contributes to the literature in some of the following ways:

1. Indonesia has a huge range of state-owned enterprises. Some of them have been partially privatized. Over time, the Indonesian government has never done full
privatization of their state enterprises. Looking back on what happened during the financial crisis in later 1997, state-owned banks have been revealed to have the highest level of non-performing loans due to lack of credit analysis. In order to save these 'too big to fail' banks, the government had to finance the most expensive recapitalization in Indonesian history to bring these banks back to soundness (Srinivas and Sitorus, 2003). Nevertheless, the state-owned banks recapitalization did not overcome these banks bad loans. Using the performance variables such as return on investment, net interest margin, and credit risk (Boubakri et al. 2005; Beck et al. 2005; Verbrugge et al. 1999; and Cornet and Tehranian, 1992) to assess the performance post-partial privatization of state-owned banks, the result will suggest whether partial privatization had actually improved state-owned banks performance. This estimated result will contribute to the literature by adding to the knowledge on partially privatized state-owned banks' performance in a developing country.

2. This study also examines the nature of competition from 1992 to 2011 to define commercial banks' market structure and firms' conduct. In order to do that, this study employs the Panzar-Rosse model (Panzar-Rosse, 1987) which has been commonly used by prior studies in estimating the competitive behaviour of banks based on the reduced-form revenue equation (Nathan and Neave, 1989; Shaffer (1982); Lloyd-Williams et al. 1991; Molyneux et al. 1994; Vesala, 1995; Molyneux, 1996; Coccorese (1998); De Bandt and Davis, 1999; Rime, 1999; Bikker and Groeneveld, 2000; and Wong et al. 2006). Most of these studies looked at cross country banking markets, while this research is concerned with the impact of partial privatization policy on the market structure and firms' conduct in a single country.
3. This current study, finally, confirms the proposed structure-conduct-performance model in the Indonesian commercial banking market, using the estimated result of state-owned banks' performance and the estimated result of market structure and firms' conduct. This proposed model, which originated from Mason in 1940, has been adjusted by adding partial privatization policy as one of the variables which influences all the others.

### 1.6 The thesis organisation

The rest of the thesis is organised as follows. The theoretical perspective and literature review will be discussed in the next chapter. In this section, the theoretical framework, as well as the conceptual framework is presented in scheme. Chapter three discusses in-depth the importance of state-owned banks in Indonesia, including the process of partial privatization of state-owned banks. Chapter four describes the research method and data employed in this study, including in this section the operational models used to examine market competition and state-owned banks' performance. Chapter five and chapter six discuss the results and discussions using quantitative approaches. Chapter seven or the last chapter, presents the conclusion, implications for the theory, partial privatization policy and the limitations of the study. This chapter also confirms or refutes certain aspects of the proposed model of structure-conduct-performance in the Indonesian commercial banking market. Directions for future studies are also discussed in this chapter.
Chapter 2

Theoretical perspective and literature review

2.1 Introduction

Initially, this chapter describes in detail the theoretical perspective that the current study adopted. It briefly explains the definition and method of partial privatization in the context of Indonesian state-owned banks and also defines the market segment of state-owned banks. Then it describes the competition theory that not only develops the structure-conduct-performance applied in Indonesian state-owned banks but also captures market structure measurement employed in this study. Finally, it explains the basic performance models and the model that this current research used. Industrial organization theory is used to define the structural model. To summarize the theory and the model employed in this research, the theoretical framework is presented at the end of this chapter.

This chapter also reviews the previous works which used similar theories and models particularly the competition model and examines the performance of state-owned bank privatization. Reviews of prior studies are based on: 1) the arguments for and against partial privatization in state-owned banks; 2) studies on competition theory that is used as the basis of conducting research related to market structure; 3) studies in relation to the effect of privatization and firms' performance.

2.2 Partial privatization definition and method

Privatization in state-owned enterprises has been very commonly studied by some researchers. Most of these studies were concerned with firms' performance pre and post
privatization. Recent empirical research has found that privatized firms tend to improve in efficiency compared to public firms (Mueller, 1989; Vining and Boardman, 1992; Megginson et al. 1994; López-de-Silanes, 1997; Beck et al. 2005). Privatization has been proved to improve efficiency, profitability and enhanced growth in many cases (Boycko et al, 1996; Chen, 1995; Al-Obaidan, 2002). Many countries in fact have partially privatized previously state-owned enterprises (Frydman and Rapaczynski, 1994; Cao et al, 1999; Maw, 2002; Srinivas and Sitorus, 2003; Gupta, 2005; Sathye, 2005).

The Indonesian government owns a wide range of enterprises, including water, electricity, hotels, telecommunication, banks, insurers, and so on. The scope of partial privatization is the method the Indonesian government chose for divestment of State-Owned Enterprises (SOEs). A partial privatization of a firm refers to the sale of only a minority part of the government’s share in a firm to the private sector. Thus, according to Li and Wang (2005) “Partial privatization allows the state to remain as one of the owners of the firm”. “This could mean that no private sector owner will have a large enough interest in the company to be able to exert a significant influence on its management” (Mc Leod, 2004). Moreover, Clarke et al. (2005) argued that privatization should not be done partially. Having the Government dominated the major shares in state-owned enterprises may result in the firms performing poorly by conventional accounting measures.

Partial privatization in state-owned banks is considered important since these banks:

1. Often channelled subsidized lending to specific sector appointed by the government.
2. Were often used for political objective.
3. Performed poorly according to financial measures.
The rationale of partial privatization, as stated above, has to be applied immediately. Partial privatization of state-owned banks may save governments money, by reducing subsidies, and also improve the performance of a country's economy, by channelling credits through the market rather than through the state-owned banks.

According to Verbrugge et al (1999) there are issues of concern when privatizing banks:

1. What type of privatization process the Government would like to use
2. The system of how the ownership will be
3. The ownership transfer to private investors (domestic or foreign)
4. Considering low-quality loan portfolios or more likely high rates of non-performing loans
5. Improving managerial systems in the firms

There are various ways to privatize firms. Partial privatization of Indonesian state-owned banks has involved the government decreasing its ownership by divesting its minority stakes in the firms through share floating to the private sector. The Government offered shares to the public through an initial public offering. This privatization method has been widely used by most developing countries since early 1990s. According to Huibers (2004), approximately 33 of the 80 countries outside the Organization for Economic Cooperation and Development (OECD) used initial public offering in order to privatize their state-owned banks. Furthermore, Huibers stated that 44 per cent of all emerging countries employed initial public offering as a method of bank privatization. The benefits of privatizing firms by offering shares to the public through initial public offering: 1) could improve stock markets since state-owned banks in a country are usually one of the largest enterprises. 2) indirectly impacts other domestic enterprises by giving access to obtaining capital and improving economic
growth. 3) stimulates broader investment, and, as a result may prevent the government renationalizing these enterprises in the future.

As mentioned earlier, like many developing countries, privatization in Indonesian state-owned banks has been partial. The basic reason why the Government owns the majority of shares in state-owned banks is because according to the Indonesia’s constitution of 1945 (Undang-Undang Dasar 1945) article number 33 (pasal 33) which states that "Sectors of production that are important for the country and affect the life of many people shall be controlled by the state" (sub-paragraph 2) and the "The land, the waters and the natural resources contained therein shall be controlled by the state and exploited for the benefit of people" (sub-paragraph 3). This article reflects the main basis of why full privatization is difficult to achieve. The recent privatization policy of state-owned enterprises which included state-owned banks was Masterplan Reformasi BUMN, 1998. This policy was part of the reform program suggested by the International Monetary Fund (IMF), known as a Letter of Intent as a requirement for a financial loan to help the restructuring of financial institution during the 1997-1999 economic crisis. In that scheme, the Government agreed to take the action of a privatization program, providing for the sale of substantial stakes in twelve state-owned enterprises including three state-owned banks.

2.3 The state-owned banks market segment definition

This current study does not examine the whole Indonesian commercial banking market but a segment of it, namely the segment most directly impacted by partial privatization such as: the deposits-submarket, and the loans-submarket. According to Neuberger (1997) it is necessary to define the relevant market segment. Furthermore, Neuberger (1997) added segmentation based on banks' products, such as: the deposit-submarket and the loan sub-market. These
products are structurally segmented and strongly related. Included in the deposit-submarket types of products are: demand deposits, time deposit, and savings deposits, while loan-submarket products include: housing loans, consumer loans, corporate loans, and micro-small-medium-enterprise loans. Indonesian commercial banks are typical multiproduct firms which include, for instance, deposits, loans, and securities; however, the share of deposits and the share of loans dominated these banks' products. These products reflect banks as financial intermediations. Just recently banks have produced securities which shows bank activity other than financial intermediation.

2.4 The competition model

This study uses the structure-conduct-performance model, developed by Mason in 1940 to propose the modified structure-conduct-performance model in the Indonesian commercial banking market. This model came from the industrial organizational theory. However to evaluate the validity of the modified model, this study employs the Panzar-Rosse model (1987) to assess the market competition and firm's behaviour. This model stemmed from the new empirical industrial organization theory.

In this section, competition models, structural and non-structural, are described in order to get a better understanding of the differences among the models. This study briefly explains the way each of the models works. According to the literature, there are two categories of competition model: 1) the structural model, and 2) the non-structural model. These models have been frequently used in order to evaluate competition and concentration. Basically, these models stemmed from the industrial organization theory. The conventional paradigm states that when concentration increased it may reduce competition because of the
undesirable behaviour of market power. This paradigm, however, appeared to create controversy.

2.4.1 The structural model

The structural approach in this section discusses only two types of models: efficiency hypothesis and structure-conduct-performance. These models are derived from the Industrial Organization theory. There are still other approaches; however, these two models are frequently used in the empirical estimations.

2.4.1.1 The efficiency hypothesis

The efficiency hypothesis (EH) and the Structure-Conduct-Performance (SCP) approach are two of the famous structural models, as well as other approaches. The efficiency hypothesis developed by Demzets (1973) and supported by Peltzman (1977) state that the performance of the firm is positively related to firm efficiency because efficient firms or firms with low cost structure increase profits by reducing prices and expanding market share. Unlike the traditional structure-performance concept, where market concentration creates collusion, the efficiency structure concept emphasizes a positive relationship between firm profit and market structure. Efficient firms tend to gain more market share, hence increased market concentration and profit (Molyneux and Forbes, 1995). Under this model, an indirect relationship exists between competition and concentration resulting in a highly concentrated industry (De Rozas, 2007). Furthermore, this concept assumed that many factors, with the exceptional of market structure and concentration, may affect competitive behaviour, for instance entry or exit barriers and the general contestability of the market (Panzar and Rosse, 1987; Rosse and Panzar, 1977).
2.4.1.2 The structure-conduct-performance model

Meanwhile, the structure-conduct-performance model defines market structure as the interaction of demand and supply; that is, conduct or behaviour that is influenced by many factors, for instance, the number of competing firms and customers, and barriers to entry; and the combination of market structure and behaviour resulting in the market performance of banking firms (Matthews and Thompson, 2005). In simple words, structure-conduct-performance examines whether a market with highly concentration encourages collusive behaviour or other non-competitive behaviour among larger firms. For example a monopoly market environment will lead to higher prices, since firms with more market power will dominate the market; hence have more opportunity to put up the price, with a loss of efficiency compared with a more competitive environment. Furthermore, the degree of competition and the scale of the banking industry will also affect its performance. In turn, performance will also influence behaviour or conduct and market structure.

To summarize this model would be:

**Figure 2.1 Structure-Conduct-Performance (SCP) model**

![Structure-Conduct-Performance Model](image)

Adapted from Mason (1940)

According to the structure-conduct-performance link amongst market structure, behaviour and performance, a more highly concentrated market tends to create a collusive behaviour among dominated banks resulting superior market performance (Groeneveld and Boonstra, 2005; Goldberg and Rai, 1996).
Structure is the market structure or the degree of concentration. Structure is strongly related to conduct, which is the firm’s behaviour and it is reflected in, among other things, a firm’s pricing decisions. A high market concentration tends to increase consumer prices and restricted output compared to a more competitive market. Performance is the bank’s conduct (such as the bank’s pricing behaviour), which will affect performance, usually measured by profitability. According to Du Plessis and Gilbert (2007) the structure-conduct-performance model basically links the structure of an industry (degree of concentration) which then determines conduct or the firm’s behaviour (barriers to entry and number of competing firms and customers) which determines performance (rate of return or output). The influence of market structure and conduct are not unidirectional, as performance will also influence the conduct and structure. The structure-conduct-performance model says that a change in the market structure or concentration of banking firms affects the way banks behave and perform. This approach will establish a relationship between the structure of an industry, firm behaviour within this industry and the market’s performance.

The structure conduct and performance model was first introduced by Edward S. Mason and was a standard of practice from 1940 to 1960, with its empirical work in analysing the identification of correlations between industry structure and performance.

Measuring structure-conduct-performance involves measure of firm's profitability as a proxy for market concentration. The concept of concentration is important in this model, although there is no concentration measures that can be discovered in any literature. Most of the time the common measures in evaluating concentration are: the Herfindahl Index ($HI$) and the $k$-firm concentration ratio (CR). The Herfindahl index focuses on giving weight greater than smaller firms (Groeneveld and Boonstra, 2005). It examines each firm separately to avoid
arbitrary cut-off and the share distribution insensitivity (Groeneveld and Boonstra, 2005). The concentration ratio, however, treats equal weights to some leading companies, yet ignores few small companies.

According to Claessens (2009) the structure-conduct-performance model has drawbacks in its application:

1. This model implies that structure, direct or indirectly, influences performance. This means structure in this context is not independent; it is impacted by a firm's conduct and thus by performance.

2. Most banks are equipped with advanced technology innovation in providing services to their customers, which could mean that this sector is high in concentration and market power as a consequences of these technology innovations; however there is not necessarily a decreased social benefit.

3. This model does not consider the degree of entry and exit barrier. According to Bikker and Spierdijk (2008) the threat of entry and exit can also determine firm's behaviour. The matters of technology, policy concerns, networks and, asymmetrical information contribute factors in determining degrees of competition.

4. This model includes non-competitive behaviour such as collusion among larger banks. Measuring collusion is difficult considering this behaviour is related to legal aspects of control, instead of accounting measures of performance.

Thus, critics of the structure-conduct-performance model mostly stressed the assumption that all banks would react the same way with the increase in market concentration, so these banks will obtain the benefit equally. According to the literature, in a high level of market concentration, where banks receive equal benefits, this can still lead to asymmetric market structures and thus differences in performance.
The structure-conduct-performance model (figure 2.1) has inspired this study to propose the revised structure-conduct-performance, which is applied in Indonesian commercial banks. Originally, the structure-conduct-performance model does not include public policy as a variable. For the structure-conduct-performance to be applied in Indonesian commercial banks, this has been added as a variable in its own right. In the Indonesian banking market all variables are endogenous because of interdependencies between variables of public policy, market structure, conduct, and performance. Public policy would have special effects on market structure, conduct and performance. However, this study does not evaluate the validity of the proposed model using structure-conduct-performance measure due to the above drawbacks. Instead, it employs the Panzar-Rosse measure (1987) to examine the market structure and conduct through the result based on this model.

**Figure 2.2 The revised structure-conduct-performance applied in Indonesian commercial banks**

![Diagram of revised structure-conduct-performance model](image)

Source: modified from Mason (1940)

In this expanded model, public policy or, more likely, partial privatization would affect the structure-conduct-performance of Indonesian commercial banks. The variable of partial privatization describes the process surrounding partial privatization of Indonesian banking. Hence, this is a variable which affects all the others. The line of reasoning is that state-owned banks, after being partially privatized, have still dominated the banking market, although less
than before they were partially privatized. Thus, they have more market share than other commercial banks, and they will use their market power to increase profits. The structure-conduct-performance paradigm assumes that increased concentration encourages anti-competitive practices (Groeneveld and Boonstra, 2005). Therefore, the structure-conduct-performance variables in Indonesian commercial banks begin with public policy, the partial privatization of state-owned banks, as the central of variable which influences:

1. Market structure: observes the impact of partial privatization on the degree of competition among commercial banks;

2. Firms' behaviour: indirectly relates market structure estimation results to firm's conduct. According to Neuberger (1997) there are a number ways of looking at the partial privatization impact on a firm's conduct, such as the number of customers, the number of competing firms, and pricing strategy that affects price behaviour. This study focuses on firms' pricing strategies especially on funding price, labour price and capital price.


2.4.2 The non-structural model

The new empirical industrial organization framework has developed a non-structural model. The background of this model is because the banking literature has progressed considerably during the recent years, and the reactions to the weaknesses of theoretical and empirical research on the structural model. Unlike in structural approaches, non-structural models tend to examine industry competitive behaviour within the industry (De Rozas, 2007).
There are three non-structural approaches: the Iwata (1974), the Bresnahan (1982) and Lau (1982), and the Panzar and Rosse (1987). These models tend to focus on measuring competition by estimating deviation from a competitive model (De Rozas, 2007).

2.4.2.1 The Iwata model

This model uses estimation of conjectural variation values for individual banks supplying a homogenous product in an oligopolistic market. In an oligopolistic environment, a firm forms a conjecture about a variation of other firms output that will affect any change in its own output. According to Iwata (1974) the price level in a homogenous product oligopoly market is determined as a function of three factors, i.e: the price elasticity of demand, the marginal cost, and the conjectural variation of each firm. If these three factors are constant, the price will not change.

According to Bikker and Bos (2008), the shortcoming of this approach is defining a set of assumptions to limit the profitability determinants. This model has not been frequently used in the empirical research. Applying this model in the banking industry is complicated due to the detailed structure of cost and production data for homogenous bank products being mostly difficult or scarce (Bikker and Bos, 2008).

2.4.2.2 The Bresnahan model

Unlike Iwata (1974), Bresnahan (1982) and Lau (1982) believe that banks are identical and industry aggregate analysis should be adopted. This model applies when banks produce a single product, such as banks produce loans and use deposits as an input, and the industry demand does not separate from its exogenous variables. The model, according to Lau (1982),
is sensitive to changes in demand-function. In a monopoly market, the approach responds in a
certain way, while in a competitive market it tends to have no response (Shaffer, 1989, 1993).

2.4.2.3 The Panzar-Rosse model

The last approach in the non-structural model is the Panzar-Rosse model. This method was
developed by Panzar and Rosse (1987). They developed a model that estimates the
competitive behaviour of banks based on the comparative static property of the reduced-form
revenue equation. This model simply developed a model that discriminates amongst
monopolistic, monopolistic competition and perfectly competitive market structures. This
model was derived from the reduced-form revenue equation. Similar to the Bresnahan (1982)
model, this model assumes that: banks are single-product firms, with deposit and other
funding costs as inputs and loans and other interest-earning assets as outputs, and, banks
produce revenues using labour. These assumptions are consistent with banks as a financial
intermediaries, that is, intermediation of those inputs into outputs (De Bandt and Davis,
2000). Hence, the so-called $H$ statistic used to make a quantitative assessment of the
competitive nature of banking markets and the market power of banks (Groeneveld and
Boonstra, 2005). The value of $H$ is: $H \leq 0$ monopoly equilibrium; $0 < H < 1$ monopolistic
competition free entry equilibrium; $H = 1$ perfect competition.

The Panzar-Rosse model involves firm-specific data. Cross-country studies that used bank-
level data and applied the Panzar-Rosse model have been done by several researchers, such
as: Claessens and Laeven (2004) and Bikker et al (2007). These studies investigated the
change in prices of input factors as shown in revenues earned by certain banks. The prices of
input factors mostly used in the prior studies were:

- the price of labour is estimated as the wages and salaries cost.
- the price of capital or the price of physical capital defines as the expenses other than staff and interest expenses.

- and the price of funding or the price of loanable fund is measured by the ratio of annual interest expense to total funds. Interest expenses are incurred on time deposits, savings deposits, saving deposits and demand deposits. While total funds are estimated as the sum of deposits from customers both conventional and sharia, deposits from other banks, due to banks, amount payable under repos, and negotiable debt instruments issued and outstanding.

For cross-country studies, the Panzar-Rosse model is estimated using pooled samples for each country. In a single-country case study, data is collected from a typical range of banks, such as retail banks, for a specific period of time (Wong et al. 2006), using the Panzar-Rosse model to estimate the evolution of competitive conditions in the banking industry. Many of the studies using this methodology rejected monopoly and perfect competition. These studies showed the nature of competition was in monopolistic competition area (Wong et al. 2006; Bikker and Bos, 2008; De Rozas, 2007; Hempell, 2002; Bikker and Haaf, 2002; Berger et al. 2000).

In the Panzar-Rosse model, there are also some conditions that need to be underlined, for example; the size of the market and whether the product being offered can also be reflected in the number of viable banks and the level of concentration in this environment. A monopoly environment will occur if only a single producer was able to produce all products at minimum cost. An oligopoly will be developed if there was a possibility for more than one producer. Under monopoly, when input prices increase, this will increase marginal cost and as a result it will reduce total revenues. While, in perfect competition, an increase in input prices results in marginal cost and total revenue increasing by the same amount as the costs.
Furthermore, if the situation of the banking market is distinguished by increasing returns to scale, the maximum size of an individual bank will continually increase with enhanced demand. If this occurs, consolidation would be the best result to conquer it (Berger et al., 1993; Molyneux et al., 1996). In contrast, banks may operate in highly competitive markets, if there is sufficient space for numerous banks to operate and the customers’ preference is for heterogeneous products and services (Groeneveld and Boonstra, 2005).

2.5 The background theory on partial privatization of state-owned banks

2.5.1 Public choice theory

Public choice theory stems from political science. It is employed in economic tools and defined as how much choice the public has in the economic decisions taken by the government. According to Buchanan (1969), Niskanen (1971 and 1975) public choice theory describes the Government acting as politicians and bureaucrats who may use state ownership for political reasons. Furthermore, this theory states that the Government as well as state actors will act in certain ways in weak institutional settings where people do not have good access to demand good performance or in less developed countries (Clarke et al. 2003).

Indonesian partial privatization adopted privatization policy from the way of thinking of Britain’s first female prime master in 1979, Margareth Thatcher. She inherited a country in recession. She wanted to improve Britain’s economics, along with making Britain more competitive in a global market. Over time the British traditional economics; the organisation of the state and thus controlling the state (corporatism); the state controlling prices and distribution of goods (collectivism); and the Government intervention of tax cuts and increase
spending to stimulate the economy (Keynesianism) were all opposed by Thatcher (Blake, 1985). According to Blake (1985), one of Thatcher most popular policies, which diametrically opposed to traditional economics, was privatization of publicly owned industries. The British Government way to privatize their state-owned industries was selling them through stock ownership plans. These shares were offered not only to private investors but also to the state-owned workers. This meant that ordinary workers would have an opportunity to buy a company's shares they worked for. The implication of this policy helped to decrease public expenditure and interference by government in the state. Gamble (1988) agrees with Blake (1985) stated that the British economic recovery was stimulated by privatization. He added this Conservatives economic policy designed to help reduce state ownership and expenses. Thatcher's ideology of privatisation, however, could not be applied in Indonesian publicly enterprises. As mentioned in the previous section, based on Indonesian's constitution of 1945 (Undang-Undang Dasar 1945) article number 33 (pasal 33) in sub-paragraph 2 "Sectors of production that are important for the country and affect the life of many people shall be controlled by the state" reflects the main reason of Indonesian partial privatization.

The rationale of privatization of state-owned banks is usually established from a public choice assumption that these firms have been used politically to finance a certain project appointed by the Government, or to provide subsidized finance to specific groups (Jones 1995; Donahue 1989; Kikeri et al. 1992; and World Bank 1995 cited in Clarke et al. 2003).

Shirley and Walsh (2003) related privatization to public choice theory based on 3 groups of reasons: 1) competition: privatized firms may be more competitive than the same firms under state ownership because most state-owned banks may be used for political goals, and as a
result these banks were not able to compete effectively and will always run deficits in competitive markets (Clarke et al. 2003), 2) political intervention: politicians as well as bureaucrats have power to reduce fiscal channels of subsidies by letting state-owned banks monopolize the market, setting up barriers to entry in state-owned banks sub-markets, or avoiding competition with state-owned banks in any way, and 3) corporate governance: due to state-owned banks multiple objectives, and that many of these firms have unclear responsibility for monitoring (Alchian, 1965), corporate governance will be harder to apply than in private banks. With partially privatized banks, Yarrow (1996) considers that, as the Government stays the sole and concentrated owner, this makes the Government free to pursue inefficient objectives without discussing these objectives with other owners.

2.5.2 The performance of state-owned banks

During the past twenty five years, a large number of commercial banks around the world have been privatized or partially privatized using the method of public offering of shares (Verbrugge et al. 1999). Privatizations in the literature state-owned enterprises are vast compared to bank privatization. The main reason for this is because privatized bank data, before and after privatization, are sometimes not easy to obtain since these banks were always government and politicians preferred sectors to obtain funding.

Meanwhile Megginson and Netter (2001) have argued that private ownership has performed better than government ownership even after being recapitalized. It is because private firms have more freedom in making decision in terms of the firm's management than government ownership. Private firms decided what is best for their management and their strategic decisions without any government or political intervention. Hence, the economic yield
resulting from increased competition between private ownerships and public ownership encourages firms to produce efficiently (Farabullini and Hester, 2001).

State-owned banks' performance has been one of the Indonesian government concerns and it is regulated in Indonesian Presidential Instruction no.5/1988; Indonesian Ministry of Finance decision no.740/KMK/1989; Indonesian Ministry of Finance decision no.826/KMK.013/1992; Yasin, 2002a; Abeng, 1998, 2001; Masterplan Reformasi BUMN, 1998; Masterplan BUMN 2002-2006; Irianto, 2003, 2004; Indonesia Banking Architecture, 2004 cited in Irianto (2003). With the state-owned banks poor performance, the Government kept restructuring these banks to reach a level of soundness based on capital adequacy ratio, liquidity ratio and other conventional financial ratios. The set of reforms that have been taken by the government were also part of the Government effort to create healthy and competitive Indonesian banking system. The reforms, have been mostly periodic reforms aimed to improve state-owned banks' performance. Partial privatization has been implemented in response to finding that these banks were underperforming (Nasution, 1983; Balino and Sundararajan, 1986; Cole and Slide, 1990 and 1996 Hanna, 1994; Binhadi, 1995; Harris, Schiantarelli, and Siregar, 1992 Santoso 2000; Boediono, 2002). Hence, the issue of partial privatization of state-owned banks is more likely about efficiency and enhancing performance so that these banks cannot only be more competitive but also more market-based.

The performance of banks is closely related to their financial performance because financial performance leads to functions and activities of the firms (Tarawneh, 2006). Banks services comprise providing liquidity, information and transformation of risks, and terms and size were done by taking deposits together with granting loans (Neuberger, 1997). Basically, the financial performance of firms is based on measuring the extent to which a firm uses its
assets to run its business activities to earn income. The financial performance of firms examines the overall financial soundness of a business activity over a period of time and can then be compared to a similar industry (Atrill et al. 2009). In evaluating the financial performance of firms, some information is needed from the firms' sources such as: their basic financial reports. In the financial report there is essential information which can be used to measure a firm's performance. Information regarding a firm's assets and liabilities as well as equity are available in its balance sheet, to understand how much revenues, expenses and profits can refer to the firm's income statement, to see whether the owners' wealth is changing in the given period, which is are exhibited in statement of changes in the owner's equity, and finally the cash flow statement indicates the sources and uses of cash in one period.

There is vast literatures which examines banks' performance. In general, banks' performance commonly uses financial ratios that show the link between numbers in the financial report. These ratios can be: profitability, liquidity efficiency, capital adequacy ratio and investment in a particular firm. According to Gilbert (1984) there are several approaches in measuring banks’ performance; elasticity of loan demand, the interest rates on business loan, on time deposits, on passbook savings, the values of net income per dollar of total assets or capital and other. Neuberger (1998) suggested productive efficiency (cost and profit) and allocated efficiency for bank performance measurement. Boubakri et al. (2005) followed the empirical work of Cornet and Tehranian (1992) in evaluating performance using the performance variable of three individual aspects:

1. Profitability : net income to equity ratio or so-called return on equity (ROE)
2. Efficiency : average interest rate on loan minus the average rate on liability or so-called net interest margin (NIM)
3. Risk exposure : medium loans to assets or credit risk (CR)
Those performance variables are also calculated using the figures from a firm's financial report. This study follows the work of Boubakri et al. (2005) in order to measure state-owned banks' performance. This performance is calculated using an empirical model which has been developed by Cornet and Tehranian (1992).

2.6 Theoretical framework

This study is to evaluate if the proposed structure-conduct-performance model in the Indonesian commercial banking market holds true. In order to do that there are two approaches used: 1) to examine the nature of competition in the Indonesian banking market from 1992 to 2011, which employs the Panzar and Rosse (1987) model. 2) to evaluate the performance of state-owned banks from 1992 to 2011, using the performance variables previously studied by Boubakri et al (2005). The estimated results from these two models will be used to evaluate the validity of the proposed model as stated above.

To summarize the theories employed in this study, a theoretical framework is presented in figure 2.3. Figure 2.3 explains the relationship between partial privatization in Indonesian state-owned banks and market structure and also the relationship between partial privatization in Indonesian state-owned banks and firms performance. It is important to note that this framework uses quantitative analysis to confirm or disprove theories.
Figure 2.3 Theoretical framework

Partial Privatization
State-owned banks

Structure

Conduct

Performance

**New Empirical Industrial Organisation theory**
- Addresses the dominance in price setting behaviour in retail banks
- Focuses on competitive behaviour of banks including market structure

**Public choice theory**
- Explains the government as politician and bureaucrats who may use state ownership for political reasons

Panzar-Rosse approach:
- More comprehensive formulation than SCP
- Discriminates competitive behaviour: monopoly, monopoly competition and perfect competition
- Accommodate market structure as well as firms behaviour
- Assumes banks as a single product

Performance measurement approach:
- Uses conventional financial ratios: ROE, NIM and CR
- Included in the independent variables: time to privatization, privatization, and merged banks

Improved banking market structure and performance

source: modified Mason (1940); Panzar-Rosse (1987); Cornet and Tehranian (1992); Boubakri et al (2005); and Clarke et al. (2003)
2.7 Research approach used in prior studies

This study uses common quantitative approaches. The first quantitative approach is the Panzar-Rosse approach which employs a specific data set that includes details of firms' information on expenses such as: labour, capital, and funding and investigates the change of input factors prices shown in revenues earned by certain banks. The last quantitative approach is the performance measurement approach which involves certain financial ratios and dummy variables of privatization.

Table 2.1 indicates the limited number of studies on the market structure based on the Panzar and Rosse model applied in a single country. Most of these studies looked at the cross country banking market. Thus, the current study fills the gap by examining the banking market structure on a single country, which has not been widely used previously.

Table 2.1 Panzar-Rosse results in empirical studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Period</th>
<th>Countries and Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Canada 1983-1984: monopolistic competition</td>
</tr>
<tr>
<td>Shaffer (1982)</td>
<td>1979</td>
<td>USA: Monopolistic competition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>France, Germany, Spain &amp; UK: monopolistic competition</td>
</tr>
<tr>
<td>Vesala (1995)</td>
<td>1985-1992</td>
<td>Finland: monopolistic competition all but two years</td>
</tr>
<tr>
<td>De Bandt and Davis (1999)</td>
<td>1992-1996</td>
<td>Large banks France, Germany and Italy: monopolistic competition; small banks in Italy:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>monopolistic competition; small banks in France &amp; Germany: monopoly</td>
</tr>
<tr>
<td>Rime (1999)</td>
<td></td>
<td>Switzerland: monopolistic competition</td>
</tr>
<tr>
<td>Bikker and Groeneveld</td>
<td>1989-1996</td>
<td>15 EU countries: monopolistic competition</td>
</tr>
<tr>
<td>Wong et al. (2006)</td>
<td>1992-2002</td>
<td>Hong Kong: perfect competition</td>
</tr>
</tbody>
</table>

Source: Bikker and Haaf (2000)
Table 2.2 shows the literature evaluating the performance of state-owned banks after privatization. Based on the table, studies on the performance of state-owned banks after partially privatized were limited. This study will fill the gap by examining the performance of state-owned banks in a country after being partially privatized. Thus, this study provides comprehensive measures, as well as methodology, that have not been widely covered in previous researches.

**Table 2.2 Empirical studies on banks performance using the same performance variables**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Period</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbrugge et al (1999)</td>
<td>n/a</td>
<td>Limited improvement in bank's profitability, operating efficiency, leverage and non-interest revenue after privatization.</td>
</tr>
<tr>
<td>Boubakri et al (2005)</td>
<td>1986-1998</td>
<td>Post privatization period: profitability increase, although, depending on the type of owner, efficiency and risk exposure may worsen or improve</td>
</tr>
</tbody>
</table>

Source: Cornet and Tehranian (1992); Boubakri et al. (2005); and Beck et al. (2005)

### 2.8 Research questions

Based on the theoretical framework in the previous section, this study addresses the following research questions:

1. Has partial privatization on state-owned banks increased the Indonesian commercial banking market and firms' behaviour?

2. Has partial privatization on state-owned banks improved the performance of firms?

These two research questions require a quantitative approach since they seek to confirm or disconfirm the relationship between: 1) partial privatization of state-owned banks and
commercial banks' market structure and firms' behaviour, and 2) partial privatization of state-owned banks on the performance of firms.

2.9 Literature prediction development

This study does not measure partial privatization of state-owned banks; rather, it examines the commercial banking market structure with partial privatization of state-owned banks and the effects in each of period of time. Therefore, this study does not develop hypotheses. To answer both research questions, this study develops literature predictions.

Research question 1: Has partial privatization on state-owned banks increased the Indonesian commercial banking market and firms' behaviour?

Prior studies on the banking market based on the Panzar and Rosse model have shown varying empirical results (refer to table 2.1). Some of the results included bank regulation and bank consolidation which influenced the outcome (Wong et al. 2006; and De Rozas 2007). Thus, consistent with the prior studies which used the Panzar and Rosse model in examining the nature of competition in the banking market, the following literature prediction to answer research question 1 is developed:

Literature prediction (LP1): Partial privatization has a positive relationship with commercial banking market structure (as measured by the Panzar-Rosse model).
Research question 2: Has partial privatization of state-owned banks improved the performance of firms?

Meanwhile, the study solely evaluates state-owned banks performance after being partially privatized. Prior studies on the performance of state-owned banks after privatization have also shown differing results (refer to table 2.2). Therefore, consistent with the prior studies on the performance of state-owned banks after privatization, the following literature prediction grounded from the public choice theory is developed:

Literature prediction (LP2): *Partial privatization has a positive relationship with firms' profitability (as measured by return on equity variable).*

Literature prediction (LP3): *Partial privatization has a positive relationship with firms' efficiency (as measured by net interest margin variable).*

Literature prediction (LP4): *Partial privatization has a positive relationship with firms' risk exposure (as measured by credit risk variable).*

The relationship between variables, as illustrated in the literature predictions, are indicated in figure 2.4. The independent variables are dummy variables (Boubakri et al. 2005; Beck, 2005 Verbrugge et al. 1999; Cornet and Theranian, 1992). Each of the independent variables is closely related to partial privatization. Included in these variables are:

- Merg (merger) defines merged state-owned banks into newly Bank Mandiri. It is equal to one for merged banks into Bank Mandiri, and zero otherwise.
• Priv (partial privatization) means the partial privatization as the point where the government relinquished control over their banks. It is equal to one from the moment bank \( x \) is partially privatized and zero otherwise.

• TT (time since partial privatization) captures the time since partial privatization. It is equal to the number of years since the year of partial privatization.

Furthermore, control variables are considered to measure the strength of the relationship between independent and dependent variables. This variable is total assets. It reflects the relative size of the bank in the economy (Boubakri et al. 2005).
Figure 2.4 Conceptual framework

Panzar-Rosse model

Independent Variable:
Natural logarithm Funding, Natural logarithm Personnel, and Natural logarithm capital expenditure

Control variables:
Bank specific exogenous factors
- **Proxy for bank risk:** Capital Adequacy Ratio
- **Deposit mix:** ratio of deposits from customers to bank total funding
Bank role other than financial intermediation
- ratio of other income to interest revenue

Dependent variable:
Natural logarithm Interest Revenue

Performance Variables model

Independent Variable: Dummies variable
- Merger (Merg): equals 1 for merged banks, and zero otherwise
- Partial privatization (Priv): takes 1 in the post partial privatization, and zero otherwise
- Time to partial privatization (TT): equals one to the number of year since the year of partial privatization, equals two to the two years since the year of partial privatization etc

Dependent Variable: Performance
- Profitability: ratio of net income to equity (ROI)
- Efficiency: average interest rate on loans minus the average rate on liability (NIM)
- Risk exposure: medium loans to assets (credit risk)

Control variable: Firm size
Natural logarithm of Assets
Chapter 3

The importance of state-owned banks in Indonesia

3.1 Introduction

This chapter describes in detail information regarding the role of state-owned banks in the Indonesian economy, beginning with a brief overview of the Indonesian state-owned enterprises. It is followed by the role of commercial banks, an overview of the Indonesian state-owned banks, the partial privatization process of state-owned banks, a description of the state-owned banks description, and the state-owned banks' market segment.

3.2 An overview of the Indonesian state-owned enterprises

Adopted from Margaret Thatcher's idea, who authorized this in the conservative government of the late 1970s in the United Kingdom, the concept of privatization has reduced significantly the role of state-owned enterprises in many countries, including in Indonesia. Privatization in Indonesian state-owned enterprises aims to generate revenue for the state budget and also put state-owned enterprises under market discipline or market-base as the driver for efficiency (Wicaksono, 2008). Indonesia has over one hundred state-owned enterprises and the government initiated a policy to bring out the potential of the state-owned enterprises that were known for being mismanaged and, inefficient, lacking freedom in making important decisions and subject to political interference to finance specific sectors of the economy. In order to improve the performance of state-owned enterprises, privatization took place. however, just like other developing countries, privatization in Indonesian state-owned enterprises has been partial; with the government retaining the majority ownership in these privatized assets. Privatization has been done through a public offering of shares, or
privately through an assets sale. During the initial public offering of state-owned enterprises, foreign investor roles have increased quite significantly in acquiring shares in state-owned enterprises divested by the government. This is actually the phase where financial liberalisation begin to occur in the Indonesian economy.

According to the Indonesia's Constitution 1945 (Undang-Undang Dasar 1945), article number 33 (pasal 33) states that "Sectors of production that are important for the country and affect the life of many people shall be controlled by the state" (sub-paragraph 2) and "The land, the waters and the natural resources contained therein shall be controlled by the state and exploited for the benefit of people" (sub-paragraph 3). This article reflects the main basis of why full privatization is not easy to achieve. Hence, privatization in Indonesia state-owned enterprises is still in its infancy and its validity as part of a long-term process and also still actively debated.

The recent privatization policy of Indonesian SOEs, Masterplan Reformasi BUMN, 1998, was part of a reform of the Government of Indonesia which has been submitted to the International Monetary Fund (IMF), known as a Letter of Intent, as a requirement for a financial loan to help the financial institution restructuring during the 1997 to 1999 financial crisis. This banking crisis proved to be one of the most serious in any country and its ultimate impact was to add to the country's debt. In that scheme, the Government agreed to take the action of a privatization program providing for the sale of substantial stakes in 12 state-owned enterprises. The Government expected to raise US$2.5 billion in the following 18 months from the sale. This program has given an opportunity for foreign investor to buy stakes in state-owned enterprises', which, until recently, were closed or restricted for foreign investment.
3.3 The role of commercial banks in the Indonesian economy

The financial sector is usually called the heart of economic life in a country. Without the soundness of the financial sector, the path of economic and business development will be full of restraints or even stagnant. The crisis that impacted the Indonesian commercial banks' collapse in 1997/1998 has proven that in the modern economic era, financial companies play a significant role in underpinning economic and business activities. The crisis impacted the banking sector so that it could not run its function of financial intermediation; gathering funds from people and distributing these funds for business loans. The business owners could not get loans from banks, or if they could, the loans rate would be very high, since the banks had set up high interest rates. Hence, business owners could not run their business activities due to lack of funding from banks. Based on banks' "bad" experience of credit default or bad credits in the past, banks were reluctant to give credit to the industrial sector. As a result, the crisis that occurred in Indonesia has not only affected the banking sector, but also the industrial sector.

Banks have been dominating the Indonesian financial services market. Table 3.1 indicates that banks held 90.46 per cent of the market in the Indonesian financial sector in 2002. Hence, banks play a vital role in the Indonesian economy. The crisis in 1997/1998 damaged the financial industry in Indonesia.
Table 3.1 The map of financial services in Indonesia in 2002

<table>
<thead>
<tr>
<th>No</th>
<th>Sector</th>
<th>Controlling market Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Banks</td>
<td>90.46</td>
</tr>
<tr>
<td>2</td>
<td>Insurance Company</td>
<td>3.38</td>
</tr>
<tr>
<td>3</td>
<td>Pension/ Pension fund</td>
<td>3.01</td>
</tr>
<tr>
<td>4</td>
<td>Multi-finance company</td>
<td>2.31</td>
</tr>
<tr>
<td>5</td>
<td>Securities Company</td>
<td>0.65</td>
</tr>
<tr>
<td>6</td>
<td>Pawn Shop</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Source: Research bureau of InfoBank, InfoBank no.292- August vol.XXV

Table 3.2 shows the 20 biggest banks in Indonesia held approximately 82 per cent of the market, while others (118 banks) held only 17.19 per cent.

Table 3.2 The data summary of the banking sector in Indonesia in 2003

<table>
<thead>
<tr>
<th></th>
<th>Assets total (USD million)</th>
<th>Share (%)</th>
<th>Third party funding (USD million)</th>
<th>Disbursed credit (USD million)</th>
<th>Profit or loss (USD million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 banks</td>
<td>107,403.61</td>
<td>82.81</td>
<td>83,765</td>
<td>34,164</td>
<td>1,700</td>
</tr>
<tr>
<td>118 banks</td>
<td>22,291.91</td>
<td>17.19</td>
<td>15,724</td>
<td>11,263</td>
<td>344</td>
</tr>
<tr>
<td>Total 138 banks</td>
<td>129,695.52</td>
<td>100</td>
<td>99,489</td>
<td>45,427</td>
<td>2,043</td>
</tr>
</tbody>
</table>

Source: Research bureau of InfoBank, InfoBank, no.292, August, vol.XXV

Surprisingly, Table 3.3 shows that the three largest state-owned banks (SOBs) dominated an enormous assets of 42.44 per cent. Bank Mandiri owned 22.98 per cent of the market. Bank Nasional Indonesia (BNI) had 11.53 per cent of the market. Bank Central Asia (BCA) was in third place with 10.77 per cent of the market, while Bank Rakyat Indonesia (BRI) hold 7.93 per cent of the market. Bank Mandiri, Bank Negara Indonesia and Bank Rakyat Indonesia are the state-owned banks (SOBs). Bank Central Asia (BCA) is currently the largest private national bank (PNB) in Indonesia.
Table 3.3 The 5 biggest banks and their market share in 2003

<table>
<thead>
<tr>
<th>Name of banks</th>
<th>Assets total (USD million)</th>
<th>Share (%)</th>
<th>Third party funding (USD million)</th>
<th>Disbursed credit (USD million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Mandiri</td>
<td>29,808.89</td>
<td>22.98</td>
<td>21,909</td>
<td>7,788</td>
</tr>
<tr>
<td>Bank Negara Indonesia</td>
<td>14,955.14</td>
<td>11.53</td>
<td>11,514</td>
<td>4,499</td>
</tr>
<tr>
<td>Bank Central Asia</td>
<td>13,964.83</td>
<td>10.77</td>
<td>12,345</td>
<td>2,546</td>
</tr>
<tr>
<td>Bank Rakyat Indonesia</td>
<td>10,279.15</td>
<td>7.93</td>
<td>8,288</td>
<td>4,687</td>
</tr>
<tr>
<td>Bank Danamon Indonesia</td>
<td>5,584.68</td>
<td>4.31</td>
<td>4,155</td>
<td>2,166</td>
</tr>
</tbody>
</table>

source: research bureau of InfoBank, InfoBank, no.292, August, vol.XXV

3.4 Why state-owned banks?

Commonly people question the importance of studying state-owned banks among a country's commercial banks. There have been few attempts to answer this question and relate the answer to the extensive literature on state-owned banks (Hanson, 2004). Policy authorities in many developing countries have decided on bank privatization for the past 25 years, and this reflects that state-owned banks are less attractive than privately owned banks (Andrews, 2005).

Political and economic reasons explain that the purpose of state banks is to counter the substantial economic and political power of large private banks. Nevertheless, state banks are regulated by the government and yet the commonly held view is that these banks misuse their power to dominate the country's banking market share (Hanson, 2004). In India the government decided to nationalize banks in 1969 to reduce the power of economic conglomerates and concentrated lending (Sen and Vaidya, 1997; Tandon, 1989). The African government believed that nationalized banks were part of the decolonization of the newly independent African nations (Hanson, 2004).
Other reason implies that state-ownership led to economic development since this involved government control. According to Gerschenkron (1962) the motivation for state banks was because of the government's owns 'commanding height' and strategic sectors and that these were essential to a country's development. Furthermore, these strategic firms needed cheap funding that was usually provided by the government banks.

A further reason is that, the state-owned banks' task is to distribute credit to underserved groups. This credit includes credit for small and medium businesses, credit for agricultural purposes, export finance, low and- middle- income housing credit, and others. This task is important, since many private banks failed in providing loans for this priority sector, hence causing market failure. With a guarantee from the authority of the government, this priority sector was able to get loans at lower cost than the private banks, later known as direct credit. Nonetheless, this reason was not actually the only cause of market failure and later this reason has, in fact, become the root of state banks' non-performing loans. In India, since the formal financial institutions ignored allocating credit for small businesses, the Indian authority issued India's Fourth Plan in 1996 to overcome this situation. In that plan, the government urged nationalization of commercial banks in order to provide credit for agriculture, rural moneylenders, and small firm credit and also to mobilize deposits to support financial system development (Burgess and Pande, 2004).

A final reason is that, state-owned banks occasionally occur from takeovers or merged banks after crises, for instance, in Hungary, Mexico, Indonesia, Czech Republic and Uganda (Sheng, 1996).
3.4.1 Overview of the Indonesian state-owned banks

State-owned banks traditionally aimed to channel resources to priority sectors of the economy as well as to provide financial services to underserved parts of a widely dispersed country. According to Indonesian Law 14/1967 the role of state-owned banks was as an instrument of national development to improve economic growth, equitable distribution of wealth, and national stability. Each of the bank was assigned to finance a specific sector of the economy. But then political interest took over and these banks were used to finance politically important projects rather than meet broader development objectives.

State-owned banks are categorized as commercial banks, savings banks as well as development banks (Srinivas and Sitorus, 2003). As commercial banks state-owned banks were expected to finance themselves by collecting fund from current and term deposits and engage in short-term lending or other non-balance sheet activities. As saving banks state-owned banks were permitted to finance themselves by investing funds in marketable securities. Development banks obliged state-owned banks to issue medium/long term paper and engage in medium-long term credit provision.

Before the 1997 economic crisis, Indonesia had seven state-owned banks. Bank Rakyat Indonesia (BRI) was formed in 1946, although its history can be traced back to the formation of Bank Priyayi in 1896. Bank Rakyat Indonesia in fact was the oldest state-owned bank among the others. Bank Rakyat Indonesia’s core business is focused on micro-small and medium-scale businesses and in the low- to middle-income consumer loan markets. Bank Mandiri was established in 1998 and was actually formed from the merged of four state-owned banks that is: Bank Bumi Daya (BBD), Bank Dagang Negara (BDN), Bank Ekspor Impor Indonesia (Bank Exim), and Bank Pembangunan Indonesia (BAPINDO). Bank
National Indonesia (BNI) was established in 1946; initially Bank Negara Indonesia functioned as the country’s central bank. Since 1992 Bank Negara Indonesia has operated as a commercial bank. Bank Tabungan Negara (BTN) was established in 1950. Currently Bank Tabungan Negara is focusing its operation in housing loans to low-income families.

**Figure 3.1. The map of Indonesian financial institutions in 2011**

Source: http://www.bi.go.id

Indonesian state-owned banks, historically, functioned as development banks. State-owned banks were to advocate to correct market failures and provide resources to underserved or high-priority sectors of the economy, thus facilitating equitable economic growth. All tasks have been set up by the government so that these banks have to go along with these tasks. Nevertheless, state banks have not always been achieving these objectives. Weak governance along with political interference have reduced the beneficial effect for these banks to
concentrate on long-term viability (ADB, 2009) and when these banks have found difficulties towards meeting capital adequacy, liquidity requirement and other requirements to achieve banking soundness, the authority would work it out mostly by injecting funds to recapitalize them and bring them back to financial health.

Since 2000 the assets of either state-owned banks or private banks have been very competitive. In the overall Indonesian financial sector, state-owned banks continued to dominate (refer to table 3.4; figure 3.2; and figure 3.3). Eighty per cent of the financial sector was controlled by banks and state-owned banks controlled approximately 46 per cent of these assets, considering the number of state-banks is less than that of private banks (Srinivas and Sitorus, 2003).

**Table 3.4 Banking performance indicator of Indonesian SOBs and PNBs in 2008 (in million Rupiah)**

<table>
<thead>
<tr>
<th>Banking Performance Indicator</th>
<th>SOBs</th>
<th>PNBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Deposits</td>
<td>669,827</td>
<td>701,710</td>
</tr>
<tr>
<td>Total Loans</td>
<td>470,665</td>
<td>524,295</td>
</tr>
<tr>
<td>Total Assets</td>
<td>734,720</td>
<td>807,788</td>
</tr>
<tr>
<td>CAR (%)</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>ROA (%)</td>
<td>3</td>
<td>1.25</td>
</tr>
<tr>
<td>LDR (%)</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>NIM (%)</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: IBS, Bank Indonesia

Based on Indonesian banking statistics (various years) deposits and loans dominated financial services in the Indonesian commercial banking market.
Figure 3.2 Deposit share 1981-2001

Figure 3.2 indicates deposit market share from 1981 to 2001. It can be seen that state-owned banks dominated up to 70 per cent of deposits share until early 1990s. From 1991 the share of deposits between state-owned banks and private national banks was nearly the same. These types of banks dominated 90 per cent of total deposits share in the industry. Figure 3.3 indicates loan market share from 1981 to 2001. Until 1992 state-owned banks dominated over 80 per cent of the loans market while others banks accounted for less than 20 per cent of the shares. Starting from 1993, the loan share was highly competed for, between state-owned...
banks and private national banks. Joint venture banks were beginning to increase their share in the loan market in the early 2000s.

### 3.4.2 The Indonesian state-owned banks: the partial privatization process

The development of the banking sector in Indonesia begins with the phase where the government implemented reforms together with partial privatization in the 1990s (Business Watch Indonesia, 2004). These are the three most important steps in the partial privatization process. Basically, the important phases are:

1. deregulation phase
2. restructuring and partial privatization phase
3. divestment and recovery phase

**Figure 3.4 The path of partial privatization reform in Indonesian SOBs**

**3.4.2.1 Deregulation phase with early partial privatization**

This is the phase that has been marked by a swift pace of banking sector growth and development. At this phase, the Indonesian macro-economic situation was relatively quite perspective. The commercial banks were encourage to support high economic growth. State-owned banks historically held a dominant market position in Indonesia, approximately 70 per cent of market share when this phase was initially introduced. Beginning with the launched of Bank Indonesia (the Indonesian central bank) a liquidity credit program that was aimed to
finance prioritized sectors was outlined in the government five-year economic plan (REPELITA). This scheme resulted in state-owned banks obtaining low interest rate refinancing from Bank Indonesia for credit extended to certain borrowers. As a result, subsidized credits from government accounted for over half of total bank credit. This condition was discouraging state-owned banks from mobilizing funds from the public because the deposit interest rate was less competitive compared to the interest rate for the liquidity support scheme. The 1983 reforms involved deregulation of state-owned banks deposit rates on time deposits for longer than six months, elimination of credit ceilings and their replacement with a system of reserve money management (Sertifikat Surat Berharga Pasar Uang Bank Indonesia), and rationalization of the subsidized directed credit program. This reform resulted in state-owned banks taking initial steps in moving to more market-based banking, although they were still operating in a highly protected environment. This meant state-owned banks needed to seek alternative sources of funds to replace Bank Indonesia liquidity support in order to finance loans extended to large borrowers. State-owned banks not only had to learn to compete with private banks in attracting public deposits but also to manage their own funds to comply with the minimum reserve requirements. However during this period, competition remained weak due to the regulatory restrictions on operations, branching and entry barriers.

Another reform was introduced in October 1988, known as Pakto (Paket Kebijakan Oktober), when the government announced a set of reforms to lower barriers to entry and enhances financial sector efficiency. The reforms were permitting entry to new private banks including setting up branches; banks being permitted to transact foreign exchange with easy prerequisites; stipulating loan concentration ratios for banks that limited lending to a single borrower or group; specifying minimum capital requirements of ten billion rupiah for banks;
permitting banks to raise capital from the securities market; and allowing banks to have multi-service financial companies as subsidiaries. This reform resulted in the fast growth of the Indonesian banking sector. Since after the Pakto, the number of banks increased dramatically from 111 in 1988 to 240 in 1996 (Indonesian Banking Statistics, various years). This is the greatest number of banks ever in Indonesian banking history. Hence, it created unsound business competition. Given the fact that within seven years banks’ assets increased to 398 per cent, while in a normal banking system, an average increase is twelve per cent per annum, this has already been regarded aggressive.

In March 1989, the government set further reforms for lending limits, joint venture bank capital requirements, bank mergers, definition of bank capital, reserve requirements and bank investments in stocks. State-owned banks were permitted to borrow abroad as long as they covered their positions by lending in foreign currency amounts. Furthermore, directed credit programs were further reduced and credit insurance was eliminated in January 1990. This reform resulted in state-owned banks becoming more selective in granting loans to their borrowers. Prudential regulation was introduced in March 1991. New professional standards were applied for bank directors, loan-loss provisioning standards were overhauled, quantitative evaluation of bank soundness Capital, Asset Quality, Management, Earning Power and Liquidity (CAMEL) analysis was implemented and finally banks were obliged to adopt the risk-based capital adequacy standards (the Basel Agreement) by the end of 1993, extended to 1994 (Srinivas and Sitorus, 2003). All legal distinction between state-owned banks and private banks had been eliminated except the status of 51 per cent of state-owned banks shares belonging to the government.

Since the beginning of the 1990s, liquidity credit reduction, greater competition among private banks and, newly imposed capital requirements have all impacted on state-owned
banks’ balance sheets. State-owned banks faced their capital levels falling below the required new capital adequacy rules. In 1992, the Government recapitalized these banks to bring them up to the full eight per cent Capital Adequacy Ratio (CAR). This was done through a Financial Sector Development Project (FSDP), in a US$4 billion or nearly 4 per cent of Gross Domestic Product (GDP) recapitalization fund for SOBs, of which US$300 million was financed through a World Bank loan (Cole and Slade, 1996). Furthermore, in determining the needs of recapitalization fund, these were reviewed by Bank Indonesia team assisted by foreign companies based on banking principles. State-owned banks were expected to be able raise fresh capital either from retained earnings or from the capital market, but this also implied the possibility of privatization. In 1993 the Indonesian government formed the State Bank Credit Supervision Committee (SBCSC), which consisted of Ministry of Finance staff, Bank Indonesia managing directors, the government secretariat staffs, and World Bank consultants. The main task of this agency was monitoring both the collectability of concurrent loan and the possibility of issuing new loans, and report the information to the Minister of Finance.

The result was unclear. One of the existing state-owned banks, Bank Pembangunan Indonesia (BAPINDO) was reported to have lost US$340 million due to the ‘Golden Key Incident’. It was a well-known case at that time where the owner of Golden Key borrowed the money from BAPINDO and disappeared overseas (Srinivas and Sitorus, 2003). When the case was reviewed, there had been a collusion between the borrowers and some of the banks' officers. As a result the bank became insolvent and needed emergency Bank Indonesia liquidity support. The first major step up made by the Government in terms of restructuring state-owned banks was when the Government decided to partially privatized Bank Negara Indonesia in 1996.
The 1997-1998 Economic Crisis

A major cause of this crisis mainly came from the cumulative results of weaknesses in the banking institutional framework: unseparated functions among owners, regulators, management, transparency and supervisors; the lack of good corporate governance; state-owned banks credit quality, the number of new banks, and the minority role of the capital market in these banks (Rudjito and Tranggana, 2003). These conditions caused the financial performance of state-owned banks to drop severely. In mid 1997, the World Bank revealed that the problems of poor performance of state-owned banks came from two state-owned banks; Bank Bumi Daya (BBD) and BAPINDO. Bank Bumi Daya (BBD) was reported to have failed to meet the agreed restructuring schedule. A merger plan was set up under the World Bank program to address these problems. Moreover, all seven state-owned banks represented 40 per cent of total assets of the commercial banks.

As part of the IMF-supported programs, in mid 1998, an audit was conducted of all commercial banks by international auditors and Bank Indonesia. They concluded that the level of non-performing loans was much higher than the authorities had anticipated. In the case of state-owned banks, the main cause was manageable in the context of their ongoing adjustment programs. Seven state-owned banks were discovered to be insolvent.

To anticipate this situation, the Indonesian government, once again, decided to recapitalize state-owned banks after undertaking certain operational changes. At this stage the Government had to spend two-thirds of the recapitalization resources and each bank’s management entered into a performance contract that required the management to take the certain operational steps and make changes in return for the Government’s recapitalization.
To restore the banking system’s soundness, in late 1998, the government developed comprehensive strategies. These strategies included merging the four weakest state-owned banks and Bank Rakyat Indonesia’s corporate lending into a newly created Bank Mandiri, and the announcement of the blanket guarantee of bank deposits. The merger aimed to downsize the state-owned banks, and also optimize scarce managerial and advisory resources. In order to recapitalize the components banks of Bank Mandiri, the Government had to spend 41 per cent of the total recapitalization of the banking system; while Bank Negara Indonesia cost the government 14 per cent, Bank Rakyat Indonesia (BRI) and Bank Tabungan Negara (BTN) accounted for less than 10 per cent of the total costs.

Table 3.5. The cost of banking sector restructuring in Indonesia

<table>
<thead>
<tr>
<th>Bank Type</th>
<th>Cost of restructuring (in trillions Rupiah)</th>
<th>Cost of recapitalization (in percentage)</th>
<th>GDP (in percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Mandiri</td>
<td>178</td>
<td>41</td>
<td>14,1</td>
</tr>
<tr>
<td>Bank Negara Indonesia (BNI)</td>
<td>61,8</td>
<td>14</td>
<td>4,9</td>
</tr>
<tr>
<td>Bank Rakyat Indonesia (BRI)</td>
<td>29</td>
<td>7</td>
<td>2,3</td>
</tr>
<tr>
<td>Bank Tabungan Negara (BTN)</td>
<td>13,8</td>
<td>3</td>
<td>1,1</td>
</tr>
<tr>
<td>Total for SOBs</td>
<td>282,6</td>
<td>66</td>
<td>22,4</td>
</tr>
</tbody>
</table>

Source: Bank Indonesia

3.4.2.2 Restructuring and partial privatization phase

This was the phase when the Indonesian Government decided to increase the banks' Capital Adequacy Ratio (CAR) or to improve the banks' soundness and reduce their non-liabilities side. In order to do that the Government injected Bank Indonesia liquidity fund. In order to do this Bank Indonesia had to take these steps; 1) writing off outstanding bad debts and transferring them over to the Indonesian Banking Restructuring Agency (IBRA), and 2) debt restructuring and rescheduling.
To finance the restructuring program, the Government issued bonds. With these bonds, the Government was obliged to pay interest at approximately Rp60 trillion or US$7.15 billion every year, while the sale of liquidated or restructured banks would not even reach as much as Rp60 trillion per year (Srinivas and Sitorus, 2003).

In terms of state-owned banks, except for Bank EXIM that lost more than Rp20 trillion due to foreign exchange losses in the foreign exchange market and also received liquidity support from Bank Indonesia of over Rp20 trillion due to deposit withdrawals from derivative losses, they did not have liquidity difficulties like the private banks did. As a result they did not need liquidity support from Bank Indonesia. Nonetheless, state-owned banks had a long history of poor performance and had been recapitalized repeatedly for more than 20 years.

State-owned banks, despite having proved not to have liquidity problems, have created other problems in this phase. Blanket guarantees problems have arisen and the authorities have sought to solve them. And since the Government had announced that these banks were too big to fail, they preferred to recapitalize them again. The recapitalization of state-owned banks has been the most expensive cost spent by the authority. In total the Government has spent over Rp250 trillion, as against the recapitalization of private banks that costed Rp22 trillion. This amount was reflecting the non-commercial banking practices before and after the crisis. And the closure of many private banks has affected the state-owned banks’ liabilities. Their liabilities have risen to 70 per cent. Meanwhile, the public announcement of Bank Mandiri; and the merger of four state-owned banks had deteriorated the financial condition of these banks. There was a negative net worth of Rp108 trillion. In late July 1999, Bank Mandiri’s real equity position was negative Rp1.5 trillion (Srinivas and Sitorus, 2003). An injection of government bonds in October 1999 and in December 1999 brought up Bank
Mandiri to full compliance of solvency norms and resulted in its management focusing on further progress in operational restructuring. In March 2000, the final capitalization bond restored Bank Mandiri’s solvency and it was expected to be able to operate profitably afterwards.

3.4.2.3 Divestment and recovery phase

The recapitalization policy of all state-owned banks aimed to create high quality banks which would be able to compete in both domestic markets and international markets. The authority's intention was for all state-owned banks to be quickly partially privatized. In 2002 the Government made important decisions regarding the slow progress of state-owned banks in the banking system. One decision was the Government of Indonesia bringing down its stakes on state-owned banks. The Indonesian privatization program has followed a similar pattern of partial privatization through shares offering but at a particularly slow rate.

Prior to the partial privatization of state-owned banks, the Government injected a substantial amount of capital before the banks were allowed to tap the capital market. In 2002, the Government began the process of partial privatization of the largest of the state-owned banks, that is, Bank Mandiri. The Government diluted 30 per cent of its stakes through selling its equity in initial public offerings (IPOs). In 2003, there was another partial privatization of state-owned banks, that of Bank Rakyat Indonesia. In the initial public offering of Bank Rakyat Indonesia, 40.5 per cent of government equity was sold to the public. Finally, Bank Tabungan Negara (BTN) was recently partially privatized (2009).
3.4.3 Detail description of state-owned banks

Before the financial crisis in 1997, there were seven state-owned banks in Indonesia. After the crisis four state-owned banks were merged into Bank Mandiri.

3.4.3.1 Bank Mandiri

Bank Mandiri was formed on 2 October 1998, as part of the Government of Indonesia’s bank restructuring program. In July 1999, four state-owned banks: Bank Bumi Daya, Bank Dagang Negara, Bank Ekspor Impor and Bank Pembangunan Indonesia were amalgamated into Bank Mandiri. Each of these banks played an integral role in the development of the Indonesian economy. Nowadays, Bank Mandiri continues this tradition of more than 140 years of delivering expertise in banking and financial services throughout Indonesia (Bank Mandiri annual report, various years)

Following the merger, Bank Mandiri embarked on a comprehensive process of consolidation. Bank Mandiri has closed down 194 overlapping branches and reduced its workforce from 26,600 to 17,620. One of Bank Mandiri’s most significant achievements has been the complete replacement of its technology platform. It inherited a total of nine different core banking systems from its four legacy banks. After an initial investment of US$200 million, a program to replace the existing core banking platform with one specifically geared toward consumer banking was set up. Bank Mandiri’s information technology infrastructure, currently, provides straight-through processing and a unified interface for customers.

Bank Mandiri’s corporate customer are well diversified and particularly active in food and beverage manufacturing, agriculture, construction, chemical and textiles. Credit approvals
and monitoring are subject to a highly structured approval process, in which credit approval decisions are separated from the marketing activities.

From its founding, Bank Mandiri has worked to create a strong, professional management team operating under internationally recognized principles of corporate governance, control and compliance. The bank is supervised by a Board of Commissioners appointed by the Ministry of state-owned Enterprises from respected members of the financial community. The highest level of executive management is the Board of Directors which includes bankers drawn from the legacy bank as well as independent outside directors. In addition, Bank Mandiri maintains independent Offices of Compliances, Audit and the Corporate Secretary, and is under regular scrutiny from external auditors representing Bank Indonesia and the Supreme Audit Agency (Badan Pengawas Keuangan), as well as international auditing firms.

Bank Mandiri’s assets have grown up to more than Rp310 trillion today, and more than 21 thousand employees are spread among 956 domestic branch offices and six overseas branches. It is committed to providing wide-ranging financial solutions in investment and sharia’ products as well as bancassurance or bank insurance model is a partnership between a bank and an insurance company for private and state-owned corporate, commercial and small-business and micro customers. Bank Mandiri bancassurance is a joint acquisition with AXA and formed AXA Mandiri financial services. AXA Mandiri just recently announced the completion of their life insurance product called Asuransi Dharma Bangsa (Bank Mandiri annual report, 2011).
PT Bank Mandiri (Persero) Tbk was still the biggest bank in terms of assets in 2008. Its Total Assets reached IDR358.4 trillion, rising 1.2 per cent from Rp319.08 trillion in 2007. PT Bank Mandiri’s third party funds, were securing 2.2 per cent of the total of the third party funds held by Indonesia’s listed banks. In 2008, total third party funds in this bank reached Rp289.1 trillion, increasing by 1.7 per cent from Rp247.35 trillion in the previous year.

Table 3.7 Bank Mandiri Tbk income statement highlighted 2007-2008
(Expressed in million rupiah unless otherwise stated)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Income</td>
<td>27,336,237</td>
<td>23,928,549</td>
<td>1.4</td>
</tr>
<tr>
<td>Interest Expenses</td>
<td>12,051,637</td>
<td>11,142,628</td>
<td>0.8</td>
</tr>
<tr>
<td>Interest Income (net)</td>
<td>15,284,600</td>
<td>12,785,921</td>
<td>1.9</td>
</tr>
<tr>
<td>Income before provision and Tax</td>
<td>8,068,560</td>
<td>6,333,383</td>
<td>2.7</td>
</tr>
<tr>
<td>Net Income (losses)</td>
<td>5,315,316</td>
<td>4,347,491</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Source: Bank Mandiri annual report

By interest income, Bank Mandiri (Persero) Tbk was in the second-place (Bank Rakyat Indonesia was in the first-placed). It secured Rp27.34 trillion, which was 1.4 per cent increase
from Rp23.9 trillion in 2007. Bank Mandiri (Persero) Tbk succeeded in gaining Rp5.3 trillion for its net profit over 2008, rising by 1.9 per cent from Rp16.3 trillion in the previous year.

**Table 3.8 Bank Mandiri Tbk financial ratios 2007-2008**  
(Expressed in percentage)

<table>
<thead>
<tr>
<th>Ratios</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>15.66%</td>
<td>20.75%</td>
<td>(5.09)</td>
</tr>
<tr>
<td>NPL Gross</td>
<td>4.69%</td>
<td>7.33%</td>
<td>(2.64)</td>
</tr>
<tr>
<td>NPL Net</td>
<td>0.97%</td>
<td>1.32%</td>
<td>(0.35)</td>
</tr>
<tr>
<td>ROA</td>
<td>2.69%</td>
<td>2.40%</td>
<td>0.29</td>
</tr>
<tr>
<td>ROE</td>
<td>22.74%</td>
<td>19.07%</td>
<td>3.67</td>
</tr>
<tr>
<td>NIM</td>
<td>5.48%</td>
<td>5.20%</td>
<td>0.28</td>
</tr>
<tr>
<td>LDR</td>
<td>56.89%</td>
<td>52.02%</td>
<td>4.87</td>
</tr>
<tr>
<td>Minimum Reserve Requirement</td>
<td>5.4%</td>
<td>14.00%</td>
<td>(8.53)</td>
</tr>
</tbody>
</table>

Source: Bank Mandiri annual report

The capital adequacy ratio (CAR) of Bank Mandiri (Persero) Tbk has been declined with a 5.09 per cent from 20.75 per cent in 2007 to 15.66 per cent in 2008.

**3.4.3.2 Bank Negara Indonesia**

Initially referred to by it’s an abbreviated name of Bank Negara Indonesia when it was established in 5 July 1946, Bank Negara Indonesia is the first bank formed and owned by the Indonesian Government and was prepared to be the circulation bank of the central bank with the task of issuing and handling Indonesian currency. A few months after its formal establishment, it distributed the first currency bills ever issued by Indonesian Government and well-known as ORI (*Oeang Republik Indonesia*).

Bank Negara Indonesia’s role as the circulation and central bank was terminated in 1949, following the government’s appointment of the former Dutch-controlled bank, De Javasche Bank, as the Indonesian central bank. Bank Negara Indonesia, subsequently designated as a development bank, was later granted the rights to provide foreign reserve services that allowed it access to direct foreign transactions.
Bank Negara Indonesia’s legal status was formally changed to that of a state-owned commercial bank through a juridical assignment under Emergency Law no.2 in 1955. In the same year Bank Negara Indonesia expanded its branches by opening its first foreign branch in Singapore. This allowed the bank with the foundation to provide a better and wider range of both access and services for the country’s business sectors. After a merger period with several other commercial banks called Bank Tunggal (literally means the Single Bank), at the end of 1968 the bank decided to attach its year of establishment to its corporate name to become Bank Negara Indonesia 1946. Bank Negara Indonesia 1946 conducted an operational restructuring program by formulating the ‘Performance Improvement Program’ (PIP) to facilitate a more dynamic role in facing the continuously-changing environment. The program covered various aspects, including the improvement of the Corporate Vision and Mission, the refinement of strategic plans, as well as the development of technology and human resources. In 1988, Bank Negara Indonesia 1946, for legal name "Bank Negara Indonesia nineteen forty six", had created a new image and attitudes in line with its aspiration to play a more international role and to respond to the challenges of globalization, so the bank changed its corporate logo into a sailing boat and adopted the simple name of Bank Negara Indonesia. The Law number 7 1992 has given the bank opportunities to upgrade its legal status from state-owned bank to state-owned limited corporation under the name of PT Bank Negara Indonesia (Persero) and the bank decided to become a public company through its initial public offering of its shares in 1996. Bank Negara Indonesia was the first government bank in Indonesia which listed its shares on both the Jakarta Stock Exchange and the Surabaya Stock Exchange. The corporate name was amended to PT Bank Negara Indonesia (Persero) Tbk to show its status as a public company. In 1999, the Government’s banking recapitalization program, launched after the economic crisis, provided Bank Negara Indonesia with additional capital of Rp61.2 trillion. In the same year, Bank Negara Indonesia
received ISO 9002 Certification, recognition of the quality standards of its credit process conducted through the Joint Processing Unit. Following the recapitalization program, Bank Negara Indonesia conducted a thorough operational restructuring. Bank Negara Indonesia began the implementation of both prudent banking and good corporate governance practices. Bank Negara Indonesia's performance and service quality standards were reflected through a number of awards obtained in 2002 such as ‘The top 200 emerging market companies’ from Business Week Magazine. Bank Negara Indonesia continued to carry out improvements in order to regain public trust and to improve its performance. The change was highlighted with the formulation of a blue-print of Bank Negara Indonesia’s restructuring program in 2004 (also known as the Navigation Map), covering the phases of stabilization, recovery and transformation into a dynamic and highly-regarded organization. Another new logo has been introduced and; Bank Negara Indonesia was shortened into Bank Negara Indonesia. In 2005 Bank Negara Indonesia managed to complete two restructuring phases, and entered the final transformation phase which is to be conducted gradually during a period of 15 years. The time frame is set in compliance with the Central Bank’s concept for future Indonesian Banking Architecture (Arsitektur Perbankan Indonesia).

In fulfilling customers’ financial need, Bank Negara Indonesia covers not only improvements in customer service but also the development of consumer financial products, both deposit accounts and credit facilities. In addition to these general savings and financing products, Bank Negara Indonesia provides specially- tailored private banking services, including the management of personal assets, pension funds and credit card. Bank Negara Indonesia’s personal asset management services are provided through the Private Banking Division (PIB) which includes Standard Banking Products, Customized Services, Investment Products, Structured Products and Bancassurance Products. Bank Negara Indonesia bancassurance is
mainly insurance products combined with investment instruments. Bank Negara Indonesia has signed agreements with PT BNI Life Insurance, PT Asuransi Jiwa Sequis Life, PT Asuransi Cigna, PT AIA Financial and Sun Life financial. Under the agreement, Bank Negara Indonesia would sell the insurance products from those companies from its branches across nation. Swap funds, ranged deposits, accrual deposits, wealth premium deposits, *Sertifikat Bank Indonesia* premium and wealth investments are all products offered within the structured products range, while *bancassurance* products are channelled through special outlets in thirteen cities nationwide. Bank Negara Indonesia’s pension funds management service is currently the largest of its kind in Indonesia. Bank Negara Indonesia’s credit card services are focused on a market segmentation strategy, especially those through co-branding partnerships with diverse entities, ranging from educational institutions, cellular phone operators to electronic manufacturers (Bank Negara Indonesia annual report, various years).

For commercial banking, Bank Negara Indonesia focuses on small- to medium- scale enterprises. Small scale enterprises are set up for a credit limit of lower than Rp10 billion, while from Rp10 billion to Rp100 billion is allowed for medium- scale enterprises. Regular qualification reviews of facilities, infrastructure and the personal loan centres ensure close monitoring of the loan process. An early warning system is in effect to detect potential problems, to avoid and reduce occurrences of non-performing loans. The application of the ‘four-eyes principles’ system in credit risk management implies a dual- control mechanism in the distribution of loans. Risk assessment units, within the system, operate fully independently from business units. Furthermore, Bank Negara Indonesia also applies an automated credit risk assessment system that measures prospective debtors against standard benchmarks.
Working capital loans, investment loans, syndicated loans and a wide range of other corporate financial services are provided in the corporate banking segment. Credit services include trade financing, money market transactions (including foreign exchange services), cash management and payment getaway services. Bank Negara Indonesia also established cooperation with Institutional funds and services schemes. These services include the management of state funds under the auspices of state-run companies and government institutions, the handling of payment centres for university students and the development of ‘host to host’ system-interconnection projects.

Bank Negara Indonesia has foreign branches in New York, London, Tokyo, Hong Kong and Singapore. These branches, except New York, are licensed to provide deposit handling services for both Indonesian-based and local companies. Bank Negara Indonesia has 785 correspondent banks in 87 countries worldwide; Bank Negara Indonesia has one of the most extensive international banking networks of all Indonesian national banks.

Currently, Bank Negara Indonesia has developed sharia banking services and operated independently by Bank Negara Indonesia sharia in order to serve the needs of clients who prefer a banking system based on the Islamic sharia. Its sharia-based products are sharia savings and deposit as well as the facilitation of loans for business purposes.

In managing its risk, Bank Negara Indonesia has formulated policies and procedures based on the guidelines set out by the central bank’s regulations (Bank Indonesia) on risk management for commercial banks with reference to the Basel II Accord and other supporting documents issued by the Basel committee on banking supervision. The main reason for Bank Negara Indonesia’s risk management is to achieve a harmonious balance between the added-value
created through business expansion and the potential risks of every business activity. In supporting this, Bank Negara Indonesia established a risk and capital committee which is directly led by the President Director and whose members consist of Directors and division heads. Risk evaluation reports are regularly submitted to Directors and division heads on a daily, weekly and monthly basis. Recently, Bank Negara Indonesia has developed a Risk-Based Banking Management (RBBM) system to ensure compliance with the central bank’s requirements and prevailing international standards on risk management.

Table 3.9 Bank Negara Indonesia Tbk balance sheet 2007-2008
(Expressed in million of Rupiah, unless otherwise stated)

<table>
<thead>
<tr>
<th>Balance Sheet</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>201,741,069</td>
<td>183,341,611</td>
<td>1</td>
</tr>
<tr>
<td>Loans (Net)</td>
<td>103,240,557</td>
<td>81,449,239</td>
<td>2.6</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>4,919,165</td>
<td>4,445,465</td>
<td>1.1</td>
</tr>
<tr>
<td>Interbank Placement</td>
<td>12,177,876</td>
<td>8,046,163</td>
<td>5.1</td>
</tr>
<tr>
<td>Third Party Funds</td>
<td>162,806,452</td>
<td>145,977,998</td>
<td>1.2</td>
</tr>
<tr>
<td>Borrowed Funds</td>
<td>12,716,901</td>
<td>11,046,791</td>
<td>1.5</td>
</tr>
<tr>
<td>Total Equity</td>
<td>15,431,148</td>
<td>17,219,585</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Source: Bank Negara Indonesia annual report

Bank Negara Indonesia (Persero) Tbk has total assets of Rp201.7 trillion, rising 1 per cent from Rp183.3 trillion in 2007 to Rp201.7 trillion in 2008. Its third party funds reached IDR162.8, increasing 1.1 per cent from Rp145.9 trillion in the previous year.
Bank Negara Indonesia (Persero) Tbk secured interest income of Rp16.3 trillion in 2008, a 1.1 per cent increase from IDR14.7 trillion in 2007. Its net income was recorded as Rp1.2 trillion in 2008, which was a significant increase from Rp901.7 billion in 2007.

Due to deflation in mid 2008, the average capital adequacy of listed banks in 2008 declined. The capital adequacy ratio of Bank Negara Indonesia (Persero) Tbk dropped by 2.27 per cent in 2008, from 15.74 per cent to 13.47 per cent in 2008.
PT Bank Rakyat Indonesia (Persero) Tbk, is the oldest bank in Indonesia, founded on 16 December 1895. It was started from an association that managed simple savings and loan funds of a mosque for the local community, which was then made available for the people in an easy repayment scheme. Raden Bei Aria Wiraatmaja founded a small financial firm by the name of De Poerwokertosche Hulp en Spaarbank der Inlandsche Hoofden, which was formed on that date in Purwokerto, Central Java, as the embryo that would eventually evolve into Bank Rakyat Indonesia.

Over the years, the small firm continued to flourish, meeting the needs of the community. Over the course of its existence, the institution went through name changes, from the Hulp-en Spaarbank der Inlandsche Bestuurs Ambtenareen to De Poerwokertosche Hulp Spaar-en Landbouw Credietbank (Volksbank), Centrale Kas Voor Volkscredietwesen Algemene in 1912 and Algemen Volkscredietbank (AVB) in 1934. When the Japanese were ruling it was changed again to Syomin Ginko.

After the independence of Indonesia, the Indonesian Government changed the name back into Bank Rakyat Indonesia (taken from Volksbank) on 22 February 1946. Based on the Government Regulation no.1 of 1946, Bank Rakyat Indonesia became the first state-owned banks of the Government of the Republic of Indonesia.

Bank Rakyat Indonesia, as a state-owned bank, played a central role in pursuing the vision of the government to develop the rural economy. In 1960, the government changed the name of Bank Rakyat Indonesia into Bank Koperasi Tani and Nelayan (Farms and Fisheries Cooperative Bank). Based on Law no.21 of 1968, the Government restored the name of
Bank Rakyat Indonesia which by then had become a commercial bank. According to the Banking Law no.7 of 1992, Bank Rakyat Indonesia changed its name and legal entity into PT Bank Rakyat Indonesia (Persero). The business activities focus on the micro, small and medium enterprises (MSME) segment. Bank Rakyat Indonesia inspired others to view the MSME economic sector as the backbone of the national economy (Bank Rakyat Indonesia annual report, various years).

Bank Rakyat Indonesia publicly listed on November, 10 2003 with the listing of 30 per cent of its share in Indonesia Stock Exchange (IDX), which is currently part of the LQ45 index and Jakarta Composite Index (JCI).

During the past two years, Bank Rakyat Indonesia was able to grow rapidly in terms of total assets, loans outstanding, third party funds, profit from operations, with quality assets that are well-maintained.

Bank Rakyat Indonesia’s customers at the end of 2008 had reached approximately 30 million accounts that comprised individual customers, micro and small-scale businesses, medium to large-scale businesses and private as well as government institutions. The growth of credit was 41.36 per cent in 2008, whereas third party funds grew by 21.70 per cent. At the end of 2008, Bank Rakyat Indonesia had more than 5400 operating units that consist of Regional Offices, branch offices and Bank Rakyat Indonesia units (micro outlets).

As of 31 December 2008, the Government of Indonesia held 56.79 per cent of the shares of Bank Rakyat Indonesia with the remaining shares held by public investors. Bank Rakyat Indonesia is fully committed to complying with all prevailing laws and regulations pertaining
to banking and the capital markets. This has induced Bank Rakyat Indonesia to always the leader for prudential banking as well as the interests of stakeholders.

Bank Rakyat Indonesia's business strategy involves short term, medium term and long term development plans. In terms of short and medium term business strategies, Bank Rakyat Indonesia's business development has supported an increase in the quantity and quality of professional personnel, product features, services, and the support of an information technology system that is reliable for the growth of credit that focuses on the financing of the MSME sectors within prudential banking principles. It also supports the growth of third party funds that are dominated by low-cost funding with a minimum composition of 60 per cent, applying a risk-aware culture and implementing a micro management system that is efficient among all the operating units of Bank Rakyat Indonesia. This strengthen the bank's equity to support business growth and enhance the marketing communications for each product and service category in line with the corporate marketing strategy.

Table 3.12 Bank Rakyat Indonesia (Persero) Tbk balance sheet 2007-2008
(Expressed in million of Rupiah, unless otherwise stated)

<table>
<thead>
<tr>
<th>Balance Sheet</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>246,076,896</td>
<td>203,734,938</td>
<td>2.1</td>
</tr>
<tr>
<td>Loans (net)</td>
<td>153,102,630</td>
<td>107,014,778</td>
<td>4.3</td>
</tr>
<tr>
<td>Marketable Securities (net)</td>
<td>9,396,156</td>
<td>4,584,857</td>
<td>10.4</td>
</tr>
<tr>
<td>Interbank Placement</td>
<td>1,561,285</td>
<td>4,823,256</td>
<td>(6.7)</td>
</tr>
<tr>
<td>Third Party Funds</td>
<td>201,537,439</td>
<td>165,599,983</td>
<td>2.2</td>
</tr>
<tr>
<td>Borrowed Funds</td>
<td>7,495,372</td>
<td>6,133,563</td>
<td>2.2</td>
</tr>
<tr>
<td>Total Equity</td>
<td>22,356,697</td>
<td>19,437,635</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: Bank Rakyat Indonesia annual report
Table 3.13 Bank Rakyat Indonesia Tbk income statement 2007-2008
(Expressed in million of Rupiah, unless otherwise stated)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Income</td>
<td>28,096,633</td>
<td>23,240,631</td>
<td>2.1</td>
</tr>
<tr>
<td>Interest Expenses</td>
<td>8,448,667</td>
<td>6,552,899</td>
<td>2.9</td>
</tr>
<tr>
<td>Interest Income (net)</td>
<td>19,647,966</td>
<td>16,687,732</td>
<td>1.8</td>
</tr>
<tr>
<td>Income before provision and Tax</td>
<td>8,822,012</td>
<td>7,780,074</td>
<td>1.3</td>
</tr>
<tr>
<td>Net Income (losses)</td>
<td>5,958,368</td>
<td>4,838,001</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Source: Bank Rakyat Indonesia annual report

Table 3.14 Bank Rakyat Indonesia Tbk financial ratios 2007-2008
(Expressed in percentage)

<table>
<thead>
<tr>
<th>Ratios</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>13.18%</td>
<td>15.84%</td>
<td>(2.66)</td>
</tr>
<tr>
<td>NPL Gross</td>
<td>2.80%</td>
<td>3.44%</td>
<td>(0.64)</td>
</tr>
<tr>
<td>NPL Net</td>
<td>0.85%</td>
<td>0.88%</td>
<td>(0.03)</td>
</tr>
<tr>
<td>ROA</td>
<td>4.18%</td>
<td>4.61%</td>
<td>(0.43)</td>
</tr>
<tr>
<td>ROE</td>
<td>34.50%</td>
<td>31.64%</td>
<td>2.86</td>
</tr>
<tr>
<td>NIM</td>
<td>9.99%</td>
<td>10.69%</td>
<td>(0.70)</td>
</tr>
<tr>
<td>LDR</td>
<td>79.93%</td>
<td>68.80%</td>
<td>1.1</td>
</tr>
<tr>
<td>Minimum Reserve Requirement</td>
<td>5.57%</td>
<td>22.09%</td>
<td>(16.52)</td>
</tr>
</tbody>
</table>

Source: Bank Rakyat Indonesia annual report

Table 3.12, table 3.13, and table 3.13 present Bank Rakyat Indonesia's financial report highlighted in 2007 and 2008. Bank Rakyat Indonesia's assets in 2008 showed an improvement of 1.5 per cent compared to 2007. Bank Rakyat Indonesia's net income in 2008 also increased by 2.3 per cent compared to 2007. Nevertheless, the bank's capital adequacy ratio decreased by 2.66 per cent in 2008.
3.4.3.4 Bank Tabungan Negara

Bank Tabungan Negara was named Bank Tabungan Pos, which was established based on the Emergency Decree no.9, in the year 1950. In 1963 Bank Tabungan Post was transformed into Bank Tabungan Negara and has retained that name until the present time.

In 1974 Bank Tabungan Negara was assigned as the institution to provide housing loans for people with lower and middle incomes. In 1989, based on the letter of Bank Indonesia no.22/9/Dir/UPG dated April 29, 1989, Bank Tabungan Negara was changed into a commercial bank (Bank Tabungan Negara annual report, various years).

In early August 1992, Bank Tabungan Negara's legal status was changed into a limited liability company (Persero) with most shares owned by the Government of the Republic of Indonesia. The Government has decided to convert Bank Tabungan Negara to a commercial bank with a focus on non-subsidized housing loans.

Bank Tabungan Negara has planned strategy frameworks which aim to cover the banks' organisational aspects (Bank Tabungan Negara annual report, various years):

1. Loans

Diversification of loans to reduce risks of concentration, maturity mismatch and to increase profit margins by establishing a housing loan ratio of 75 per cent to non-housing loans of 25 per cent. The market segment is on the middle lower classes for commercial loans (housing or non-housing loans) and small business loans and investment loans (housing or non-housing loans).
2. Funding

Improvement in funding sector composition to reduce fund resources through: 1) increasing the portion of long-term funds, 2) increasing deposit owner and 3) reducing the portion of time deposits of big corporations.

3. Risk management strategy

Bank Tabungan Negara has set up better risk management to anticipate business development and the environment in the future by: 1) starting to implement Basel II, and 2) developing and implementing risk information management.

Table 3.15 Bank Tabungan Negara Tbk balance sheet 2007-2008
(Expressed in million of Rupiah, unless otherwise stated)

<table>
<thead>
<tr>
<th>Balance Sheet</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>44,992,171</td>
<td>36,693,247</td>
<td>2.3</td>
</tr>
<tr>
<td>Loans (net)</td>
<td>31,468,636</td>
<td>21,855,337</td>
<td>4.4</td>
</tr>
<tr>
<td>Marketable Securities (net)</td>
<td>9,309,934</td>
<td>10,526,289</td>
<td>(1.1)</td>
</tr>
<tr>
<td>Interbank Placement</td>
<td>125,213</td>
<td>54,013</td>
<td>13.2</td>
</tr>
<tr>
<td>Third Party Funds</td>
<td>31,448,744</td>
<td>24,187,088</td>
<td>3</td>
</tr>
<tr>
<td>Borrowed Funds</td>
<td>3,218,294</td>
<td>3,625,754</td>
<td>(1.1)</td>
</tr>
<tr>
<td>Total Equity</td>
<td>3,078,470</td>
<td>2,787,412</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Bank Tabungan Negara annual report

Table 3.16 Bank Tabungan Negara Tbk income statement 2007-2008
(Expressed in millions of Rupiah, unless otherwise stated)

<table>
<thead>
<tr>
<th>Income Statement</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Income</td>
<td>4,567,026</td>
<td>3,930,568</td>
<td>1.6</td>
</tr>
<tr>
<td>Interest Expenses</td>
<td>2,606,694</td>
<td>2,177,694</td>
<td>2.9</td>
</tr>
<tr>
<td>Interest Income (net)</td>
<td>1,960,332</td>
<td>1,752,874</td>
<td>1.8</td>
</tr>
<tr>
<td>Income before provision and Tax</td>
<td>665,533</td>
<td>601,639</td>
<td>1.3</td>
</tr>
<tr>
<td>Net Income (losses)</td>
<td>430,474</td>
<td>402,020</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Source: Bank Tabungan Negara annual report
Table 3.17 Bank Tabungan Negara Tbk financial ratios 2007-2008
(Expressed in percentages)

<table>
<thead>
<tr>
<th>Ratios</th>
<th>2008</th>
<th>2007</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>16.14</td>
<td>21.86</td>
<td>(2.6)</td>
</tr>
<tr>
<td>NPL Gross</td>
<td>3.20</td>
<td>4.05</td>
<td>(2.1)</td>
</tr>
<tr>
<td>NPL Net</td>
<td>2.66</td>
<td>2.81</td>
<td>(0.5)</td>
</tr>
<tr>
<td>ROA</td>
<td>1.80</td>
<td>1.89</td>
<td>(0.4)</td>
</tr>
<tr>
<td>ROE</td>
<td>19.64</td>
<td>21.53</td>
<td>(0.9)</td>
</tr>
<tr>
<td>NIM</td>
<td>5.08</td>
<td>5.31</td>
<td>(0.4)</td>
</tr>
<tr>
<td>LDR</td>
<td>101.83</td>
<td>92.38</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Source: Bank Tabungan Negara annual report

Table 3.15, table 3.16, and table 3.17 describe the financial highlights of Bank Tabungan Negara in 2007 and 2008. In summary, Bank Tabungan Negara's total assets rose by 2.3 per cent or from Rp36,693,247 in 2007 to Rp44,992,171 in 2008. Furthermore, Bank Tabungan Negara's net income increased by 2.3 per cent in 2008 due to interest income improvement. Meanwhile, from the financial ratios, Bank Tabungan Negara's capital adequacy ratio decreased by 2.6 per cent in 2008 or from 21.86 in 2007 to 16.14 in 2008.

3.4.4 The state-owned banks market segment

Initially the state-owned banks’ market segment was determined by the government, based on specific priorities of the economy.
Table 3.18 Partial privatized banks and their market segment

<table>
<thead>
<tr>
<th>Privatized Banks</th>
<th>Year Formed</th>
<th>Year Privatized</th>
<th>Initial Market Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Negara Indonesia (BNI)</td>
<td>1946</td>
<td>1996</td>
<td>Providing credit for manufacturing industry</td>
</tr>
<tr>
<td>Bank Mandiri:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Bank Bumi Daya</td>
<td></td>
<td></td>
<td>Provide loans for Indonesian food and non-food crop resources.</td>
</tr>
<tr>
<td>3. Bank Ekspor Impor</td>
<td></td>
<td></td>
<td>Provide credit in importing and exporting activities.</td>
</tr>
<tr>
<td>4. Bank Pembangunan Indonesia</td>
<td></td>
<td></td>
<td>Provide medium and long-term credit to large-scale development projects of manufacturing, transport and tourism.</td>
</tr>
<tr>
<td>Bank Rakyat Indonesia (BRI)</td>
<td>1946</td>
<td>2003</td>
<td>Providing Agriculture and Rural Credit</td>
</tr>
<tr>
<td>Bank Tabungan Negara (BTN)</td>
<td>1934</td>
<td>2009</td>
<td>Providing house loans to low-income families</td>
</tr>
</tbody>
</table>

State-owned banks began lending in other sectors than they were supposed to focus on, due to the pressure from state-owned banks' customers who had diversified into other activities without changing their bank. The state-owned banks' market segmentation was overlapping because of the banks' own strategic decision to get involved in what they thought were attractive opportunities in corporate lending (Cole and Slade, 1996).
### Table 3.19 State-owned banks current market segment based on geography

<table>
<thead>
<tr>
<th>Name of SOB</th>
<th>Market segment based on geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Negara Indonesia (BNI)</td>
<td>urban areas</td>
</tr>
<tr>
<td>Bank Mandiri</td>
<td></td>
</tr>
<tr>
<td>Bank Tabungan Negara (BTN)</td>
<td>urban areas</td>
</tr>
<tr>
<td>Bank Rakyat Indonesia (BRI)</td>
<td>urban and rural areas (indicated as BRI unit)</td>
</tr>
</tbody>
</table>

The state-owned banks' market segments, based on geographic areas, are rural market areas and urban market areas (refer to table 3.19). From the Indonesian population of 250 million, 60 per cent of them lives in the rural area (Badan Pusat Statistik, 2010). Most state-owned banks are located in the urban areas except Bank Rakyat Indonesia. Bank Rakyat Indonesia, in fact, is the only commercial bank that has approximately 30 million customers who rely on its banking services that are rooted in the daily lives of a broad segment of the public, much broader and deeper than the banking services of any other major bank in the country. However, Bank Rakyat Indonesia still has to compete with the local rural bank, credit bank or Bank Pasar. The cost of information and transportation would be considerable if customers used the services of distant banks (Elliehausen and Woken, 1990).
Chapter 4
Research methods and data

4.1 Introduction

This research aims to investigate the impact of partial privatization on structure-conduct-performance in Indonesian commercial banks. Unlike most experimental research, this study did not test hypotheses deduced from the theory, instead, it confirm or refuse predictions based on the literature. A quantitative method was employed rather to confirm or disconfirm the literature prediction on the relationship between the variables. A vast amount of quantitative research does not always develop the specification of a hypothesis, and instead theory acts as a set of concerns in relation to the collected data (Hair et al. 2003; Bryman 2008). This chapter mainly describes the quantitative methods applied in the study.

4.2 The quantitative research process

Quantitative research according to Bryman (2008) involves a collection of numerical data, showing a relationship between theory and research as deductive. Quantitative research relies mostly on assumption from the positivist approach to science. Furthermore, it employs a language of variables, hypotheses or predictions, units of analysis, and causal explanation (Neuman, 1994).

Quantitative method in this study involves: variables, literature predictions, devising measure of concepts, research subjects, data collection, analysing data, and confirming or disconfirming literature predictions. Variables are the most important idea in quantitative research. This defines a concept that varies (Neuman, 1994). A hypotheses is a tentative
statement of a relationship between two variables. It can be expressed as a prediction (Neuman, 1994). The results that come from the hypothesis are to confirm or reject the hypothesis.

**Figure 4.1. Method summary**
4.3 Quantitative research methods to examine the impact of partial privatization on structure and conduct

This current study primarily estimated the relationship between market structure and performance (Carlton and Perloff, 2000) even though firms’ conduct was indirectly discussed in the same discussion chapter as market structure.

The quantitative method was used in this analysis to investigate the relationship between partial privatization and market structure and firms’ conduct. This study does not measure the impact of partial privatization on state-owned banks, rather, it assess the nature of competition with partial privatization on state-owned banks effect in it. To capture the effect of partial privatization on state-owned banks, this study divided the time frame into 3 periods and each period consisted of the partial privatization of state-owned banks. The time frame, therefore, was divided into 3 phases:

- Period 1 (1992 to 1996) was the deregulation phase
- Period 2 (1997 to 2003) was the restructuring and partial privatization phase
- Period 3 (2004 to 2011) was the divestment and recovery phase

In period 1, it was the early stage of partial privatization of Indonesian state-owned banks, with Bank Negara Indonesia partially privatized in 1996. Then period 2 followed, when Bank Mandiri and Bank Rakyat Indonesia were partially privatized in 2002 and 2003. Finally, in the last period there was only one government bank left, Bank Tabungan Negara, which was partially privatized in 2009.
In measuring market structure and relating it to the estimated outcome of firms' conduct, the study uses the Panzar and Rosse model (1977, 1987). It is one of the non-structural models which originated from industrial organisation theories. Panzar and Rosse developed a model that discriminated amongst monopolistic, monopolistic competition and perfect competition market structure. This model was derived from the reduce-form revenue equation. The Panzar and Rosse model assumes: banks are single-product firms with deposits and other funding costs as inputs and loans and other interest-earning assets as outputs, and banks produce revenues using labour. These assumptions are consistent with banks as financial intermediaries, that is, intermediation of those inputs into outputs (De Bandt and Davis, 2000). Hence, the so-called $H$ statistic is used to make a quantitative assessment of the competitive nature of banking markets and the market power of banks (Groeneveld and Boonstra, 2005). The value of $H$ is:

- $H \leq 0$ monopoly equilibrium;
- $0 < H < 1$ monopolistic competition free entry equilibrium;
- $H = 1$ perfect competition.

The P-R model of the reduced-form revenue equation with the respect to factors prices is as follow:

$$H = \sum_{k=1}^{m} \frac{\partial R_i^*}{\partial W_{k,l}} \frac{W_{k,l}}{R_i^*}$$

The model mostly works in general banking markets. In this model a measure of competition $H$ is the sum of the elasticity of the reduced-form revenues. The variable marked with an asterisk (*) defines equilibrium values. Where $\partial W_{k,l}$ denotes market power measured by the
extent to which a change in factor input prices for \( k = 1, \ldots, m \). \( \partial R^*_i \) defines the equilibrium revenues earned by bank \( i \) (Bikker et al. 2008).

In the Panzar-Rosse model, there are also some conditions that need to be underlined; the size of the market and whether the product being offered can also be reflected in the number of viable banks and the level of concentration in this environment. A monopoly environment will occur if only a single producer was able to produce all products at minimum cost. An oligopoly will be developed if there was a possibility for more than one producer. Under monopoly, when input prices increased, this will increase marginal costs and as a result this will reduce total revenues. While, in perfect competition, an increase in input prices will result in marginal costs and total revenue being increased by the same amount as the costs (Claessens and Laeven, 2004). Furthermore, if the situation of the banking market is distinguished by increasing returns to scale, the maximum size of an individual bank will continually increase with enhancing demand. If this occurs, consolidation would be the best result to conquer this (Berger et al., 1993; Molyneux et al., 1996). In contrast, banks may operate in highly competitive markets, if there is sufficient space for numerous banks to operate and the customers’ preference is for heterogeneous-products and services (Groeneveld and Boonstra, 2005).

The empirical P-R model of the reduced-form revenue equation is as follow:

\[
\ln IR_{i,t} = \alpha + \beta \ln AFR_{i,t} + \gamma \ln PPE_{i,t} + \delta \ln PCE_{i,t} + \psi_j\delta BSF_{i,j,t} + \phi OI_{i,t}/IR_{i,t} + e_{i,t}
\]

where \( IR_{i,t} \) is the ratio of total interest revenue to balance sheet total of bank \( i \) in year \( t \). \( AFR \) is the ratio of annual interest expenses to total funds, or the Average Funding Rate. \( PPE \) is the ratio of personnel expenses to the balance sheet total, or the (approximated) Price of
Personnel Expenses. PCE is the ratio of physical capital expenditure and other expenses to fixed assets, or the (approximated) Price of Capital Expenditure (Bikker and Bos, 2008). BSF is Bank-Specific exogenous Factors. It indicates that the difference in risk and funding structures are related to control other heterogeneities in the samples (Wong et al, 2006). Hence, Capital Adequacy Ratio (CAR) is a proxy for bank risk and Deposit Mix (DM) is measured by the ratio of deposits from customers to a bank’s total funding. OI/IR is an additional explanatory variable which is measured by the ratio of other income to interest revenue. It is a control variable that takes into account the increasing role of banking activities other than financial intermediation. And the $e$ denotes a stochastic error term. AFR, PPE, and PCE are the unit input prices of funding, labour and capital. $H$-statistics are measured by:

$$\beta + \gamma + \delta : \text{denotes the sum of all input price elasticity (Bikker and Bos, 2008)}$$

### 4.3.1 Variables

As mentioned in the previous section, quantitative research shows the relationship between theory and research as deductive. It involves variables, hypotheses or predictions, units of analysis, and causal explanation (Neuman, 1994). This section describes the dependent, independent, and control variables. The variables included in this analysis were adopted from previous research in the banking competition area that assessed the relationship between bank regulation and market structure environment. Previous empirical research related to banks competition and their structure mostly involved countries such as those in the OECD, EU, and developing countries (Bikker and Bos, 2008) or one single country that employed retail banks (Wong et al, 2006) in their analysis for a short period of time. However, this study focuses on data from commercial banks in Indonesia, spanning the years 1992 to 2011 and
uses banks ratings based on assets, deposits and loans. This study does not measure partial privatization of state-owned banks, rather, it assesses commercial banks’ market competition to illustrate market structure and firms’ behaviour during the sample periods. To capture the effect of partial privatization of state-owned banks in the analysis, each of the sample periods consists of partial privatization state-owned banks. This research divided the time frame into 3 periods and each of the period consisted of partial privatization of state-owned banks to infer the impact of partial privatization of state-owned banks in the analysis. Below is a variables summary to examine market structure:

Table 4.1. Variables summary to examine market structure

<table>
<thead>
<tr>
<th>No.</th>
<th>Variables</th>
<th>Variable type</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interest revenue (IR)*</td>
<td>Dependent variable</td>
<td>Natural logarithm of IR</td>
</tr>
<tr>
<td>2</td>
<td>Average funding rate (AFR)**</td>
<td>Independent variable</td>
<td>Natural logarithm of AFR</td>
</tr>
<tr>
<td>3</td>
<td>Price of personnel expense (PPE)***</td>
<td>Independent variable</td>
<td>Natural logarithm of PPE</td>
</tr>
<tr>
<td>4</td>
<td>Price of capital expenditure (PCE)****</td>
<td>Independent variable</td>
<td>Natural logarithm of PCE</td>
</tr>
<tr>
<td>5</td>
<td>Bank-specific exogenous factors (BSF)*****</td>
<td>Control variable</td>
<td>Natural logarithm of BSF</td>
</tr>
<tr>
<td>6</td>
<td>Role of banking other than financial intermediation</td>
<td>Control variable</td>
<td>Ratio of other income to interest revenue</td>
</tr>
<tr>
<td>7</td>
<td>$H$-statistics</td>
<td></td>
<td>Sum of all input price elasticity ($\beta + \gamma + \delta$)</td>
</tr>
</tbody>
</table>

Notes:
* **Interest revenue**: is the ratio of total interest revenue to balance sheet total of a bank. The interest revenue includes gross interest revenue and non-interest revenue.
** **Average funding rate**: the ratio of annual interest expenses to total funds. Included in total funds: the sum of deposits, due to banks, amount payable under repos and negotiable debt instruments issued and outstanding.
*** **Price of personnel expense**: the ratio of personnel expenses to the balance sheet total.
**** **Price of capital expenditure**: the ratio of physical capital expenditure and other expenses to fixed assets. The ratio of physical and other expenses is expenses other than staff and interest expense (Wong et al, 2006).
***** **Bank-specific exogenous factors**: measured by the ratio of deposits from customers to bank’s total funding.
4.3.1.1 Independent variables

According to the Panzar-Rosse model, the intermediation function of banks produces products and services that uses physical capital and labour to attract deposits. These deposits are used by banks to fund loans and other earning assets (Bikker et al, 2009).

An independent variable or the cause variable is a variable that identify forces or conditions that act on something else (Neuman, 1994). The independent variables for measuring market structure are:

1. Average Funding Rate (AFR)

   Average Funding Rate is one of the independent variables to examine market structure. It is measured by the ratio of annual interest expense to total funds (Bikker and Bos, 2008). The interest expenses are incurred on time deposits, saving deposits, demand deposits, subordinate loans, fund borrowings, deposits from other banks and other financial institutions, securities sold with agreements to purchase and others in both Rupiah and foreign currencies. The total funds include the sum of deposits from customers both conventional and sharia, deposits from other banks and financial institutions, due to banks, amount payable under repos and negotiable debt instruments issued and outstanding. Natural logarithm AFR is the exact proxy in the equation.

2. Price of Personnel Expense (PPE)

   Price of Personnel Expense is another independent variable in the equation. It is assessed by the ratio of personnel expenses to the balance sheet total. Included in personnel expenses are salaries, wages and allowances, bonuses, incentives, benefit pensions, pension preparation, training and development, medical allowances, long sabbatical leaves, gratuity for services,
work separation schemes, defined contribution pensions, and others. Natural logarithm Price of Personnel Expense is used in the equation.

3. Price of Capital Expenditure (PCE)

Price of Capital Expenditure is measured by the ratio of physical capital expenditure and other expenses to fixed assets (Bikker and Bos, 2008). Physical expenditure and other expenses are the expenses other than staff and interest expenses (Wong et al, 2006). Physical capital expenditure and other expenses include general and administrative expenses, premium paid on government guarantee programs, losses from decline in value of securities and Government recapitalization bonds, losses on foreign exchange, other fees and commissions, insurance underwriting, promotional expenses, guarantee premiums, and miscellaneous expenses. Natural logarithm Price of Capital Expenditure is a proxy used in the equation.

The control variables are defined as factors that remain unchanged or constant. The control variables used in this research were bank-specific exogenous factors (BSF) and the role of banking factors other than intermediation. These control variables were based on prior work by Bikker et al (2009), and Wong et al (2006) which suggested that these control variables indicate the differences in funding structure and risk and also reflect banks' roles other than financial intermediation. Hence, these variables are included in the equation.

1. Bank-Specific exogenous Factors (BSF)

Bank Specific Exogenous Factors express differences in risk and funding structures and are integrated in controlling heterogeneities in the samples (Wong et al, 2006). In this analysis Capital Adequacy Ratio (CAR) is taken into account and represented as bank risk while deposits from customers to a bank's total funding are considered as proxy for funding
structure. Bank Specific Exogenous Factors in this analysis are the sum of Capital Adequacy Ratio and the results that are derived from deposits from customers to a bank's total funding. Natural logarithm Bank-Specific Exogenous Factors is used in the equation.

2. Other income to Interest Revenue
Measuring other income to interest revenue explains bank's other activities than financial intermediation. Included in other income is other operational income such as insurance premium income, foreign exchange gains, gains (losses) on sale and changes in fair value of marketable securities and government bonds, and other fees and commissions.

4.3.1.2 Dependent variables
A dependent variable is the variable as the result or as the effect of an independent variable (Neuman, 1994). The dependent variable used in this study was interest revenue. It is measured by the ratio of total net interest revenue to the total balance sheet of bank \( i \) in year \( t \) (Bikker and Bos 2008). Interest income is derived from Rupiah (Indonesian currency); loans, government recapitalization bonds, securities, placements with Bank Indonesia and other banks, current accounts with Bank Indonesia, and others. It is also from foreign currencies; loans, securities, and placements with Bank Indonesia and other banks.

4.3.2 The data and estimation method
The data used in the estimation is a panel dataset of commercial banks in Indonesia which existed from 1992 P1 to 2011 P3. Since most major banks both state-owned banks and private national banks which existed from 1992 to 2011, were on the top ten list on bank ranking based on deposits and loans and on average dominated over 70 per cent of the shares, therefore, only these banks were included in the analysis. Furthermore, the rest of the shares
were not only owned by private national banks but also foreign joint-venture banks and regional development banks. The only foreign bank included on the list was Citibank N.A; however, its shares were mostly two per cent at selected years. As a result, it was omitted from the analysis and replaced with banks which ranked one rank under Citibank N.A, and which had shares only a little different from Citibank N.A.

In order to get information on bank ratings based on assets, deposits and loans, this study depends on Indonesian Banking Statistics (IBS) for various years issued by the Bank of Indonesia the Indonesian central bank. Bank rank was not the only information available in this book, but also their shares in percentages.

In regarding firms' balance sheets, income statements and other financial information, data were collected from firms' annual reports from 1992 to 2011. From 1992 to 1998 there were seven state-owned banks included in the analysis. by the end of 1998, the Indonesian government had successfully merged their government banks into the newly created Bank Mandiri. These merged banks were: Bank Bumi Daya, Bank Dagang Negara, Bank Pembangunan Indonesia, and Bank Ekspor Impor. Starting from 1999, there were only four state-owned banks left: Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara.

The partial privatization effects in the analysis included partial privatization of state-owned banks in each period. From 1992 to 2011, these years were divided into 3 periods. Period 1 was from 1992 to 1996, period 2 was from 1997 to 2003, and period 3 was from 2004 to 2011. In period 1, Bank Negara Indonesia was partially privatized in 1996; however the effect might occur in the next period. In period 2, Bank Mandiri was partially privatized in
2003 and Bank Rakyat Indonesia was partially privatized in 2003. In the last period, Bank Tabungan Negara was partially privatized in 2009.

In estimating the equation, multiple regression analysis was used to confirm prediction P1. Multiple regression is a statistical analysis to examine the relationship between several independent variables with a single dependent variable (Hair et al. 2003). The current research employed panel data analysis provided by STATA version 12 software. Furthermore, to have a valid result from STATA a generalised least-squares procedure is considered as the appropriate proxy of the Panzar-Rosse model because of estimators on this procedure. The least square model method is frequently used to estimate the numerical value of the parameters to suit a function to a data set. Generalised least square is an extension of the method of least square that is applied in the least square model when the parameters in a linear regression model are unknown or when the variance of the observations are unequal. To determine whether fixed effect or random effect is used in the analysis, the Hausman test was conducted beforehand. According to Reyna (n.d) fixed effect explores the relationship between predictor and outcome variables within an entity that has its own individual characteristics which may or may not affect the predictor variables. Fixed effect involves dummy variables which work better in fewer cases and more time periods, since dummy variables remove one degree of freedom from the model. While random effect explores the variation across entities which are assumed to be random and uncorrelated with the predictor or independent variables included in the model (Reyna n.d). The Hausman test, therefore, aims to find out which effect should be employed (Baltagi, 2001). The result reflects which effect may be utilized to run a panel data analysis.
4.4 Quantitative research method to examine the impact of partial privatization on performance

This section describes a method to examine the impact of partial privatization on the performance of state-owned banks. As mentioned from the previous section, the study was solely estimated the relationship between market structure and performance (Carlton and Perloff, 2000) even though firms' conduct was indirectly discussed in the same discussion chapter as market structure. The underlying reason for having a separate analysis on post partial privatization performance is because; 1) banks, post partial privatization in this study, initially went through a process of financial liberalization which changed banks' management activities, and 2) banks' performance post partial privatization tends to look on risk exposure since these banks used to enjoy access to cheap funding from Bank Indonesia (Boubakri et al, 2005).

The analysis focuses on the effect on performance of state-owned banks after they were partially privatized. The literature that examines the effect of privatization on a bank's performance is extensively and comprehensively reviewed by Megginson and Netter (2001) as well as Djankov and Murrel (2002). It specifically examines the post-privatization performance of state-owned banks. However, privatization in Indonesian state-owned banks has been partial, leaving the Government with the majority ownership in the privatized assets. The basic reason underlying partial privatization for state-owned banks, as well as other state-owned enterprises, is stated in the Indonesian Constitution 1945, article number 33 (pasal 33), which supports partial privatization of state-owned enterprises: "Sectors of production that are important for the country and affect the life of many people shall be controlled by the state" (sub-paragraph 2). Unlike privatization of state-owned enterprises, where empirical evidence has emerged, privatization in banks has been little known, considering the vital role
of state-owned banks is to provide resources for a specific factor of the economy. Hence, banks always become politicians and the Government's favourite sector because firms could obtain funding on long and favourable term.

In measuring state-owned banks performance, the study followed the prior empirical research of Boubakri et al (2005). In determining the performance variables, the current research follows the literature (Cornett and Tehranian, 1992 and Boubakri et al. 2005) and depends on three individual aspects:

1. Profitability: net income to equity ratio or so-called return on equity (ROE)
2. Efficiency: average interest rate on loan minus the average rate on liability or so-called net interest margin (NIM)
3. Risk exposure: medium loans to assets or credit risk (CR)

The empirical model in measuring state-owned banks performance is as follow:

$$
PERF_{it} = \alpha + \beta_1 MERV_{it} + \beta_2 PRIV_{it} + \beta_3 TT_{it} + \beta_4 CV_{it} + \varphi_i + \tau_t + \epsilon_{it}
$$

where $PERF_{it}$ defined as performance of bank $i$ at time $t$. There are 3 performance variables in the analysis: 1) profitability: return on equity (ROE), 2) economic efficiency: net interest margin, and 3) risk exposure: credit risk. The variables: MERG, PRIV, TT are the partial privatization-related variables: $MERG_{it}$ is a dummy variable that equals one for merged state-owned banks into newly-created Bank Mandiri and zero otherwise. PRIV is a dummy variable that equals one in the post partial privatization period and zero otherwise. TT is a variable that defines time since partial privatization and equals the number of years since the year of privatization. CV reflects control variable. This research controls for bank size in the
economy using a proxy: total assets. $\theta_t$ and $\tau_t$ denote for individual and time effects, and $\varepsilon_{it}$ is a stochastic error term (Boubakri et al. 2005)

### 4.4.1 Variables

This section describes dependent, independent, and control variables. The variables included in this analysis were adopted from previous research in the bank performance area that assessed the relationship between privatization and bank performance. Prior empirical research related to bank performance after privatization involved countries such as developing countries (Boubakri et al. 2005). However, this study focuses on a single country and the fact that the privatization method was partial privatization. To capture the partial privatization effect on state-owned banks, again, this research divided the time frame into 3 periods and each of the periods consisted of the partial privatization of state-owned banks to demonstrate the impact of partial privatization of state-owned banks in the analysis.

#### Table 4.2. Variables summary to examine state-owned banks performance

<table>
<thead>
<tr>
<th>No</th>
<th>Variables</th>
<th>Variable type</th>
<th>Measures</th>
</tr>
</thead>
</table>
| 1. | Performance (PERF):  
- Profitability: ROE  
- Economic efficiency: NIM  
- Risk exposure: Credit Risk | Dependent variable | Ratio of net income and equity.  
Ratio of net interest revenue to earning assets.  
Ratio of loans to assets. |
| 2. | Merger (MERG) | Independent variable | Merged banks =1; otherwise= 0 |
| 3. | Partial privatization (PRIV) | Independent variable | Post partial privatization= 1; otherwise= 0 |
| 4. | Time to partial privatization (TT) | Independent variable | Equal to number of years since the year of partial privatization |
| 5. | Firm size (CV) | Control variable | Natural logarithm total assets |
4.4.1.1 Independent variables

This section describes the independent variables that included in the performance empirical model. The independent variables in this study are: dummy variables and control variables. The dummy variables are as follows:

1. Merger (MERG)

MERG is a dummy variable which reflects four state-owned banks which merged in 1998 into newly-created Bank Mandiri. These four state-owned banks were: Bank Bumi Daya, Bank Dagang Negara, Bank Pembangunan Indonesia, and Bank Ekspor Impor. MERG is equals to one for merged banks transformed into Bank Mandiri and zero otherwise.

2. Partial privatization (PRIV)

PRIV is a dummy variable that takes the value of one in the post partial privatization period and zero otherwise, and explains the post partial privatization performance changes in a given indicator (Boubakri et al. 2005).

3. Time to partial privatization (TT)

TT is a variable that indicates time since partial privatization and is equal to the number of year since the year of partial privatization (Boubakri et al. 2005). For instance, if it is assumed the given period extends over four years, and Bank y is a merged bank in year 1 and partially privatized in year 3, then the three dummies would be as follows:

MERG: 1 1 1 1
PRIV : 0 0 1 1 and
TT : 0 0 1 2
The control variable aims to control the firm's size. This proxy is commonly used as a control variable in measuring the performance of firms (Bikker and Bos 2008; Boubakri et al. 2005). These studies came with the result there has been a positive relationship between firm size and firm performance. The firm's size was measured by the natural logarithm of total assets of the firms. The value of total assets was logged in order to normalize the data so that the standard deviation was not too large (Hair et al. 2006).

4.4.1.2 Dependent variables

Although there are three dependent variables employed in this research, the analysis would be individually assessed. These dependent variables are as follows:

1. Return on equity (ROE)

Return on equity (ROE) is one of profitability measures that reflects the banks' return based on accounting numbers derived from banks' financial reports. The return on equity is a summary measure of how effectively shareholders' funds have been used, including the effectiveness of the use of financial leverage (Hogan et al. 2004). The return on equity is the ratio of net income and equity. The numerator denotes after-tax income less any preference dividends. The denominator denotes the average of balance sheet equity over the operating period.

2. Net interest margin (NIM)

Net interest margin is measuring economic efficiency. Basically net interest margin measures the difference between interest revenue on assets and interest expense for funds (Hogan et al. 2004). Net interest margin is expressed as a percentage. The higher the net interest margin, the lower the economic efficiency is. Bernanke (1983) argued that high interest rate spread
may indicate inefficiency due to the high cost of financial intermediation. Furthermore, Bernanke (1983) added, this situation discourages the depositors from obtaining low returns and also impairs the credit expansion due to higher loan rates. In analysing net interest margin, the study follows literature suggested the ratio of net interest revenue to earning assets (Hogan et al. 2004). The information of banks net interest margin are mostly available in state-owned banks financial report.

3. Credit risk (CR)

Credit risk is the risk that the interest or principal, or both on loans will not be paid as promised (Hogan et al. 2004). Banks source of funds do not have a direct effect on its credit risk because depositors or lenders of funds are taking the risk of the banks not paying to them. Credit risk may indirectly effect banks: 1) when banks are having a higher cost of funds might worry depositors or lenders about the banks' ability to pay its claims on time, 2) when banks are having a higher cost of funds, they will probably take higher credit risks in order to struggle to maintain their profit margin (Hogan et al. 2004). Credit risk is measured by the ratio of loans to assets. The better measure would be the relative amount of loan losses, but that data are not available in banks financial report.

4.4.2 The data and estimation method

Similar to that in market structure, the data used in the estimation is a panel dataset of Indonesia state-owned banks which existed from 1992 P1 to 2011 P3. Since four of the state-owned banks have been merged into the newly-created Bank Mandiri, the list of state-owned banks included in the analysis is:
In obtaining firms' balance sheets, income statement and other financial information, data were collected from firms' annual reports from 1992 to 2011. Figure 4.2 indicates the map of the list of state-owned banks, showing that from 1992 to 1998 there were 7 state-owned banks included in the analysis. At the end of 1998, the Government had successfully merged their four weakest state-owned banks into the newly-created Bank Mandiri. These merged banks were: Bank Bumi Daya, Bank Dagang Negara, Bank Pembangunan Indonesia, and Bank Ekspor Impor. Starting from 1999, there were only four state-owned banks left: Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara.

This study divided the time frame into 3 periods. To imply the effect of partial privatization in the analysis, each period consists of partial privatization. Period 1 was from 1992 to 1996, period 2 was from 1997 to 2003, and period 3 was from 2004 to 2011. In period 1, Bank Negara Indonesia was partially privatized in 1996. The effect might occur in the next period. In period 2, Bank Mandiri was partially privatized in 2002 and Bank Rakyat Indonesia was
partially privatized in 2003. In the last period, Bank Tabungan Negara was partially privatized in 2009.

To evaluate the impact of partial privatization on state-owned banks performance, the current study uses the historical approach. According to Frydman et al. (1997) there are two approaches in assessing the impact of privatization, which in this context is partial privatization, on a firm's performance: the synchronic approach and the historical approach. In the synchronic approach, state-owned banks' performances are compared with that of already full privatized banks or those already in private ownership (Boardman and Vining 1989; Commander, Fan and Schaffer 1996 and La Porta and Lopez-de-Silane 1997 cited in Sathye 2005), while in the historical approach, the pre and post performance of the same state-owned bank is compared (Megginson, Nash and Radenborgh 1994; Earle and Estrin 1997; and Dewenter and Malatesta 1998 cited in Sathye 2005). The historical approach was conducted by comparing performance variables in the analysis from the first period to the last period. From 1992 to 1998 seven state-owned banks were available in Indonesia; however the number decreased after four state-owned banks merged in 1998. There were only 4 state-owned banks left in the analysis which started from 1999. To allow the use of more robust multivariate statistical procedures, the length of the time has been extended. As a result, each period in the analysis consisted of at least 30 observations.

In estimating the equation, multivariate analysis was employed to confirm LP2, LP3 and LP4. Multivariate analysis is a statistical analysis which involves more than one statistical result variable at the same time (Hair et al. 2003). It usually is indicated when there are multiple dependents variables and multiple independents variables. The current research, once again, used panel data analysis provided by STATA version 12 software. To have a valid result
from STATA, a generalised least-squares procedure is considered as the appropriate proxy of the Panzar-Rosse model because of the estimators in this procedure. The least square model method is frequently used to estimate the numerical value of the parameters to suit a function to a data set. Generalised least square is an extension of the method of least square that is applied in a least square model when the parameters in a linear regression model are unknown or when the variance of the observations are unequal. To determine whether fixed effect or random effect is used in the analysis, the Hausman test was conducted beforehand. According to Reyna (n.d), the fixed effect explores the relationship between predictor and outcome variables within an entity that has its own individual characteristics which may or may not affect the predictor variables. The fixed effect involves dummy variables which work better in fewer cases and more time periods, since dummy variables remove one degree of freedom from the model. While random effect explores the variation across entities, which is assumed to be random and uncorrelated with the predictor or independent variables included in the model (Reyna n.d). The Hausman test, therefore, aims to find out which effect should be employed (Baltagi, 2001). The result reflects which effect may be utilized to run a panel data analysis. The analysis starts with the empirical model mentioned in the previous section for each of three dependent variables using one of the effects and all of the independent variables for one period. The analysis then ends up by comparing each dependent variable in one period to another to compare their performance.
Chapter 5
Partial privatization: market structure and conduct

5.1 An overview of market structure

The new stage of Indonesian state-owned bank began with the partial privatization of Bank Negara Indonesia, one of the largest Indonesian state-owned banks, in 1996. Based on the Law number 7 1992, this law has given the bank opportunities to upgrade its legal status from state-owned bank to state-owned limited corporation under the name of PT Bank Negara Indonesia (Persero). The bank also decided to become a public company through its initial public offering of its shares in 1996. This was a time when state-owned banks changed direction even though none of the state-owned banks were sold. A minority share of 25 per cent of Bank Negara Indonesia was sold to the public. The corporate name was amended to PT Bank Negara Indonesia (Persero) Tbk to show its status as a public company. Then in 2002 and 2003 Bank Mandiri and Bank Rakyat Indonesia were partially privatized to increase their performance due to the crisis in 1998. Finally, Bank Tabungan Negara was the last state-owned bank that was partially privatized in 2009.

These banks are multiproduct firms offering deposits markets, loan markets and other products. The products offered in the market may have to compete with other banks, depending not only on the demand side but also the supply side or the inputs factor. The demand side is loans, securities, securities purchased with agreements to resell, placement with Bank Indonesia and other banks, government bonds, and sharia receivable and financing activities, while the supply side includes demand deposits, savings deposits, time deposits, deposits from other banks and financial institutions, fund borrowing, and sharia deposits.
Geographically, both Bank Negara Indonesia and Bank Mandiri have similar market segments. Both banks are located in big cities and so their target markets are people who live in urban areas. Bank Mandiri inherited a total of nine different core banking systems from its four legacy banks; therefore Bank Mandiri has the biggest customers base among the others. It provides banking services to individuals and corporate entities. Currently, Bank Mandiri’s corporate customer are well diversified and particularly active and in food and beverage manufacturing, agriculture, construction, chemicals and textiles, while Bank Negara Indonesia focuses on small-to medium-scale enterprises. Small scale enterprises are set up for a credit limit of lower than Rp10billion, while from Rp10billion to Rp100billion is allowed for medium-scale enterprises. Bank Tabungan Negara specialty is long-term housing financing. Hence, its target market is more likely to be those who desire to buy houses. Bank Rakyat Indonesia is the only state-owned bank that plays a central role in pursuing the vision of the government to develop the rural economy. It is the only state-owned banks that is located in rural areas. Bank Rakyat Indonesia’s customers at the end of 2008 has reached approximately 30 million accounts that comprised individual customers, micro and small-scale businesses, medium to large-scale businesses and private as well as government institutions. At the end of 2008, Bank Rakyat Indonesia had more than 5400 operating units that consisted of regional offices, branch offices and Bank Rakyat Indonesia units (micro outlets).

As part of the Indonesian commercial banking system, state-owned banks have to compete with private banks in attracting borrower as well as lender through their programs. Before they were partially privatized, state-owned banks had controlled over 50 per cent of the deposits and loans market. This can be reflected from more than fifty per cent of the deposit and loan market being controlled by state-owned banks (figure 1.3 and figure 1.4). Over time
the Indonesian state-owned banks had never distributed their corporate lending activities in sector focus areas due to clients who diversified or expanded their business sector without changing bank. Lending distribution mostly went to state-owned enterprises and politically connected private group (Srinivas and Sitorus, 2003). With Bank Negara Indonesia partially privatized in 1996 the Indonesian commercial banking market became more competitive.

The number of Indonesian commercial banks both state-owned banks and private national banks, slowly decreased. Before the 1997/1998 crisis, the number of state-owned banks was seven banks, but after the crisis they slowly decreased to four banks. This is because the four major state-owned banks were merged into the newly created Bank Mandiri. Whereas, the number of private banks before the 1988 deregulation was 105 banks, after the deregulation they increased rapidly up to 227 banks followed by a huge number of bank branches. The 1988 deregulation was when the government decided to eliminate barrier to entry to banking and this ended up with the establishment of new banks. Having numbers of new comer banks in the market has forced state-owned banks to battle with other banks in gaining more market share. State-owned banks became somewhat more customer oriented. Private banks’ market share grew significantly although at the expense of state-owned banks. During the Asian crisis of 1997/1998, the government announced sixteen private banks were under liquidation which was followed by others, while several others were recapitalised. The reason for that stemmed partly from a high level of nonperforming loans. The Asian crisis caused the end of the rapid growth of the private banks market share. Right after the crisis the number of banks were slowly fell to 116 banks. Several banks that were able to survive the crisis are still operating their businesses, although Bank Indonesia strictly monitors them intensively through its policies.
Before any such divestment took place, state-owned banks were fully owned by the Indonesian government. The government's motivation in owning banks basically was to encourage financial development for Indonesian economic growth (La Porta, Lopez-de-Silanes, and Shleifer, 2002). These banks aimed to finance economic development in the country. However, from a political point of view, the reasoning for government control of banks is to provide subsidies and other benefits to support politicians' supporters. This could help politicians through votes, political contributions and bribes (Megginson, Nash, Randenborgh, 1994; La Porta and Lopez-de-Silanes, 1999). After the 1997/1998 crisis, the state-owned banks ownership structure has slightly changed, although the Indonesian government retain at least 51 per cent of the shares. Bank Negara Indonesia’s structure of ownership is that the government owns 76 per cent of the shares and the rest of them are owned by the public. The government owns 56.5 per cent of the shares of Bank Rakyat Indonesia and the rest of the shares are owned by the public; furthermore 60 per cent of Bank Mandiri’s shares are owned by the government and the rest of them owned by the public. Finally, Bank Tabungan Negara’s structure of ownership is the government owns 71.88 per cent and public own the rest of the shares (IDX watch 2009 to 2010). None of the shares were sold to foreign investors. The government objected to foreign ownership in these banks due to nationalist sentiment (Kompas, 24 March 2002).

State-owned banks are considered as the four largest banks in Indonesia. In the early of 1980s when the role of financial institution was relatively small, state-owned banks controlled nearly 80 per cent of Indonesian commercial banks assets. The industry concentration was considered to be related to the degree of competitiveness and the firms’ performance. Matthews and Thompson (2005) stated that a high market concentration tends to increase consumer prices and restrict output compare to a more competitive market. In structure-
conduct-performance theory, it is predicted that the degree of competitiveness in the industry will influence firms' performance. In a low competitive market, state-owned banks tend to dominate banking assets. The number of state-owned banks' share of assets was slightly decreased due to a series of reforms in mid 1980 and early 1990. With the government decision in eliminating barrier to entry in 1988, consequently increasing the number of private banks, this and reduced the number of state-owned banks' assets to 40 per cent before the crisis (Indonesian Banking Statistics, various years). After the crisis, state-owned banks maintained their assets as half of the banking system assets.

5.2 Descriptive statistics

Descriptive statistics in this section are describing the feature of bank rating based on deposits and loans and the descriptive statistics of Panzar and Rosse's analysis from 1992 to 2011. According to Black et al (2007) descriptive statistics uses data that have been gathered on a group, to describe or reach conclusions about the same group. The tables below are describe the main features of data collection.

Table 5.1 and table 5.2 show Indonesian banks rating based on their deposits and loans. Furthermore Panzar and Rosse's analysis on market structure is assessing only banks that are included on the tables except Citibank N.A. Citibank N.A is included in the big 10 banks based on deposits and loans since 2000, and on average this bank controlled 2 per cent of commercial banks' deposits and loans at selected years. Since Citibank N.A has a small amount of the share in Indonesian commercial banking and the data is not available from Bank Indonesia, as a result the analysis omitted this bank and replaced it with domestic banks which have nearly similar deposit, and loans shares to Citibank N.A. Also for some national commercial banks, both state-owned banks and private national banks, that data were missing.
and therefore not available from Bank Indonesia. Market structure analysis using Panzar and Rosse's model at this stage has covered, on average 65 per cent of total deposits, and loans.

Table 5.1 Sample of bank rating based on deposit share

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<td>BMRI</td>
<td>1</td>
<td>17.65</td>
<td>17.63</td>
<td>15.34</td>
<td>15.61</td>
<td>15.6</td>
<td>15.36</td>
</tr>
<tr>
<td>BBCA</td>
<td>2</td>
<td>13.67</td>
<td>13.67</td>
<td>11.87</td>
<td>12.52</td>
<td>11.95</td>
<td>12.54</td>
</tr>
<tr>
<td>BBNI</td>
<td>3</td>
<td>10.96</td>
<td>10.96</td>
<td>10.56</td>
<td>10.92</td>
<td>11.47</td>
<td>9.67</td>
</tr>
<tr>
<td>BBRI</td>
<td>4</td>
<td>8.44</td>
<td>8.44</td>
<td>9.69</td>
<td>9.63</td>
<td>9.28</td>
<td>13.06</td>
</tr>
<tr>
<td>BDMI</td>
<td>5</td>
<td>4.19</td>
<td>4.19</td>
<td>4.22</td>
<td>3.84</td>
<td>4.25</td>
<td>3.47</td>
</tr>
<tr>
<td>BBII</td>
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<td>3.06</td>
<td>3.06</td>
<td>2.88</td>
<td>2.45</td>
<td>2.49</td>
<td>2.44</td>
</tr>
<tr>
<td>Lippo Bank</td>
<td>7</td>
<td>2.58</td>
<td>-</td>
<td>2.07</td>
<td>2.01</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bank Permata</td>
<td>8</td>
<td>2.7</td>
<td>2.51</td>
<td>2.23</td>
<td>-</td>
<td>9</td>
<td>2.35</td>
</tr>
<tr>
<td>Bank Niaga</td>
<td>9</td>
<td>2.57</td>
<td>3.05</td>
<td>3.04</td>
<td>2.99</td>
<td>6</td>
<td>4.42</td>
</tr>
<tr>
<td>Citi Bank</td>
<td>10</td>
<td>2.07</td>
<td>2.3</td>
<td>2.1</td>
<td>2.11</td>
<td>10</td>
<td>1.96</td>
</tr>
<tr>
<td>Panin Bank</td>
<td>-</td>
<td>-</td>
<td>2.42</td>
<td>-</td>
<td>2.08</td>
<td>2.64</td>
<td>2.89</td>
</tr>
<tr>
<td>BBTN</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>2.06</td>
</tr>
<tr>
<td>Total</td>
<td>69.91</td>
<td>67.89</td>
<td>65.47</td>
<td>64</td>
<td>64.15</td>
<td>65.03</td>
<td>68.27</td>
</tr>
</tbody>
</table>

Figure 5.1 Commercial bank deposit share from 2003-2009

Figure 5.1 shows a comparison of commercial banks' deposit share between state-owned banks and private national banks. With the number of state-owned banks, 4 banks,
dominating an average of 40 per cent, meanwhile, the number of private national banks was approximately 120 banks and controlled 60 per cent of the share. All state-owned banks were always in the top ten bank ratings based on deposit share; in contrast, only the major private national banks tended to be included in the list, such as Bank Central Asia (BCA), Bank International Indonesia (BII), Bank Danamon (BDMI), Bank Niaga, and Bank Permata.

**Table 5.2 Sample of bank rating based on loan share**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BMRI</td>
<td>1</td>
<td>16.64</td>
<td>1</td>
<td>15.76</td>
<td>1</td>
<td>14.49</td>
<td>1</td>
</tr>
<tr>
<td>BBNi</td>
<td>2</td>
<td>10.56</td>
<td>3</td>
<td>10.51</td>
<td>3</td>
<td>8.97</td>
<td>3</td>
</tr>
<tr>
<td>BBRI</td>
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<td>10.41</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>10.83</td>
<td>2</td>
</tr>
<tr>
<td>BBCA</td>
<td>4</td>
<td>6.6</td>
<td>4</td>
<td>7.2</td>
<td>4</td>
<td>7.78</td>
<td>4</td>
</tr>
<tr>
<td>BDMI</td>
<td>5</td>
<td>5.14</td>
<td>5</td>
<td>5.22</td>
<td>5</td>
<td>5.16</td>
<td>5</td>
</tr>
<tr>
<td>Bank Niaga</td>
<td>6</td>
<td>3.18</td>
<td>6</td>
<td>3.81</td>
<td>6</td>
<td>4.22</td>
<td>6</td>
</tr>
<tr>
<td>Bank Bukopin</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>2.32</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BBTN</td>
<td>8</td>
<td>2.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBII</td>
<td>9</td>
<td>2.27</td>
<td>9</td>
<td>2.3</td>
<td>8</td>
<td>2.92</td>
<td>8</td>
</tr>
<tr>
<td>Citi Bank</td>
<td>10</td>
<td>2.24</td>
<td></td>
<td>9</td>
<td></td>
<td>2.63</td>
<td></td>
</tr>
<tr>
<td>Panin Bank</td>
<td></td>
<td>10</td>
<td>2.18</td>
<td>10</td>
<td>2.42</td>
<td>7</td>
<td>2.9</td>
</tr>
<tr>
<td>BBTN</td>
<td></td>
<td>10</td>
<td>9</td>
<td>2.21</td>
<td></td>
<td>10</td>
<td>2.23</td>
</tr>
<tr>
<td>Bank Permata</td>
<td></td>
<td>7</td>
<td>2.66</td>
<td>7</td>
<td>3.19</td>
<td>7</td>
<td>3.01</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>62.57</td>
<td>63.03</td>
<td>61.95</td>
<td>61.36</td>
<td>60.72</td>
<td>60.76</td>
</tr>
</tbody>
</table>

Participating banks (see table 5.1, and table 5.2) are limited to bank rating based on deposits and loans. To provide an overall view of competition during 1992-2011, this study divided the time into three periods. In the first period (1992-1996) there were six state-owned banks and four private national banks included in the Panzar Rosse analysis. In the second period (1997-2003) there were eight state-owned banks and eight private national banks. The numbers of state-owned banks slightly decreased after the 1997/1998 crisis. These banks have merged into newly the Bank Mandiri and since 1999, four state-owned banks, Bank Bumi Daya (BBD), Bank Dagang Negara (BDN), Bank Pembangunan Indonesia (Bapindo) and Bank Ekspor Impor (Bank Exim) have been excluded from the analysis.
Figure 5.2 indicates a comparison of commercial banks' loan share between state-owned banks and private national banks. The state-owned banks loan share, although lower than that of the deposit share, slightly decreased from 40 per cent in 2003 to 37 per cent in 2009; meanwhile the private national banks loan share gradually increased from 59 per cent in 2003 to 63 per cent in 2009. Loan ratings were dominated by state-owned banks, with over 40 per cent, while private banks controlled 60 per cent of the share.

Table 5.3 Descriptive statistics of Panzar-Rosse analysis (1992-2011)

<table>
<thead>
<tr>
<th>Variable</th>
<th>mean period 1</th>
<th>mean period 2</th>
<th>mean period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnir</td>
<td>-2.184895</td>
<td>-2.15326</td>
<td>-2.337111</td>
</tr>
<tr>
<td>lnafri</td>
<td>-2.514681</td>
<td>-2.429671</td>
<td>-2.97418</td>
</tr>
<tr>
<td>lnpe</td>
<td>-4.609377</td>
<td>-4.554921</td>
<td>-4.142567</td>
</tr>
<tr>
<td>lnpee</td>
<td>0.1593857</td>
<td>0.570884</td>
<td>0.205533</td>
</tr>
<tr>
<td>lnbsf</td>
<td>-0.2915733</td>
<td>-0.126847</td>
<td>0.069633</td>
</tr>
<tr>
<td>oi/ir</td>
<td>0.1462092</td>
<td>0.258887</td>
<td>0.185763</td>
</tr>
</tbody>
</table>

1. *lnir (natural logarithm interest revenue)*

The natural logarithm of interest revenue was used to express interest earned by a firm during the time period. Interest revenue is the ratio of total net interest revenue to the total balance sheet of bank *i* in year *t* (Bikker and Bos 2008). In this case the value of interest revenue was...
logged in order to normalize the data so that the standard deviation was not too large (Hair et al. 2006). Natural logarithm interest revenue in this analysis is measuring total interest revenue rather than net interest revenue since most banks generate fees and commission-based incomes. Some banks have sharia units in their banking activities, so the income received from deposit taking is also included in the calculation. Generally, interest income is derived from Rupiah (Indonesian currency); loans, government recapitalization bonds, securities, placement with Bank Indonesia and others, and current accounts with Bank Indonesia, and others, and also from foreign currencies; loans, securities, and placements with Bank Indonesia and other banks. This followings the previous literature by taking interest revenue as the dependent variable (Shaffer 1982, Nathan and Neave 1989, Hempell 2002, Claessens and Laeven 2004, and Wong et al 2006).

2. \textit{lnafr (natural logarithm average funding rate)}

The natural logarithm average funding rate is measured by the ratio of annual interest expense to total funds (Bikker and Bos, 2008). Sharia charges are also included in the annual interest expense. Total funds are the sum of deposits from customers both conventional and sharia, deposits from other banks and financial institutions, due to banks, amounts payable under repos, and negotiable debt instruments issued and outstanding. Interest expenses are incurred on time deposits, savings deposits, demand deposits, subordinate loans, fund borrowings, deposits from other banks and other financial institutions, securities sold with agreements to purchase and other in both Rupiah and foreign currencies. The natural logarithm average funding rate is one of the independent variables.
3. \( \text{lnppe} \) (natural logarithm price of personnel expense)

Following the work of Bikker and Groeneveld (1998), Gelos and Roldos (2002), and Wong \textit{et al} (2006), this study measured the natural logarithm price of personnel expense as the ratio of personnel expenses to the balance sheet total. Essentially, there are other measures of the price of personnel expense, such as the ratio of staff expense to the number of employees (Molyneux \textit{et al}, 1994 and Clessens and Laeven, 2004), which is also frequently used in literature. Since there was insufficient data relating to the number of employees, analysis was relied on from the balance sheet total. Employee or personnel expenses includes salaries, wages and allowances, bonuses, incentives, benefit pensions, pension preparation, training and development, medical allowances, long sabbatical leaves, gratuities for services, work separation schemes, defined contribution pensions, and others. Natural logarithm price of personnel expense is one of the independent variables.

4. \( \text{lnpce} \) (natural logarithm price of capital expenditure)

The natural logarithm price of capital expenditure is measured by the ratio of physical capital expenditure and other expenses to fixed assets (Bikker and Bos, 2008). Physical capital expenditure and other expenses in this analysis is derived from the expenses other than staff and interest expenses (Wong \textit{et al}, 2006). Physical capital expenditure and other expenses include general and administrative expenses, premiums paid on government guarantee programs, losses from decline in value of securities and Government recapitalization bonds, losses on foreign exchange, other fees and commissions, insurance underwriting, promotional expenses, guarantee premiums, and miscellaneous. General and administrative expenses in detail are as follows: depreciation of premises and equipment, rent, repairs and maintenance, electricity and water, research and product development, printing and postage, transportation,
communication, office supplies, professional fees, computer installation and others. Natural logarithm price of capital expenditure is one of the independent variables.

5. \( \lnbsf \) (natural logarithm bank specific exogenous factors)

Bank specific exogenous factors which express differences in risk and funding structures are integrated in controlling heterogeneities in the samples (Wong et al, 2006). In this analysis Capital Adequacy Ratio (CAR) is taken into account and represented as bank risk while deposits from customer to bank’s total funding are considered as a proxy for funding structure. Based on Circular Letter no.6/23/DPNP dated May 31 2004, Capital Adequacy Ratio consists of Tier One Capital and Supplementary Capital. Tier One Capital consists of paid-in capital and, additional capital reserves, while supplementary capital consists of fixed assets re-evaluation reserve, productive assets general reserve (maximum 1.25 per cent of risk weighted-assets), borrowed capital, subordinated loans (maximum 50 per cent of Tier One capital), and increase in the value of portfolio investments that are ready to be sold at the highest 45 per cent. Bank Indonesia required commercial banks to fulfil at least 8 per cent on their Capital Adequacy Ratio. Deposits from customers include; demand deposits, wadiah demand deposits, savings deposits, mudharabah savings deposits, time deposits, mudharabah time deposits, and Certificates of Deposits (CDs). Natural logarithm bank specific exogenous factors in this analysis are the sum of Capital Adequacy Ratio and the result that is derived from deposits from customer to a bank's total funding. The coefficient estimate is expected to be negative, since a higher value in Capital Adequacy Ratio should lead to lower bank revenue (Wong et al, 2006). Natural logarithm bank specific exogenous factor is a control variable.
6. \( \text{oii/ir (other income to interest revenue)} \)

Other income to interest revenue is inclusively taken into consideration since the increasing role of banking activities. Bank activity is not only as financial intermediation but also other activities. Measuring other income to interest revenue explains bank other than financial intermediation activity. Included in other income are other operational income such as insurance premium income, foreign exchange gains, gains (losses) on sale and changes in fair value of marketable securities and government bonds, and other fees and commissions. Other income may also come from non operational income, for instance rental income, and gains from sale of premises and equipment. This variable is also a control variable.

5.3 Panel data analysis to examine market structure

In examining commercial banking market structure from 1992 to 2011, this study uses panel data analysis provided by STATA version 12. According to Hair et al (2003) longitudinal studies are suitable when research questions and literature prediction are affected by how things vary over time. Longitudinal studies are different from cross-sectional studies, as they requires data to be collected from the same sample units at multiple points in time. Longitudinal studies sometimes use a panel. A panel is a fixed sample arranged for the purpose of collecting data. Panel data is often suitable for cross-sectional or time series data. In the case of this study, panel data involves business elements as a unit, that is commercial banks that existed between 1992 to 2011.

In estimating the model, the study uses linear model, linear regression. Furthermore, to have a valid result from STATA, a generalised least-squares procedure is considered as the appropriate proxy of the Panzar-Rosse model because of the estimators in this procedure. The least square model method is frequently used to estimate the numerical value of the
parameters to suit a function to a data set. Generalised least square is an extension of the method of least square that is applied in a least square model when the parameters in a linear regression model are unknown or when the variance of the observations is unequal.

The Hausman test for the panel data has been conducted and the results shows:

- Period 1: Prob>chi2 = 0.047 the literature suggested the use of fixed effect (Reyna n.d).
- Period 2: Prob>chi2 = 0.060 random effect is used in the panel data analysis.
- Period 3: Prob>chi2 = 0.468 random effect is also used in the panel data analysis

Fixed effect explores the relationship between predictor and outcome variables within an entity that has its own individual characteristics which may or may not affect the predictor variables (Reyna, n.d). Fixed effect involves dummy variables which work better in fewer cases and more time periods, since dummy variables remove one degree of freedom from the model. The use of random effect in the current study means the effect was sampled from a larger group of effects. Random effects assumes that the variation is across entities and is uncorrelated with the independent variables included in the model (Reyna n.d).

5.3.1 Partial privatization: commercial banking market structure Period 1 (1992-1996)

As mentioned earlier, there are three important stages for Indonesian state-owned banks. The first period (1992-1996) was the stage where the Indonesian government implemented major reforms and was followed by early partial privatization of Bank Negara Indonesia. During 1992 to 1996 there are twelve banks within a total of 52 observations. These banks were chosen from banks' ratings based on deposits and loans. They dominated approximately 70%
per cent of total deposits and loans. Among those twelve banks, seven banks were state-owned banks and the rest of the banks were private national banks. This means that all state-owned banks are included in the Panzar-Rosse analysis Period 1. Until 1999, Indonesia had seven state-owned banks and just recently this came to four state-owned banks. Banks included in the analysis in this period are:

Table 5.4 Banks that existed during 1992-1996

<table>
<thead>
<tr>
<th>Id</th>
<th>bank</th>
<th>bank type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank Negara Indonesia</td>
<td>SOB</td>
</tr>
<tr>
<td>2</td>
<td>Bank Dagang Negara</td>
<td>SOB</td>
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<tr>
<td>3</td>
<td>Bank Rakyat Indonesia</td>
<td>SOB</td>
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<tr>
<td>4</td>
<td>Bank Bumi Daya</td>
<td>SOB</td>
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<tr>
<td>5</td>
<td>Bank Ekspor Impor</td>
<td>SOB</td>
</tr>
<tr>
<td>6</td>
<td>Bank Central Asia</td>
<td>PNB</td>
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<tr>
<td>7</td>
<td>Bank Pembangunan Indonesia</td>
<td>SOB</td>
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<tr>
<td>8</td>
<td>Bank Dagang Negara Indonesia</td>
<td>PNB</td>
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<td>9</td>
<td>Bank Danamon</td>
<td>PNB</td>
</tr>
<tr>
<td>10</td>
<td>Bank International Indonesia</td>
<td>PNB</td>
</tr>
<tr>
<td>11</td>
<td>Bank Tabungan Negara</td>
<td>SOB</td>
</tr>
<tr>
<td>12</td>
<td>Lippo Bank</td>
<td>PNB</td>
</tr>
</tbody>
</table>

Using the information collected from banks' annual reports, both state-owned banks and private national banks from 1992 to 1996, table 5.5 presents the Panzar-Rosse (PR) model results on Indonesian commercial banking market structure Period 1.
Table 5.5 The result of the P-R model for the Indonesian banking market Period 1

| lnir  | Coef.   | Std. error. | t     | P>|t| | (95% conf. interval) |
|-------|---------|-------------|-------|-----|-----------------------|
| lnaftr| .08835  | .074864     | 1.18  | 0.246 | -.06362               | .24033 |
| lnpppe| .03419  | .07790      | 0.44  | 0.663 | -.12394               | .19234 |
| lnbsf | .07922  | .06358      | 1.25  | 0.221 | -.04985               | .20830 |
| oiiir | -.00281 | .08780      | -0.03 | 0.975 | -.181066              | .17544 |
| _cons | -1.78126| .39802      | -4.48 | 0.000*| -2.5983               | -0.97321|

*statistic 0.20178
R-squared 0.454
No. of banks 12
Number of observation 52

Notes: * denotes significant at the 1% level, respectively

Variables: lnir (natural logarithm interest revenue), lnaftr (natural logarithm average funding rate), lnpppe (natural logarithm price of personnel expenses), lnbsf (natural logarithm bank-specific exogenous factors), oiiir (other income to interest revenue)

The results of the Panzar-Rosse analysis in Period 1 shows that neither price of funding, price of personnel, price of capital, bank specific exogenous factors, nor other bank activities than intermediation have a significant relationship with interest revenue.

The results showing in table 5.5 mainly attempt to provide insights on the overall competitive condition during 1992-1996, suggesting that the market can be differentiated as a monopolistic competition in Period 1. The \( H \) statistics is around 0.20178. The theory suggests if the market structure denoted by \( H \) is between zero and one is characterised by monopolistic competition, with interest revenue increasing less than proportionally to the changes in input prices.

5.3.2 Partial privatization: commercial banking market structure Period 2 (1997-2003)

This is a restructuring and partial privatization phase. There were important moments underlined in the second period. Due to poor loan portfolio, asset-liability mismatches,
lending to group companies by private banks, unhedged foreign exchange positions and, deficiencies in bank supervision became the major problems of bank failures before the 1997 crisis (Srinivas and Sitorus, 2003). When the financial crisis hit Indonesia in late 1997, it impacted Indonesian state-owned banks with the government undertaking restructuring and recapitalizing programs that cost over two thirds of the recapitalization resources and each bank’s management entered into a performance contract that required the management to take certain operational steps and make changes in return for the Government’s recapitalization. After this, the four weakest state-owned banks and Bank Rakyat Indonesia's corporate lending were merged into a newly created Bank Mandiri. In dealing with state-owned banks' slow progress in the banking system after recapitalizing and restructuring them, the Indonesian Government decided to take further action by bringing down its stakes in state-owned banks. Before another partial privatization took place, the Government injected a substantial amount of capital. In 2002, Indonesia's largest state-owned bank, Bank Mandiri, began the process of partial privatization when the Government initially diluted its stakes by 30 per cent through selling its equity in the capital market. Indonesia's largest retail bank, Bank Rakyat Indonesia, was partially privatized in 2003 or a year after Bank Mandiri was partially privatized. This was indicated by reducing the Government share's in this bank to 55 per cent.

During 1997 to 2003 there are fifteen banks in this analysis within a total of 61 observations. These banks were chosen from banks’ ratings based on deposits and loans from 1997 to 2003. They dominated approximately 70 per cent of total deposits and loans. Among those fifteen banks, seven banks were state-owned banks and the rest of the banks were private national banks. One state-owned bank has to be excluded in the analysis due to data unavailability, and with Bank Mandiri newly created from four state-owned banks merged in 1998;
therefore, Bank Mandiri’s financial report is included in the analysis starting from 1999.

Banks included in the analysis in this period are:

Table 5.6 Banks that existed during 1997-2003

<table>
<thead>
<tr>
<th>Id</th>
<th>bank type</th>
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<tbody>
<tr>
<td>1</td>
<td>Bank Negara Indonesia</td>
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<td>2</td>
<td>Bank Dagang Negara</td>
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<td>3</td>
<td>Bank Rakyat Indonesia</td>
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<tr>
<td>4</td>
<td>Bank Bumi Daya</td>
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<tr>
<td>5</td>
<td>Bank Central Asia</td>
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<td>6</td>
<td>Bank Pembangunan Indonesia</td>
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<td>7</td>
<td>Bank Danamon</td>
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<td>8</td>
<td>Bank International Indonesia</td>
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<td>9</td>
<td>Bank Tabungan Negara</td>
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<td>10</td>
<td>Lippo Bank</td>
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<td>11</td>
<td>Bank Panin</td>
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<tr>
<td>12</td>
<td>Bank Bali</td>
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<tr>
<td>13</td>
<td>Bank Mandiri</td>
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<tr>
<td>14</td>
<td>Bank Niaga</td>
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<tr>
<td>15</td>
<td>Bank Mandiri</td>
</tr>
<tr>
<td>16</td>
<td>Bank Permata</td>
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</tbody>
</table>

Using the information collected from banks' annual reports, both state-owned banks and private national banks from 1997 to 2003, table 5.7 is presenting the Panzar-Rosse (P-R) model results on the Indonesian commercial banking market structure Period 2.

Table 5.7 The result of the P-R model for the Indonesian banking market period 2

| lnir | Coef.  | Std. error. | z     | P>|z|  | (95% conf. interval) |
|------|--------|-------------|-------|------|-------------------------|
| lnaf | .3219393 | .0743597 | 4.33 | 0.000* | .1762005 | .4676781 |
| lnppe| .4150545 | .0653421 | 6.35 | 0.000* | .2869864 | .5431226 |
| lnpec| .0517501 | .0328409 | 1.58 | 0.115*** | -.0126168 | .116117 |
| lnbsf| -.0906326 | .0966021 | -0.94 | 0.348 | -.2799691 | .988704 |
| oir  | .1851511 | .0914773 | -2.02 | 0.043** | -.3644433 | -.0058588 |
| _cons| .5293295 | .3358718 | 1.58 | 0.115*** | -.1289671 | 1.187626 |

H statistic 0.7887439
R-squared 0.6809
No. of banks 15
Number of observation 61

notes: * , ** and *** denote significant at the 1% , 5% and 10 % levels, respectively

variables: lnir (natural logarithm interest revenue), lnaf (natural logarithm average funding rate), lnppe (natural logarithm price of personnel expenses), lnpec (natural logarithm price of capital expenditure), lnbsf (natural logarithm bank-specific exogenous factors), oir (other income to interest revenue)
Meanwhile the results of the Panzar-Rosse analysis in Period 2 shows that the coefficients of all input-price variables are positive and significant at the 1% level, except that of the price of capital expenditure that is significant at 10%. Hence with $R$-squared statistics of 0.689, this indicates that funding, labour and capital positively affect interest revenue. The estimated coefficients of all input-price variables in the current analysis are in line with the theory (Bikker and Bos, 2008). The other income coefficient shows significant negative correlation with interest income at the 5% level. This means as interest revenue goes up, other income goes down. The bank-specific factors coefficients indicated by Capital Adequacy Ratio (CAR) and deposits from customers, in contrast, have been shown to be extremely different from other variables. Thus bank-specific factors did not influence interest revenue.

Table 5.8 indicates the result insights on the overall competitive condition during 1997-2003, and suggest that the market can be differentiated as a monopolistic competition in Period 2. Unlike in the first period, The $H$ statistics in the second period is around 0.790. The theory suggests that if the market structure denoted by $H$ is between zero and one, this is characterised by monopolistic competition, with interest revenue increasing less than proportionally to the changes in input prices.

5.3.3 Partial privatization: commercial banking market structure Period 3 (2004-2011)

This is the divestment and recovery phase. The recapitalization which has been done in the previous period, aims to create high quality banks which are able to compete in both domestic and international markets. The Government was continuing its restructuring program during this period. The Indonesian banking market was slowly recovering in this period. An important event has been noted in 2009, when final partial privatization was implemented in
Bank Tabungan Negara. Bank Tabungan Negara, whose core business provides housing loans to low-income families, became the latest state-owned bank that has been partially privatized, in 2009. With Bank Tabungan Negara partially privatized, this demonstrates the Indonesian Government's commitment to creating a healthy banking environment and competitive market for state-owned banks to perform better in the future.

During 2004 to 2011 there are eleven banks in this analysis within a total of 76 observations. These banks were chosen from banks' rating based on deposits and loans from 2004 to 2011. They dominated approximately 70 per cent of total assets, deposits and loans. Among those eleven banks, four banks were state-owned banks and the rest of the banks were private national banks. Banks included in the analysis in this period are:

**Table 5.8 Banks that existed during 2004-2011**

<table>
<thead>
<tr>
<th>Id</th>
<th>bank</th>
<th>bank type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank Negara Indonesia</td>
<td>SOB</td>
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<tr>
<td>3</td>
<td>Bank Rakyat Indonesia</td>
<td>SOB</td>
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<td>6</td>
<td>Bank Central Asia</td>
<td>PNB</td>
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<td>Bank Danamon</td>
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<td>Bank International Indonesia</td>
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<td>Lippo Bank</td>
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<td>15</td>
<td>Bank Mandiri</td>
<td>SOB</td>
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<td>16</td>
<td>Bank Niaga</td>
<td>PNB</td>
</tr>
<tr>
<td>17</td>
<td>Bank Permata</td>
<td>PNB</td>
</tr>
</tbody>
</table>

Using the information collected from banks' annual reports, both state-owned banks and private national banks from 2004 to 2011, table 5.9 presents the Panzar-Rosse (PR) model results on the Indonesian commercial banking market structure Period 3.
Table 5.9 The result of the P-R model for the Indonesian banking market Period 3

| Variables | Coef.     | Std. error. | z        | P>|z|      | (95% conf. interval) |
|-----------|-----------|-------------|----------|----------|----------------------|
| lnir      | .3099641  | .0475608    | 6.52     | 0.000*   | .2167467 .4031816    |
| lnafr     | .2475314  | .0444293    | 5.57     | 0.000*   | .1604515 .3346114    |
| lnpppe    | .0348058  | .0166728    | 2.09     | 0.037**  | .0021277 .0674839    |
| lnpcce    | .0155545  | .043952     | 0.35     | 0.723    | -.0705899 .1016989   |
| lnbsf     | -.6346448 | .1681499    | -3.77    | 0.00*    | -.9642126 -.305077   |
|_cons      | -.2665161 | .2421255    | -1.10    | 0.271    | -.741034 .2080412    |

**H statistic** 0.5923013

**R-squared** 0.7482

**No. of banks** 11

**Number of observation** 76

**Notes**: * and ** denote significant at the 1% and 5% levels, respectively

**Variables**: lnir (natural logarithm interest revenue), lnafr (natural logarithm average funding rate), lnpppe (natural logarithm price of personnel expenses), lnpcce (natural logarithm price of capital expenditure), lnbsf (natural logarithm bank-specific exogenous factors), oiir (other income to interest revenue)

The final Panzar and Rosse analysis shown in Period 3 is not much different to that in Period 2 where the coefficients of all input-price variables are positive and significant at the 1% level, except that of the price of capital expenditure that is significant at 5%. Hence with R-squared statistics of 0.7482, this indicates that funding, labour and capital positively affect interest revenue. The estimated coefficients of all input-price variables in the current analysis are again in line with the theory (Bikker and Bos, 2008). The other income coefficient shows significant negative correlation with interest income at the 1% level. This means as interest revenue goes up, other income goes down. The bank-specific factors coefficient indicated by Capital Adequacy Ratio (CAR) and deposits from customers, in contrast, has been shown to be extremely different from other variables. Thus, bank-specific factors did not influence interest revenue.

Table 5.9 indicates the result insights on the overall competitive condition during 2004-2011, suggesting that the market can be differentiated as a monopolistic competition in this last period. Unlike in the first period as well as the second period, The H statistics in the third
period is around 0.59. The theory suggests that if the market structure denoted by $H$ is between zero and one, this is characterised by monopolistic competition, with interest revenue increasing less than proportionally to the changes in input prices.

5.4 A note on conduct

5.4.1 Brief literature on conduct

The structure-conduct-performance model creates a causal relationship among market structure, firm behaviour within the industry and performance (Mason, 1940). Like most empirical studies, this current study solely estimates the relationship between market structure and performance (Carlton and Perloff, 2000), however firm behaviour (conduct) will be inclusively discussed based on the estimated result on market structure.

In much of the structure-conduct-performance literatures on banking, the conduct influences market structure and performance through a firm's pricing strategies, product promotion, price policies, advertising expenditure (Jerger, 2004 and Jedlicka and Jumah, 2006), price discrimination, marketing, and collusion (Shepetko, 2004). These indicators explain the behaviour or conduct of banks. In fact, based on empirical studies, a high degree of asymmetric information between buyers and sellers that is an important part of a bank's activity became the major indicator that influenced bank's behaviour (Shepetko, 2004).

5.4.2 Why conduct cannot be looked at directly in Indonesian commercial banks

According to the literature, specifically in banking competition, measuring firms conduct may use the models of Bertrand competition (Yanelle 1988, 1989 cited in Nuberger, 1997) or the model of Cournot competition (Calem and Carlino 1991; Berg and Kim 1994; and Neven and Röller, 1997 cited in Neuberger, 1997). Under Bertrand's competition, firms that produce
a homogeneous product set the prices and produce products to meet demands from the market (Ledvina and Sircar, 2011). Meanwhile, Cournot competition concentrates on firms that produce homogeneous products and then obtain profit based on a single market price (Ledvina and Sircar, 2011). This model assumes the marginal costs of production are constant and equal across firms.

Bertrand competition, as well as Cournot competition, is appropriate for homogeneous wholesale banking products. However, Indonesian commercial banks provide services not only to large or middle-sized corporate clients, but also directly to consumers. According to Neuberger (1997) these types of banks should allow for a demand for banking services that is not infinitely price elastic, because product differentiation is important. Therefore, the Indonesian commercial banks use appropriate competition models, such as those of the model of product differentiation with price competition (Hannan, 1991; Chiappori et al. 1995; Bouckaert and Degryse, 1995 cited in Neuberger, 1997).

Furthermore, both Bertrand competition and Cournot competition may create a banking market with a high asymmetry of information between banks as suppliers and clients as demanders, which is not transparent. As a result, buyers do not take their decisions based on the price of the products. A firm’s conduct, as was suggested by Neven (1990), may be measured by the bank’s quality of services. The quality variables include the density of the branch network, the density of automated teller machines, the reputation for solvency, or the quality of the staff. De Bandt (1996) argued that quality was not easily observed because of asymmetric information. Bank services are the least searched for information by consumers (Neuberger, 1997).
Alternatively, pricing strategy such as price of product promotion, advertising expenditures, and other pricing policies are the appropriate measure to assess firms' conduct. However, the current study finds difficulties in estimating conduct using the indicators required, such as a firm's pricing strategies, product promotion, pricing policies, advertising expenditure, and collusion for calculating these measures. In order to assess conduct using the above indicators requires in-depth information from the banks such as reports from marketing department or other related departments, while at this moment the information available is banks' annual reports. Moreover, it is not possible to measure collusion because collusion is a legal term (Asch and Seneca, 1975). As a result, this section will focus on describing how the estimated result on market structure influences a firm's conduct, especially among the largest firms, mostly dominated by state-owned banks, in setting prices above the competitive level.

5.5 Discussion

Based on the panel data analysis presented in the previous section, a discussion of the estimated results in Period 1, Period 2, and Period 3 regarding partial privatization and banking market structure from 1992 to 2011 in the context of Indonesian commercial banks, based on their deposits and loans, is provided in this section. Using the Panzar-Rosse model the discussion of market structure from Period 1 to Period 3 is presented in the same section, as follows.

5.5.1 Market structure estimated result interpretation

This following section draws upon market structure from 1992 to 2011 using the bank-level data set of Indonesian commercial banks financial report. It explains in detail the overall level of competition in Indonesian commercial banking market.
**Literature prediction:**
Partial privatization has a positive relationship with commercial banking market structure.

**Discussions:**
The current study examines commercial banking market structure. To capture the impact of the partial privatization of state-owned banks on structure-conduct-performance, this study breaks the time frame up to 3 periods and each period contains example of partial privatization of state-owned banks. Based on structure-conduct-performance theory, the degree of competition determines conduct through monopolistic pricing which also determines performance (Du Plessis and Gilbert, 2007). This is a causal relationship among those variables. Having partial privatization in this study means it is looking at how partial privatization policy affects structure-conduct-performance in Indonesian commercial banks. This is why each of the periods analysed in this research includes partial privatization of state-owned banks. Beginning with the first period from 1992 to 1996, the partial privatization of Bank Negara Indonesia in 1996, was included and in the second period two state-owned banks were partially privatized: Bank Mandiri in 2002 and Bank Rakyat Indonesia in 2003. The last period includes the partial privatization of Bank Tabungan Negara in 2009.

Table 5.6, table 5.8 and table 5.9 present $H$ statistics resulting from general leased square estimation outcome. The $H$ statistics in the first period shows the lowest level (0.20) among others, but rises substantially during the second period (0.79), but in contrast it slightly falls to an intermediate position during the third period (0.6). As a result the proper level of competition for the Indonesian banking market is monopolistic competition, since $H$ equal to zero is monopolistic and $H$ equal to one is perfect competition.
According to the literature, imperfect competition or so called monopolistic competition exists when a market consists of one or more producers who sell products or services which are distinguished from one another, however they are not perfectly substitutes (Krugman and Obstfeld, 2008). In this type of market, an enterprise may take prices that have been charged by competitors and disregard the effect of an enterprise's own price on the prices of other competitors. Some economists predict that in the short run using their market power institutions tend to gain high profits in monopoly competition markets. This behaviour reflects monopoly. On the other hand, in the long run, other competitors can easily enter the market and reduce the advantage of products and services differentiation due to competition. In the long run, a monopoly competition market becomes more like a perfect competition market where enterprises are not able to gain economic profits as much as they expected (Chamberlin, 1933). Unlike monopolistic competition, a perfectly competitive market reflects that no producers have large enough market power to set the price of homogenous products and services, while a monopoly consists of a particular enterprise which tends to be the only producer of a certain product. Panzar and Rosse specifically divide the level of competitiveness into three; perfect competition, monopoly competition and monopoly or being collusive. In perfect competition when input prices rises, it will also increase marginal costs and total income by the same amount of cost raises. In monopoly when input prices rises, it will increase marginal costs; however, this will decrease equilibrium output and finally reduce total revenues (Claessens, 2009).

To differentiate a monopolistic competition from a perfect competition and monopoly, this section describes the characteristic of monopolistic competition and a table of market structure comparisons among them. In monopolistic competition these are typical characteristics that mostly exists in the market (Gans et al, 2003):
1. In the market there are more than one producers and several buyers, and none of the producer dominates the market price.

2. Entry to and exit from the market is easily.

3. Producers have a certain power to control the price.

4. Buyers believe that there is no price differentiation among competitors.

Below is a table that describes market structure comparison among monopolistic competition, perfect competition, and monopoly.

**Table 5.10 Market structure comparison**

<table>
<thead>
<tr>
<th>Market structure comparison</th>
<th>Number of producers</th>
<th>Market power</th>
<th>Product differentiation</th>
<th>Pricing control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monopolistic competition</td>
<td>numerous</td>
<td>low</td>
<td>high</td>
<td>Price setter</td>
</tr>
<tr>
<td>Perfect competition</td>
<td>countless</td>
<td>none</td>
<td>none</td>
<td>Price taker</td>
</tr>
<tr>
<td>Monopoly</td>
<td>one</td>
<td>high</td>
<td>complete</td>
<td>Price setter</td>
</tr>
</tbody>
</table>


It should be noted that the first period was the time when partial privatization of state-owned banks was initially introduced. In early 1980, state-owned banks dominated over 75 per cent of Indonesian commercial bank total assets and slowly went down to 37 per cent just before the crisis. Over time, financial reforms have been implemented to slowly liberalize commercial banks. Thus, these institutions would provide inexpensive and efficient resources that in the end will stimulate economic growth and the development of the real economy (Srinivas and Sitorus, 2003). Unfortunately, such reforms, followed by poor corporate governance, and weak supervision and regulation of the banking sector, end up with a tremendous growth of commercial banks with poor asset quality (Srinivas and Sitorus, 2003). Referring to the estimated result of the Panzar and Rosse analysis in the first period, 0.20
reflects that the level of competitiveness in the market is monopolistic competition, although there are very low values for the $H$ statistics. This may in part be due to the set of reforms that created a major change in the banking system, such as easing of entry restrictions in 1988, which increased the number of private banks and joint-venture banks as well as their branches. State-owned banks' share of deposits and loans were significantly down while the share of private banks almost doubled from 1988 to 1995 (Indonesian Banking Statistic, various years), and in 1996 financial liberalization was initially introduced through partial privatization of Bank Negara Indonesia.

With the Government restructuring and recapitalization program at the end of 1998, the level of competition in the market substantially increased from 0.20 from 1992 to 1996 (the first period) to 0.79 from 1997 to 2003 (the second period) although according to the Panzar and Rosse test with $H$ statistics 0.79, this is in the level similar to that of the first period, that is monopolistic competition. The marked rise of the $H$ statistics between the first and the second periods is likely to be explained by a several actions to maintain the existence of Indonesian commercial banks both state-owned banks and private national banks, from the financial crisis which ruined the Indonesian banking system. Beginning with the commercial banks, these were audited by reputable international auditors and it was revealed that the banks' nonperforming loans were significantly higher than could have been anticipated by the Government for either state-owned banks or private national banks. In mid 1998 or at the end of the bank restructuring process, state-owned banks spent over two-thirds of the recapitalization resources. Although this sounds pricey for a bank restructuring program in Indonesian banking history, in fact this period is where the Government required all the state-owned banks to go into a performance contract that stated some operational actions that needed to be undertaken and changed by the state-owned banks management in response to
the recapitalization. Some private banks were officially closed down by the authority due to lack of capital requirements and illiquidity. This impacted on the Government by diverting their depositors to one of the state-owned banks, Bank Negara Indonesia, and also replacing state-owned banks' management personnel to the management of private banks that were taken over by the Indonesian Banking Restructuring Agency (IBRA). Another action taken by the authority in order to restore the soundness of the banking system was the merging of four of the weakest state-owned banks and Bank Rakyat Indonesia (BRI) corporate loans into the newly created Bank Mandiri in late 1998 and recapitalizing it in late 1999 to bring up its CAR of 8 per cent in total. Other important restructuring programs noted in this period were the Government decision to partially privatized Bank Mandiri in 2002 and Bank Rakyat Indonesia in 2003. After the banks restructuring, the number of banks was decreased substantially from 240 before the crisis to 138 in 2003, mostly because of bank closures and small banks mergers with larger ones (Srinivas and Sitorus, 2003). As a result, this was the phase where only commercial banks with better soundness and safety were considered as survivors and this resulting in the overall level of competition being higher than in other periods.

After 2003, the Indonesian banking system slowly recovered and commercial banks were undergoing a transformation. State owned banks continued to become the major banks in the banking system by having nearly 50 per cent of total bank deposits and loans. Panzar and Rosse analysis in the third period (1994 to 2011) came out with the estimated result of \( H \)-statistics 0.60. Again, the level of competition was in the area of monopolistic competition. The value, although showing a little lower than the previous period, above 0.5 or in the intermediate position. The current study also tested \( H \) statistics from 2004 to 2010 and the estimated outcome stands at 0.73. Summing up, the \( H \) statistics are likely to be very sensitive
in the estimated period. In the third period, further actions have been taken by the authority to reach banking system stability. The Government announced a secondary offering of Bank Negara Indonesia equities in 2005. Bank Indonesia's certificate (Sertifikat Bank Indonesia) slightly went down from 40 per cent during the crisis to 8 per cent in the beginning of 2005, affecting commercial banks' deposit rates from 50 per cent to less than 10 per cent. Indonesian commercial banks were highly liquid by holding liquid assets such as government securities, which accounted for almost 30 per cent of assets. On the credit side, banks considered approving more on consumer lending. Consumer lending was progressing very well compared to corporate lending which is high in risk. Over time, with Indonesian economic development getting much better, corporate lending has slowly revived, and commercial banks have set up a substantial portion of corporate lending, although this was not as great as in the past, since Bank Indonesia was intensively monitoring these banks liquidity and minimum capital requirements. In 2009 further financial liberalization occurred. Bank Tabungan Negara was the only fully government owned bank and has partially privatized in 2009. The level of competitiveness in the market during this period, even though it fall to an intermediate level, the estimated outcome was concurrent with the decrease of concentration in the industry.

Referring to the theory, the Indonesian commercial banking market prior to the 1990s was less competitive. Until the 1988 reforms, the number of commercial banks in Indonesia was 84 banks and the seven state-owned banks controlled over 75 per cent of total bank deposits and loans. Furthermore the authority intervened in banks' lending decision such as regulatory limits on competition and directed credits. To be able to encourage economic growth as well as the real sector economy, financial institution which were mostly dominated by banks were expected to provide inexpensive resources to support this. A series of reforms were set up to
create a better competition environment among banks and an improvement of efficiency allocation across banks. Initially the reforms showed a little improvement in the market structure commercial banks. Before the reforms, the level of competition in the banking system indicated an oligopoly environment. This can be shown as the seven largest banks owned by the Government held a domestic market share of approximately 76 per cent until 1989. According to structure-conduct-performance theory, a highly concentrated market is considered to lead to anti-competitive practices that cause a superior market performance (Goldberg and Rai, 1996). The reason behind the theory is because larger banks will use their market power to increase profits. However, Panzar and Rosse (P-R) are looking at the competitive nature of banking markets and the market power of banks rather than the structure of the market. Market power is measured by factor input prices such as funding, personnel expenses and other non-interest expenses. The estimated outcome from this model in fact can indicate the structure and conduct of the market in which the banks operate (Groeneveld and Boosntra, 2005). Based on the Panzar and Rosse model if there is only one producer that is able to produce products with minimum cost, a natural monopoly exists, however, if there is however if there more than one producer, an oligopoly will develop (Groeneveld and Boosntra, 2005). Over time, reforms have affected the behaviour of commercial banks and the dynamic of markets. With the Government policy of eliminating restrictions on entry in 1988, allowing the new entry of private banks as well as joint ventures with foreign banks, and partially privatizing one of the government's banks, this increased the competition for state-owned banks, resulting in the nature of competition from 1992 to 1996 becoming monopolistic competition. When the crisis crunched in 1997, several actions were taken to retrieve banks from closure, although a few banks were not able to survive due to high non-performing loans and failure to fulfil their minimum capital requirement. After restructuring these banks, recapitalizing state-owned banks, and partially privatizing the other
two state-owned banks, the nature of competition rose above the intermediate level. The estimation result showed that competitive pressures were higher during this period. This can be seen from the average interest revenue in the second period (refer to table 5.3) which was the lowest compare to the others. It also indicates the market competition was highly competitive during that period. In the last period, the number of commercial banks is decreasing and the share of the market is nearly equal between state-owned banks and private national banks. Commercial banks began to enhance products and technology to gain more customers, such as introducing sharia products to capture Indonesian customers who are mostly Muslims. Automate Teller Machines (ATMs) have been built and located even in regional areas, and to support Micro-Small-Medium entrepreneurs (MSME), instead of providing subsidized lending, the Government, through the Ministry of Finance has appointed selected banks to channel the distribution of loans and so-called subordinated loans for transferring to micro credit projects. As a result, the level of competitiveness in this period stands at the intermediate level. In accordance with these outcomes, the proper assessment of the Indonesian commercial banking market is monopolistic competition. The level of competition overall is really close to perfect competition. Based on the literature, under monopolistic competition banks may have product differentiation and they tend to distinguish the quality of the product and advertising, even though their core business is homogenous (Bikker and Bos, 2008). The significance lack of market concentration and the financial liberalization through partial privatization are in line with the result achieved in this current study. So, the result achieved is in line with the view that the less market power is exercised the higher the $H$ statistics become (Vesala, 1995). This assumption provide a positive relationship between $H$ statistics and partial privatization.
5.5.2 Firms' conduct interpretation

The estimated result did not apply specifically to firms conduct since the data does not support it. However the estimated outcomes from the market structure indirectly tells how it affect firms' behaviour.

Before the 1988 reforms, the Indonesian commercial banking market tended to be a highly concentrated, with over 75 per cent of total assets owned by state-owned banks. It is considered that some banks controlled 90 per cent of market share (InfoBank, 2002). The literature states that in an industry with high-concentration and market power, concentration may also be a signal of price conduct (Okeahalam, 2007). This can be seen from loan share. State-owned banks dominated over 60 per cent of the loan share until 1992 (Bank Indonesia, various years). This could mean state-owned banks offered competitive rates in lending that were more attractive than the private banks. The reason behind this rate is because most of the direct credits which were available during that time went to state-owned banks. In the mid 1990s, the role of Indonesian private banks expanded. The state-owned banks' loan share decreased from 71 per cent in 1988 to less than 40 per cent in 1994 (Bank Indonesia, various years). In terms of the deposit rate, the state-owned banks share slightly declined from 60 per cent in 1988 to 37 per cent in 1994 (Bank Indonesia, various years). Recently state-owned banks loan and deposit shares are both steady at approximately 40 per cent. The theory suggested a relationship exists between concentration and deposit rates (Okeahalam, 2007), based on his empirical finding that banks that offered lower prices to consumers might increase market share. Referring to the estimated results in the previous section, despite the instability of least square estimates for the separate periods, market nature of competition among the Indonesian commercial banks from 1992 to 2011 led to monopolistic competition. This level of competition also, indirectly, affects banks' price behaviour. When the market
structure was less competitive, both state-owned banks' loan and deposit shares have proven to be very high, in contrast to when the level of competition increased in mid 1990s, when state-owned banks' loan and deposit shares slightly declined. Furthermore, structure-conduct-performance supports the underlying prediction that in a more concentrated market, the price setting tends to be less favourable to consumers and this will encourage forms of non-competitive behaviour (Rhoades, 1982; Gilbert (1984); and Calem and Carlino, 1991).
Chapter 6

Partial privatization: performance

6.1 An overview of state-owned banks performance

There is a very different concept between non-financial businesses and financial institution. In non-financial businesses, firms buy raw materials and combine them with capital and labour to produce goods or services. These firms sell their goods or services to others at price high enough to gain a profit above the cost of raw materials, capital and labour. However, financial firms get funds from creditors or depositors and spend them on raw material, labour, and capital; and hope to recover funds in excess of the amount spent. Raw materials in this concept would be such things as loans. In an efficient market, expected returns are included in the risk taken by the firms. Therefore, for commercial banks the behaviour of the market price for banks' equities reveals the rewards for risks the institutions take (Hogan et al, 2004).

In developing countries, financial system strengthening is a crucial issue. Real sectors need financial institutions to access resources to finance their business activities. Hence, financial institutions, especially banks, are competing to attract customers. Over time, Indonesian state-owned banks have been able to easily access cheap sources of funds from Bank Indonesia through direct credit. Direct credit, also known as liquidity credit, carried out by Bank Indonesia, aims to finance prioritized sectors as mentioned in the Government's five-year economic plan (Srinivas and Sitorus, 2003). Direct credit is usually allocated to state-owned banks as well as selected private national banks. The role of direct credit slowly decreased due to the Government's set of reforms in the late 1980s, although state-owned banks preferred position in getting inexpensive funding from Bank Indonesia has discouraged
them from competing with other banks and they have also operated less efficiently than the private national banks.

In contrast private ownership has proven to be more efficient than state ownership (Megginson and Netter 2001). Private ownerships provides more freedom in making decisions in the best interest of a firm than state ownership, where the decisions are mostly made by the government. Firms in private ownerships can also make decisions independently from any bureaucratic or political inference, which usually occurs in state ownership. The economic yield resulting from increased competition between private ownership and public ownership encourages firms to produce efficiently (Farabullini and Hester, 2003).

The Indonesian government has had concerns about the state-owned banks' performances. These have been regulated in Presidential Instruction no.5/1988; Ministry of Finance decision no.740/KMK/1989; Ministry of Finance decision no.826/KMK.013/1992; Yasin,2002a; Abeng,1998; 2001; Masterplan Reformasi BUMN, 1998; Masterplan BUMN 2002-2006; Irianto, 2003,2004; Indonesia Banking Architecture, 2004. The reforms mostly periodic reforms aimed to improve state-owned banks' performance. Partial privatization has been implemented in response to finding that these banks were underperforming (Nasution, 1983; Balino and Sundararajan, 1986; Cole and Slide, 1990 and 1996 Hanna, 1994; Binhadi, 1995; Harris, Schiantarelli, and Siregar, 1992 Santoso 2000; Boediono, 2002). Although Megginson (2005) argued that banks which are partially privatized did not show a clear result, these banks have improved their performance, but less than that of fully privatized banks. Hence, the issue of partial privatization of state-owned banks is more likely about enhancing performance so that these banks cannot only be more competitive but also more market-based.
The banks' performance, according to the structure-conduct-performance model was influenced by structure and conduct. Structure influenced performance by lowering market concentration and leading to lower market power, which means increases in market efficiency (Heffernan, 2005). Conduct affected performance by having more competitive behaviour and lessening market power, it which means greater social efficiency (Hannan, 1991). This evidence in fact leads to the argument that efficiency and improving performance may have been affected by such a variety of factors, including competition (Aharoni, 1986; Garner, 1988; Vernon-Wortzel, 1989; Jomo, 1993; Irianto, 2005).

According to Gilbert (1984), there are several approaches in measuring banks’ performance; elasticity of loan demand, the interest rates on business loans, on time deposits, on passbook savings, the values of net income per dollar of total assets or capital and others. Neuberger (1998) suggested productive efficiency (cost and profit) and allocated efficiency for bank performance measurements. Cornet and Theranian (1992) and followed by Boubakri et al (2005) introduced four aspects of bank performance: profitability, efficiency, risk exposure and capital adequacy.

6.2 Defining measures of state-owned banks performance
As mentioned in the previous chapter, this study solely estimates the relationship between market structure and performance (Carlton and Perloff, 2000) although firms' behaviour (conduct) is indirectly discussed in the same discussion chapter as market structure. The underlying reason for having a separate analysis of post partial privatization performance is because; 1) banks, post partial privatization, in this study initially went through a process of financial liberalization which changed banks' management activities, and 2) banks' post
partial privatization performance tends to look at risk exposure, since these banks used to enjoy access to cheap funding from Bank Indonesia (Boubakri et al, 2005).

This section focuses on the impact on state-owned banks performance after they were partially privatized. There is an enormous variety of ways to measure a firm's performance. The current study follows the work of Boubakri et al (2005) in examining post partial privatization performance. The literature that examines the effect of privatization on banks' performance is extensively and comprehensively reviewed by Megginson and Netter (2001) as well as Djankov and Murrel (2002). It specifically examines the post-privatization performance of state-owned banks. Most of these studies, non-specifically stress partial privatization in a country. Privatization in Indonesian state-owned banks has been partial, leaving the Government as the majority owner in the privatized assets. The basic reason for partial privatization in Indonesian state-owned banks, as stated in the Indonesian's constitution 1945, article number 33 (pasal 33) is "Sectors of production that are important for the country and affect the life of many people shall be controlled by the state" (sub-paragraph 2). Unlike privatization of state-owned enterprises, where empirical evidence has emerged, partial privatization in banks has been little known, considering state-owned banks' vital role is to provide resources for a specific factor of the economy. Hence, state-owned banks always become political and the Government's favourite sectors because real sectors, which sometimes are closely related to the government, are able to obtain funding on long and favourable terms.

In this analysis state-owned banks performance is examined from three individual aspects:

1. Profitability : net income to equity ratio or so-called return on equity (ROE)
2. Efficiency: average interest rate on loan minus the average rate on liability or so-called net interest margin (NIM)

3. Risk exposure: medium loans to assets or credit risk (CR)

The analysis attempts to examine whether partially privatized banks are more profitable, efficient and have less risk than before they were partially privatized. The analysis uses the same three periods as in the previous chapter: Period 1 from 1992 to 1996, Period 2 from 1997 to 2003, and Period 3 from 2004 to 2011. To capture the impact of partial privatization of state-owned banks on performance, each period consists of partial privatization of state-owned banks. The above indicators are examined as a panel data series.

### 6.3 Descriptive statistics

Descriptive statistics in this section are describing solely the feature of panel data summary on profitability, efficiency and risk exposure. According to Black et al (2007) descriptive statistics uses data that have been gathered on a group to describe or reach conclusions about the same group. The tables below are describing the main features of data collection.

#### Table 6.1 Summary of the performance variables in Period 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>ROE</th>
<th>Std. Dev.</th>
<th>NIM</th>
<th>Std. Dev.</th>
<th>Credit risk</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.1633</td>
<td>0.1866</td>
<td>0.0367</td>
<td>0.020</td>
<td>0.6587</td>
<td>0.1440</td>
</tr>
<tr>
<td>N</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Table 6.2 Summary of the performance variables in Period 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>ROE</th>
<th>Std. Dev.</th>
<th>NIM</th>
<th>Std. Dev.</th>
<th>Credit risk</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>-0.168</td>
<td>4.681</td>
<td>0.13</td>
<td>0.243</td>
<td>0.481</td>
<td>0.253</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.3 Summary of the performance variables in Period 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>ROE</th>
<th>Std. Dev.</th>
<th>NIM</th>
<th>Std. Dev.</th>
<th>Credit risk</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.228</td>
<td>0.09335</td>
<td>0.06281</td>
<td>0.0228</td>
<td>0.5159</td>
<td>0.0957</td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.1; table 6.2; and table 6.3 show the summary of the performance variables in Period 1, Period 2, and Period 3. The analysis examines the performance of state-owned banks after they were partially privatized from 1992 to 2011. From 1992 to 1998 there are seven state-owned banks included in the analysis, while from 1999 to 2011 there are four state-owned banks included in the analysis. The reason why the number of state-owned banks decreased after 1998 is because four major state-owned banks: Bank Dagang Negara, Bank Bumi Daya, Bank Ekspor Impor, and Bank Pembangunan Indonesia were merged into the newly created Bank Mandiri in 1999. Hence beginning in 1999 there were four state-owned banks in the performance analysis: Bank Negara Indonesia, Bank Rakyat Indonesia, Bank Tabungan Negara, and Bank Mandiri.

1. **roe (return of equity)**

Return on equity (ROE) is one of the profitability measures that reflect the banks' return based on accounting numbers derived from banks' financial reports. The return on equity is a summary measure of how effectively shareholders' funds have been used, including the effectiveness of the use of financial leverage (Hogan et al., 2004). The return on equity is the ratio of net income and equity. The numerator denotes after-tax income less any preference dividends. The denominator denotes the average of balance sheet equity over the operating period. On average, the value of return on equity in the first period was 16.33 per cent. This value is considered good, since return on equity of between 15 per cent to 20 per cent is generally considered good (Hogan et al., 2004). This value also means that, in the first period,
state-owned banks were considered to be doing very well in using investment funds to generate earnings growth. In contrast, in the second period, the value of return on equity declined to -16.97 per cent. The negative return in this period was mainly because of the financial crisis that occurred in 1997-1998. Most banks suffered from extraordinary negative returns. In the last period, state-owned banks showed signs of an improvement in their profitability. The return on equity average result in this period was 22.80 per cent. The state-owned banks return on equity in this period tended to be the highest return compared to the other periods.

2. \textit{nim (net interest margin)}

Net interest margin measures economic efficiency. Basically net interest margin measures the difference between interest revenue on assets and interest expense for funds (Hogan \textit{et al.} 2004). Net interest margin is expressed as a percentage. According to Hogan \textit{et al} (2004) net interest margin is measured by the ratio of net interest revenue to earning assets. The information on bank's net interest margin is mostly available in state-owned banks financial reports. Principally, the lower the net interest margin, the more efficient the banks. The average net interest margin in the first period was 3.7 per cent. This could mean the net interest earned in that period was 3.7 per cent. However, in the second period the average value was decreasing to 1.3 per cent. Just like in the return on equity, the average net interest margin in the second period decreased significantly because of the financial crisis. This could also mean that the economic efficiency increased. In the third period, it increased above the first period to 6.2 per cent.
3. *cr (credit risk)*

Credit risk is the risk that the interest or principal, or both, on loans will not be paid as promised (Hogan et al. 2004). Banks' sources of funds do not have a direct effect on their credit risk because depositors or lenders of funds are taking the risk of the banks not paying them. Credit risk may indirectly affect banks: 1) When banks having a higher cost of funds might worry depositors or lenders about the banks' ability to pay its claims on time, 2) When banks have a higher cost of funds, they will probably take higher credit risks in order to struggle to maintain their profit margin (Hogan et al. 2004). Credit risk is measured by the ratio of loans to assets. The better measure would be the relative amount of loan losses, but that data are not available in banks' financial reports. Measuring this risk would be expected to decrease, hence also decrease risk exposure. The average credit risk in the first period was 66 per cent. This means state-owned banks had more loans that exceeded their assets, or state owned banks' assets will not be able to cover the amount of loan losses. However, analysts usually that state higher risk will usually mean higher return, too. In the second period, the impact of revealed credit risk was revealed. Due to high level of credit default, Indonesian commercial banks experienced financial crisis. The government quickly recapitalized state-owned banks, and therefore the average credit risk slightly declined to 48 per cent. In the final period, the average credit risk was considered sound because the value was 50 per cent. This indicates that 50 per cent of state-owned banks' loans were assured by 50 per cent of state-owned banks assets.

4. *merg (merger)*

MERG is a dummy variable which reflects the four state-owned banks which merged in 1998 into newly-created Bank Mandiri. These four state-owned banks are: Bank Bumi Daya, Bank
Dagang Negara, Bank Pembangunan Indonesia, and Bank Ekspor Impor. MERG is equals to one for merged banks transformed into Bank Mandiri and zero otherwise.

5. *priv (partial privatization)*

Priv is a dummy variable that takes the value of one in the post partial privatization period and zero otherwise, and explains the post partial privatization performance changes in a given indicator (Boubakri et al. 2005).

6. *tt (time)*

TT is a variable that indicates time since partial privatization and is equal to the number of year since the year of partial privatization (Boubakri et al. 2005). For instance, if it is assumed the given period extends over four years, and Bank y is partially privatized in period 3, then the three dummies would be as follows:

MERG: 1 1 1 1
PRIV : 0 0 1 1; and
TT : 0 0 1 2

7. *cv (control variable)*

In the analysis, the current study follows the work of Boubakri et al (2004) in determining the control variable. To control the relative size of the bank in the economy the current study uses the natural logarithm of total assets. When the size of the assets improves, it indicates there was economic growth in the country. The value of total assets was logged in order to normalize the data so that the standard deviation was not too large (Hair et al, 2006).
6.4 Panel data analysis to examine state-owned banks performance

In evaluating the performance of state-owned banks after being partially privatized, from 1992 to 2011, this study uses panel data analysis provided by STATA version 12. Longitudinal panel data study is suitable when research question and literature predictions are affected by how things change over time. A panel data estimation technique is often suitable for cross-sectional or time series data. According to Hsiao (1986), panel data expands the number of observations for estimation, decreases collinearity among explanatory variables, and thus improves the efficiency of estimates and enhances the degree of freedom. In the case of state-owned banks' performance in this analysis, panel data examines three specific aspects: profitability, economy efficiency and risk exposure from 1992 to 2011.

The Hausman test has been conducted to choose an appropriate effect, whether fixed effect or random effect, to run the multivariate analysis. The results of all performance variables were above 0.05, thus random effects are used to analyse the panel data. To run the multivariate analysis, this study employs generalised least-squares. The least square is a method that is frequently used to estimate the numerical value of the parameters to suit a function to a data set. Generalised least square, specifically the least square model, is used when the parameters in the linear regression model are unknown or when the variance of the observations is unequal. The use of generalised least square based on random effect in the analysis produce an unbiased coefficient. Some of the advantages of random effect estimation are the estimations tend to be more efficient, and there might be possibilities of using time variant dummies (Boubakri et al, 2005). Hence, random effect estimation will be used for the rest of the analysis.
6.4.1 Partial privatization: the performance of state-owned banks in Period 1

In order to examine the performance of state-owned banks after being partially privatized, the study splits the time frame up into 3 periods. These periods consist of partial privatization. The reason behind the time separation was: the first period was the important stage where the Indonesian Government implemented major reforms and early stages of partial privatization of Bank Negara Indonesia in 1996; the second period was the period of restructuring which resulted from the 1997-1998 financial crisis that had influenced commercial banks significantly. Further partial privatization of Bank Mandiri in 2002 and Bank Rakyat Indonesia in 2003 also occurred in this period. The last period was the period of divestment and recovery due to the major restructuring and recapitalization of state-owned banks after the crisis and also the final implementation of partial privatization of Bank Tabungan Negara in 2009.

This section describes the results of the performance variables in Period 1. Using the information collected from state-owned banks' financial reports from 1992 to 1996, table 6.4 presents profitability analysis based on their return on equity (ROE). There were seven state-owned banks that existed during this period: Bank Negara Indonesia, Bank Dagang Negara, Bank Rakyat Indonesia, Bank Bumi Daya, Bank Ekspor Impor, Bank Pembangunan Indonesia, and Bank Tabungan Negara.
Table 6.4 The results of the performance of state-owned banks after being partially privatized in Period 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Profitability (Return on Equity)</th>
<th>Economic efficiency (Net interest margin)</th>
<th>Risk exposure (Credit risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.274</td>
<td>0.022***</td>
<td>0.691</td>
</tr>
<tr>
<td>Merg</td>
<td>0 (collinearity)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Priv</td>
<td>0.874</td>
<td>0.958</td>
<td>0.507</td>
</tr>
<tr>
<td>TT</td>
<td>0 (collinearity)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Control variable</td>
<td>0.324</td>
<td>(0.037)***</td>
<td>0.293</td>
</tr>
<tr>
<td>R-square</td>
<td>0.04</td>
<td>0.086</td>
<td>0.031</td>
</tr>
<tr>
<td>Number of SOBs</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: *** denotes significant at 10 % level, respectively

Variables: roe (return on equity), merg (merged banks), priv (privatization), tt (time privatization), cv (control variable)

Table 6.4 indicates the results of the performance of state-owned banks after being partially privatized from 1992 to 1996. The independent variables: Merg or merged banks and TT or time since partial privatization are omitted due to co-linearity. Based on the panel data analysis in Period 1 (1992-1996), there was a significant and negative relationship between assets growth and economic efficiency at the 10 per cent significance level. It means the assets growth or the economic growth decreased the net interest margin. The decrease in net interest margin increased economic efficiency. Other independent variables have no significant relationship with the dependent variables. This may be due to only one state-owned bank that was partially privatized in that period and state-owned banks have undergone a package of reforms from time to time. Predictions derived from literature in this period were disconfirmed, since the results could not find a significant relationship among the variables.
6.4.2 Partial privatization: The performance of state-owned banks in Period 2

This section describes the results from the performance variables in Period 2. A similar analysis is employed using firms' financial report for the second period from 1997 to 2003. Only this time the number of state-owned banks was slightly decreased after four state-owned banks were merged into the newly Bank Mandiri in 1999. Hence, from 1997 to 1998 there were seven state-owned banks in the analysis however the number of observation was only ten observations due to data unavailability. Starting from 1999, the number of state-owned banks in the analysis remained 4 and the number of observation was 20 observations. From 1997 to 1998 state-owned banks included in the analysis were Bank Negara Indonesia, Bank Dagang Negara, Bank Rakyat Indonesia, Bank Bumi Daya, Bank Ekspor Impor, Bank Pembangunan Indonesia, and Bank Tabungan Negara. While from 1999 to 2003, there were only Bank Negara Indonesia, Bank Rakyat Indonesia, Bank Tabungan Negara, and Bank Mandiri.

Table 6.5 The results of the performance of state-owned banks after being partially privatized in Period 2

<table>
<thead>
<tr>
<th></th>
<th>Profitability (Return on Equity)</th>
<th>Economic efficiency (Net interest margin)</th>
<th>Risk exposure (Credit risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.065</td>
<td>0.074</td>
<td>0.000</td>
</tr>
<tr>
<td>Merg</td>
<td>0.995</td>
<td>0.670</td>
<td>(0.747)</td>
</tr>
<tr>
<td>Priv</td>
<td>0.220</td>
<td>0.883</td>
<td>0.0098*</td>
</tr>
<tr>
<td>TT</td>
<td>0.995</td>
<td>0.196</td>
<td>(0.089)*</td>
</tr>
<tr>
<td>Control variable</td>
<td>(0.056)***</td>
<td>(0.086)***</td>
<td>(0.000)***</td>
</tr>
<tr>
<td>R-square</td>
<td>0.770</td>
<td>0.15</td>
<td>0.634</td>
</tr>
<tr>
<td>Number of SOBs</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: * and *** denote significant at 1% and 10 % levels, respectively

Variables: roe (return on equity), merg (merged banks), priv (privatization), tt (time privatization), cv (control variable)
Table 6.5 shows the results of the performance of state-owned banks after being partially privatized, from 1997 to 2003. The results show that Priv or partial privatization and credit risk had a significant and positive relationship at the 1 per cent significance level. Furthermore, TT or time since partial privatization and credit risk had a significant and negative relationship at level 10 per cent significance level. The control variable, assets growth, had a significant and negative relationship with net interest margin at the 10 per cent significance level. And the control variable also had a significant and negative relationship with credit risk at the 1 per cent significance level. Meanwhile, Merg has no significant relationship with return on equity, net interest margin, and credit risk. The independent variable Priv has no significant relationship with return on equity and net interest margin. Time since privatization (TT) has no significant relationship with return on equity and net interest margin. The control variable, assets growth, has no significant relationship with return on equity. In Period 2, the literature prediction disconfirmed the relationship between partial privatization and profitability since there was no significant relationship among the variables. The literature prediction also disconfirmed the relationship between partial privatization and economic efficiency. However, the literature prediction confirmed the relationship between partial privatization and risk exposure, denoted by credit risk.

6.4.3 Partial privatization: The performance of state-owned bank in Period 3

This section describes the results from the performance variables in the last period. In the third period, the panel data analysis used firms' financial reports from 2004 to 2011. The number of state-owned banks included in the analysis was four banks and the number of observations was 32 observations. State-owned banks were that included in the analysis were: Bank Negara Indonesia, Bank Rakyat Indonesia, Bank Tabungan Negara, and Bank Mandiri.
Table 6.6 The results of the performance of state-owned banks after being partially privatized in Period 3

<table>
<thead>
<tr>
<th></th>
<th>Profitability (Return on Equity)</th>
<th>Economic efficiency (Net interest margin)</th>
<th>Risk exposure (Credit risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.039**</td>
<td>(0.121)***</td>
<td>0.222</td>
</tr>
<tr>
<td>Merg</td>
<td>0.015**</td>
<td>(0.000)*</td>
<td>(0.023)**</td>
</tr>
<tr>
<td>Priv</td>
<td>0.349</td>
<td>0.067**</td>
<td>0.609</td>
</tr>
<tr>
<td>TT</td>
<td>0.001*</td>
<td>(0.001)*</td>
<td>0.250</td>
</tr>
<tr>
<td>Control variable</td>
<td>0.009*</td>
<td>0.043**</td>
<td>0.836</td>
</tr>
<tr>
<td>R-square</td>
<td>0.846</td>
<td>0.89</td>
<td>0.815</td>
</tr>
<tr>
<td>Number of SOBs</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: *, ** and *** denote significant at 1%, 5%, and 10% level, respectively

Variables: roe (return on equity), merg (merged banks), priv (privatization), tt (time privatization), cv (control variable)

Table 6.6 shows the results of the performance of state-owned banks after being partially privatized from 2004 to 2011. There was a significant and positive relationship at the 5 per cent significance level between Merg or merged banks and return on equity. Furthermore, time since partial privatization and return on equity had a significant and positive relationship at 1 per cent significance level. A significant and positive relationship at 1 per cent significance level also applied to control variable, assets growth, and return on equity. The literature prediction, thus, confirmed the relationship between partial privatization and profitability in this period.

The results showed a significant and negative relationship between Merg and net interest margin at 1 per cent significance level. The independent variable, time since privatization, and return on equity also had a significant and negative relationship at 1 per cent significance level. However, the control variable, denoted by assets growth, had a significant and positive relationship with net interest margin at 1 per cent significance level. The variable Priv had no
significant relationship with net interest margin. Hence, literature prediction confirmed the relationship between partial privatization and economic efficiency.

Furthermore, the results also show Merg and credit risk had a significant and negative relationship at 5 per cent significance level, while, Priv, TT, and assets growth had no significant relationship with credit risk. Thus, the literature prediction confirmed the relationship between partial privatization and risk exposure.

### 6.5 Discussion

Based on the panel data analysis presented in the previous sections, a discussion of the estimated results regarding partial privatization and the performance of state-owned banks in from 1992 to 2011 in the context of Indonesian commercial banks is provided in this section. The discussion section is divided into 3 sub-section according to the time frame: Period 1, Period 2 and Period 3 are presented in the same section as follows.

#### 6.5.1 Period 1 result interpretation

This following section draws upon the results in Period 1 from 1992 to 1996 using bank-level data set of Indonesian state-owned banks' financial reports. It explains in detail the performance of state-owned banks post partial privatization.

**Literature prediction (LP2):**

Partial privatization has a positive relationship with firms' profitability.
**Literature prediction (LP3):**

Partial privatization has a positive relationship with firm's efficiency

**Literature prediction (LP4):**

Partial privatization has a positive relationship with firm's risk exposure

**Discussion:**

There were seven state-owned banks in this period. Although state-owned banks controlled over 80 per cent of the commercial banking deposit and loan share, the amount was relatively small compared to other periods. Most state-owned banks' customers were appointed by the Government. State-owned banks' return on equity on average was considered to be intermediate because it was above 15 per cent. The net interest margin on average was considered fair. The credit risk, however, was considered high because over 60 per cent of the state-owned banks' assets are obtained from loans. The dummy variables in this period were mostly zero, except when Bank Negara Indonesia was partially privatized in 1996, when the dummy variable Priv or partial privatization changed from zero to one. As a result, two dummy variables: Merg and TT were omitted because the results show co-linearity.

In Period 1, this study could not find any significant relationship between:

- partial privatization of state-owned banks and profitability
- partial privatization of state-owned banks and economic efficiency
- partial privatization of state-owned banks and credit risk

State-owned banks have always experienced poor performance, which made the Government recapitalize them many times. A set of reforms was undertaken by the Government, which
aimed not only to encourage Indonesian banking competitiveness but also improve the soundness of state-owned banks. The Government's decision to partially privatize Bank Negara Indonesia in 1996 has proven the Government's commitment to improve the performance of state-owned banks.

6.5.2 Period 2 result interpretation

This section describes the results in Period 2 from 1997 to 2003 using bank-level data set of Indonesian state-owned banks (SOBs) financial report. It explains in detail the performance of state-owned banks post partial privatization.

Discussion:

Period 2 was when the financial crisis occurred in end of 1997. The stem of this crisis was because of a high amount of credit default made by state-owned banks and private banks.

The reforms that the Government announced had reduced restrictions on bank entry. As a result there were many new private banks in the market, especially as the Government had eased the requirement for the opening a bank. Furthermore, the number of private bank branches had nearly doubled. State-owned bank branches had also increased. State-owned banks offered higher yields on deposit rate than private banks. As a result, customers deposited their funds in state-owned banks. Nevertheless, customers obtained loans from private banks because these banks were less bureaucratic and had less transaction costs (Srinivas and Sitorus, 2003). Private banks' sources of funds were mostly from state-owned banks through inter-bank lending. As a result, the growth of private bank loans was out of balance with the growth of deposits. In the end of 1997, the non-performing loans in state-
owned banks and private banks reached a high level that could not be anticipated by the Government. To counter the crisis that had worsened the performance of both state-owned banks and private banks, the Government prepared a series of steps in order to bring the commercial banks back to soundness. For state-owned banks, the Government would recapitalize these banks and make them undertaking several operational changes (Srinivas and Sitorus, 2003). The Government has made an important decision in early 1999. The four weakest state-owned banks were merged into the newly Bank Mandiri. These four banks are: Bank Dagang Negara, Bank Bumi Daya, Bank Pembangunan Indonesia and Bank Ekspor Impor. In 2002, Bank Mandiri was partially privatized and this was also a part of the restructuring program. And in 2003, Bank Rakyat Indonesia was also partially privatized. Bank Rakyat Indonesia is actually the biggest retail bank in Indonesia because its branches are located in rural areas.

The panel data analysis results in this period show that partial privatization of banks increased credit risk exposure. Post partial privatization, there has proven to be an increase in credit risk exposure. Nevertheless, TT, that reflects time after partial privatization of state-owned banks, has indicated decreased credit risk exposure. Hence, over time, partial privatization indicates a decline in credit risk exposure.

As a result in Period 2 this study:

- could not find a significant relationship between partial privatization and profitability
- could not find a significant relationship between partial privatization and economic efficiency
- confirmed the relationship between partial privatization and risk exposure
6.5.3 Period 3 result interpretation

This section describes the results in Period 3 from 2003 to 2011, using bank-level data sets of Indonesian state-owned banks’ (SOBs) financial reports. It explains in detail the performance of state-owned banks post partial privatization.

Discussion:

Period 3 was when the state-owned banks restructuring process was nearly done. The Government intended to partially privatize all state-owned banks. In 2009, the Government partially privatized Bank Tabungan Negara. The performance of state-owned banks in this period has made an improvement. Merg or merged banks significantly improved profitability and economic efficiency. Merg or merged banks also significantly decreased credit risk exposure. Priv that reflects the impact of post partial privatization on performance had significantly decreased economic efficiency. TT or time after partial privatization had proven that the long run effect is to improve profitability and efficiency. The assets growth is associated with significant improvements in profitability and credit risk exposure.

In this period, the performance of merged banks, such as Bank Mandiri, increased significantly after partial privatization. The profitability and economic efficiency of merged banks had significant improved, yet decreased credit risk exposure. In the short run, the average performance of state-owned banks post partial privatization was significantly decreased economic efficiency. Nevertheless, the long run effect of partial privatization increased profitability and also improved efficiency.

The results from the panel data analysis in Period 1, Period 2 and Period 3 are in line with the literature which suggested that the performance of state-owned banks was enhanced post
Chapter 7

Conclusion

7.1 Introduction

This chapter consists the summary of conclusions derived from earlier chapters, and the implications and limitations of the study. It also includes suggestions for future research.

7.2 Summary of conclusions

This sections below summarize the conclusions drawn from the analysis from both the relationship between partial privatization and market structure and between partial privatization and state-owned banks performance. It also confirmed the propose structure-conduct-performance model applied in the Indonesian commercial banks.

7.2.1 Partial privatization and market structure

Research question 1:

Has partial privatization on state-owned banks increased Indonesian commercial banking market and firms behaviour?

Literature Prediction 1:

Partial privatization has a positive relationship with commercial banking market structure.
Findings:

In period 1, period 2 and period 3 the literature prediction was confirmed. It was found that partial privatization has a positive relationship with commercial banking market structure since the level of competition, denoted by $H$ statistics, significantly increased.

7.2.2 Partial privatization and state-owned banks performance

Research question 2:

Has partial privatization on state-owned banks improved firms' performance?

Literature prediction 2:
Partial privatization has positive relationship with firms' profitability (as measured by return on equity variable).

Findings:

1. In period 1, the literature prediction was disconfirmed. It was found that there has no significant relationship between partial privatization and firms' profitability.

2. In period 2, the literature prediction was disconfirmed. It was found that there has no significant relationship between partial privatization and firms' profitability.

3. In period 3, the literature prediction was confirmed. It was found that there has been a significant and positive relationship between partial privatization and firms' profitability.

Literature prediction 3:
Partial privatization has positive relationship with firms' efficiency (as measured by net interest margin variable).
Findings:

1. In period 1, the literature prediction was disconfirmed. It was found that there has no significant relationship between partial privatization and firms' efficiency.

2. In period 2, the literature prediction was disconfirmed. It was found that there has no significant relationship between partial privatization and firms' efficiency.

3. In period 3, the literature prediction was confirmed. It was found that there has been a significant and positive relationship between partial privatization and firms' efficiency.

Literature prediction 4:
Partial privatization has a positive relationship with firms' risk exposure (as measured by credit risk variable).

Findings:

1. In period 1, the literature prediction was disconfirmed. It was found that there has no significant relationship between partial privatization and firms' risk exposure.

2. In period 2, the literature prediction was confirmed. It was found that there has been a significant and positive relationship between partial privatization and firms' risk exposure.

3. In period 3, the literature prediction was confirmed. It was found that there has been a significant and positive relationship between partial privatization and firms' risk exposure.
7.2.3 The proposed structure-conduct-performance model applied in the Indonesian commercial banks

Based on the findings both from market structure and state-owned banks performance, this study concluded that the proposed structure-conduct-performance applied in the Indonesian commercial banks is confirmed.

There are several underlying reasons for the proposed model is confirmed as follows:

1. The market structure from period 1, period 2, and period 3, although the results showed that the $H$-statistics were in the level of monopoly competition, tend to slightly improved from the lowest level in the monopolistic competition to the above intermediate level. This means partial privatization policy on state-owned banks influenced market structure.

2. The firms' behaviour, although indirectly discussed in chapter 5, is affected by partial privatization policy. Literature states that industry with high-concentration and market power, concentration may also be a signal of a price conduct (Okeahalam, 2007). After partially privatized, state-owned banks recently controlled approximately 40 per cent of the deposits share and 40 per cent of the loans share. Having the market is currently in the level of monopolistic competition, the share of deposit and the share of loan slightly decline. This means partial privatization policy on state-owned banks influenced firms' conduct.

3. The firms' performance, specifically after all state-owned banks were partially privatized, was affected by partial privatization. The performance of state-owned banks in period 1 did not show any significant relationship between partial privatization and state-owned banks performance. In period 2, there was only a significant and positive relationship between partial privatization and state-owned
banks risk exposure. In period 3, overall there was a significant and positive relationship between partial privatization and state-owned banks. Hence, partial privatization affected state-owned banks' performance when all state-owned banks were already partially privatized. This means partial privatization policy on state-owned banks influenced firms' performance.

7.3 Implication

The results from partial privatization of state-owned banks affect both market structure and state-owned bank performance were confirmed the proposed structure-conduct-performance model applied in the Indonesian commercial banks. This findings are believed to have several implications for theory and policy. The following sections discuss each of the implications.

7.3.1 Implication for theory

Partial privatization is a method of financial liberalization. Partial privatization in Indonesian state-owned banks reflects the Government commitment in improving state-owned banks poor performance. Adopted from Margaret Thatcher's idea, partial privatization of state-owned banks aims to produce revenue for the state budget and encourages these banks to be more market-based banking. Historically, Indonesian state-owned banks aim as agent of development. Furthermore, these banks also became political objectives. They channelled subsidized loans to specific sectors of economy and the specific sectors which obtained subsidized loan in turn support politician through votes and other political contributions (Srinivas and Sitorus, 2003). As a result these banks performed inefficiency (Megginson et al. 1994; La Porta and Lopez-de-Silanes, 1999).
The proposed structure, conduct, performance model in Indonesian commercial banking market aims to understand the effect of partial privatization of state-owned banks on market structure, firms' conduct and firms' performance. According to structure, conduct, and performance theory, in a market with highly concentration encourage non-competitive behaviour among large firms. Large firms with more market power will dominate the market structure; thus have more opportunity to put up the price, with a loss of efficiency compared with a more competitive environment. Critics on this model especially on the assumption that all banks would react the same with the increase in market concentration, these banks will obtain the benefit equally despite their sizes. As a result, to confirm the proposed structure, conduct, and performance model in Indonesian commercial banking market, this study used Panzar and Rosse model to examine market structure and indirectly to firms' conduct. Furthermore, this study also employed the performance variables to measure firms' performance. The results from market structure analysis show that partial privatization of state-owned banks affect market structure and indirectly firms' conduct especially in Period 2 and in Period 3. This can be seen that the level of competition, although in the level of monopolistic competition, slightly increased from Period 1 to Period 3. This also indicates that partial privatization of state-owned banks influenced the commercial banks’ deposit submarket and loan submarket were no longer dominated by state-owned banks. The market become more competitive compared to when state-owned banks were fully government owned.

The performance of state-owned banks cannot be separated from the Government policy. Once the Government decided to partially privatize state-owned banks, the performance of these banks could change because of the policy. To evaluate firms’ performance, the study followed the work of Boubakrie et al (2005). The results from performance analysis indicate
that in Period 3, in the long run, partial privatization of state-owned banks improved profitability and efficiency. Hence, when all state-owned banks have been partially privatized, these banks may increase profitability and efficiency in the future.

The results on both partial privatization on market structure and partial privatization on state-owned banks performance show that partial privatization affected market structure by increasing the level of competition and partial privatization influenced performance: profitability, efficiency and risk exposure on the time all state-owned banks were partially privatized. This implies that, in the context of Indonesian commercial banks, the proposed structure-conduct-performance model is applicable.

7.3.2 Implication for policy

Partial privatization in state-owned banks was mostly existed in developing countries. Indonesia applies partial privatization in its own government enterprises. As mentioned in the chapter 3, Indonesian state-owned banks based on Indonesian's constitution 1945 (Undang-Undang Dasar 1945) article number 33 (pasal 33) state that: "Sector of production that are important for the country and effect the life of many people shall be controlled by the state" (sub-paragraph 2) and the "The land, the waters and the natural resources contained therein shall be controlled by the state and exploited for the benefit of people" (sub-paragraph 3). This article reflects the main basis of why full privatization is difficult to achieve, yet it also points to the potential pit falls of the state ownership.

Although, the results from partial privatization performance especially overall post partial privatization of state-owned banks has not shown a significant improvement either in profitability and efficiency, except to those merged banks, in long run it has significantly
proven to enhance profitability and efficiency. This implies that, partial privatization of state-owned banks contribute to the performance of state-owned banks.

Partial privatization of state-owned enterprises has been exercised since 1970s. The Indonesian Government owns numbers of enterprises, yet not all of them are partially privatized. From 189 state-owned enterprises, 50 per cent of them were revealed underperformed (Irianto, 2004). The Government has took several actions to improve the performance of underperformed enterprises such as partial privatization, mergers or consolidations, integration through joint venture, and management contract. In partially privatizing state-owned banks, the government showed its commitment in order to encourage commercial banks' nature of competition and creating state-owned banks more market-base banks. This method of partial privatization could also be applied in other state-owned enterprises in Indonesia. Hence, these enterprises might slowly reduce the country's fiscal burden by increasing their performance.

7.4 Limitations

There are several limitations of the current study that might be improved in the future research. Commercial banks included in the market structure analysis are limited to bank rating based on deposits and loans. Thus, these banks are mostly domestic commercial banks in the country, hence the results can only be applied to a banking market structure where domestic banks dominate the industry. The research results might not apply to countries which deposit submarket and loan submarket are dominated by foreign banks, since foreign banks may have their own nature and operations characteristic which affect the final results.
Additionally, the performance variables: return on equity, net interest margin, and credit risk mostly applied in cross countries, while this current study only apply in a given country. As a result the number of observations were relatively small. Studies use of these variables are more appropriate with large data samples since these variables are mostly dummy variables. Dummy variables better dispersed in a large data set. Performance variables may be also used in a country as a case study which has a huge number of state-owned banks.

7.5 **Direction for future research**

This study mainly focuses on examining the market structure, conduct, and performance in Indonesia commercial banking market in Indonesia, may be advanced. Since this study only looks at a single country when applying the model, a suggestion for the future research is comparing one country analysis with other country which also has historical institutional changes. Such study would do better to focus on certain industries rather than on state-owned banks in one country, since state-owned banks in another country may has unique characteristics. A comparative study between industries could then be investigated.
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# Appendix 1: Deposit share by Bank Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Deposits (in million rupiah)</th>
<th>SOBs</th>
<th>PNBs</th>
<th>Foreign joint venture</th>
<th>Regional development</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>81.6</td>
<td>49.7</td>
<td>40.5</td>
<td>6.6</td>
<td>3.1</td>
</tr>
<tr>
<td>1991</td>
<td>95.1</td>
<td>44</td>
<td>45.4</td>
<td>7.3</td>
<td>3.4</td>
</tr>
<tr>
<td>1992</td>
<td>111.4</td>
<td>47.2</td>
<td>42.8</td>
<td>6.7</td>
<td>3.3</td>
</tr>
<tr>
<td>1993</td>
<td>142.5</td>
<td>43.3</td>
<td>47.2</td>
<td>6.1</td>
<td>3.4</td>
</tr>
<tr>
<td>1994</td>
<td>170.4</td>
<td>37.7</td>
<td>52.2</td>
<td>6.5</td>
<td>3.6</td>
</tr>
<tr>
<td>1995</td>
<td>214.8</td>
<td>35.4</td>
<td>54.7</td>
<td>6.3</td>
<td>3.6</td>
</tr>
<tr>
<td>1996</td>
<td>281.7</td>
<td>32.1</td>
<td>58.6</td>
<td>6.3</td>
<td>3</td>
</tr>
<tr>
<td>1997</td>
<td>357.6</td>
<td>37.2</td>
<td>49.5</td>
<td>10.8</td>
<td>2.5</td>
</tr>
<tr>
<td>1998</td>
<td>573.5</td>
<td>47.3</td>
<td>41.1</td>
<td>9.7</td>
<td>1.9</td>
</tr>
<tr>
<td>1999</td>
<td>625.6</td>
<td>45.8</td>
<td>40.4</td>
<td>11.6</td>
<td>2.2</td>
</tr>
<tr>
<td>2000</td>
<td>720.4</td>
<td>45.6</td>
<td>38.7</td>
<td>12.9</td>
<td>2.8</td>
</tr>
<tr>
<td>2001</td>
<td>809.1</td>
<td>45.6</td>
<td>37.8</td>
<td>12</td>
<td>4.6</td>
</tr>
<tr>
<td>2002</td>
<td>845</td>
<td>44.6</td>
<td>40.1</td>
<td>9.9</td>
<td>5.4</td>
</tr>
<tr>
<td>2003</td>
<td>888.6</td>
<td>41.7</td>
<td>42.4</td>
<td>10</td>
<td>5.9</td>
</tr>
<tr>
<td>2004</td>
<td>963.106</td>
<td>39.01</td>
<td>43.89</td>
<td>10.7</td>
<td>6.18</td>
</tr>
<tr>
<td>2005</td>
<td>1,127.94</td>
<td>38.24</td>
<td>42.97</td>
<td>11.22</td>
<td>7.5</td>
</tr>
<tr>
<td>2006</td>
<td>1,287.10</td>
<td>37.32</td>
<td>42.7</td>
<td>9.94</td>
<td>10</td>
</tr>
<tr>
<td>2007</td>
<td>1,510.83</td>
<td>37.79</td>
<td>42.19</td>
<td>11.11</td>
<td>8.8</td>
</tr>
<tr>
<td>2008</td>
<td>1,753.29</td>
<td>38.2</td>
<td>41.8</td>
<td>11.6</td>
<td>8.17</td>
</tr>
<tr>
<td>2009</td>
<td>1,950.71</td>
<td>40.16</td>
<td>42.25</td>
<td>10.8</td>
<td>7.8</td>
</tr>
<tr>
<td>2010</td>
<td>2,338.82</td>
<td>38.4</td>
<td>44.2</td>
<td>9.4</td>
<td>7.9</td>
</tr>
<tr>
<td>2011</td>
<td>2,784.91</td>
<td>37.3</td>
<td>45.16</td>
<td>8.9</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Source: Indonesian Banking Statistics (various year)

Note: SOBs = State-Owned Banks
PNBs = Private National Banks
## Appendix 2: Loan share by Bank Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Loans (in million rupiah)</th>
<th>SOBs</th>
<th>PNBs</th>
<th>foreign joint venture</th>
<th>regional development</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>97</td>
<td>55.2</td>
<td>36.1</td>
<td>6.4</td>
<td>2.4</td>
</tr>
<tr>
<td>1991</td>
<td>112.8</td>
<td>53.1</td>
<td>37.1</td>
<td>7.5</td>
<td>2.3</td>
</tr>
<tr>
<td>1992</td>
<td>122.9</td>
<td>55.5</td>
<td>34.4</td>
<td>7.6</td>
<td>2.5</td>
</tr>
<tr>
<td>1993</td>
<td>150.3</td>
<td>47.6</td>
<td>40.2</td>
<td>9.8</td>
<td>2.4</td>
</tr>
<tr>
<td>1994</td>
<td>188.9</td>
<td>42.4</td>
<td>45.7</td>
<td>9.7</td>
<td>2.2</td>
</tr>
<tr>
<td>1995</td>
<td>234.6</td>
<td>39.8</td>
<td>47.6</td>
<td>10.3</td>
<td>2.2</td>
</tr>
<tr>
<td>1996</td>
<td>292.9</td>
<td>37.2</td>
<td>51.2</td>
<td>9.4</td>
<td>2.2</td>
</tr>
<tr>
<td>1997</td>
<td>378.1</td>
<td>40.5</td>
<td>44.6</td>
<td>12.9</td>
<td>2</td>
</tr>
<tr>
<td>1998</td>
<td>487.4</td>
<td>45.3</td>
<td>39.7</td>
<td>13.7</td>
<td>1.4</td>
</tr>
<tr>
<td>1999</td>
<td>225.1</td>
<td>49.9</td>
<td>24.9</td>
<td>22.2</td>
<td>3</td>
</tr>
<tr>
<td>2000</td>
<td>269</td>
<td>37.9</td>
<td>30.6</td>
<td>27.7</td>
<td>3.6</td>
</tr>
<tr>
<td>2001</td>
<td>307.6</td>
<td>38.1</td>
<td>33.1</td>
<td>23.8</td>
<td>5</td>
</tr>
<tr>
<td>2002</td>
<td>365.4</td>
<td>40</td>
<td>37.5</td>
<td>16.7</td>
<td>5.9</td>
</tr>
<tr>
<td>2003</td>
<td>440.5</td>
<td>39.5</td>
<td>40</td>
<td>13.8</td>
<td>6.7</td>
</tr>
<tr>
<td>2004</td>
<td>559.5</td>
<td>39.83</td>
<td>40.1</td>
<td>13.42</td>
<td>6.6</td>
</tr>
<tr>
<td>2005</td>
<td>695.65</td>
<td>36.86</td>
<td>42.07</td>
<td>14.36</td>
<td>6.46</td>
</tr>
<tr>
<td>2006</td>
<td>792.3</td>
<td>32.36</td>
<td>42.2</td>
<td>14.39</td>
<td>7.06</td>
</tr>
<tr>
<td>2007</td>
<td>1002</td>
<td>35.54</td>
<td>42.6</td>
<td>14.21</td>
<td>7.17</td>
</tr>
<tr>
<td>2008</td>
<td>1,307.69</td>
<td>36</td>
<td>42</td>
<td>14.4</td>
<td>7.4</td>
</tr>
<tr>
<td>2009</td>
<td>1,437.93</td>
<td>38</td>
<td>40.4</td>
<td>12.6</td>
<td>8.4</td>
</tr>
<tr>
<td>2010</td>
<td>1,710.68</td>
<td>37.5</td>
<td>41.3</td>
<td>12.4</td>
<td>8.5</td>
</tr>
<tr>
<td>2011</td>
<td>2,078.65</td>
<td>37</td>
<td>43.6</td>
<td>12.2</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Source: Indonesian Banking Statistics (various year)

Note: SOBs = State-Owned Banks
PNBs = Private National Banks
APPENDIX 3: HAUSMAN TEST RESULTS ON MARKET STRUCTURE

### Period 1

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lnafr</td>
<td>0.0883</td>
<td>0.1666</td>
<td>-0.7820</td>
<td>-0.0782</td>
</tr>
<tr>
<td>Lnppe</td>
<td>0.0341</td>
<td>0.1718</td>
<td>-0.1376</td>
<td>-0.1376</td>
</tr>
<tr>
<td>Lnpce</td>
<td>0.07922</td>
<td>-0.0145</td>
<td>0.0937</td>
<td>0.0937</td>
</tr>
<tr>
<td>Lnbsf</td>
<td>-0.00280</td>
<td>-0.0434</td>
<td>0.0406</td>
<td>0.0406</td>
</tr>
<tr>
<td>oir</td>
<td>-0.2548</td>
<td>-0.0111</td>
<td>-0.2436</td>
<td>-0.2436</td>
</tr>
</tbody>
</table>

\[
\text{ch}_2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 11.60
\]

\[
\text{Prob}>\text{ch}_2 = 0.0407
\]

Since the value of \(\text{Prob}>\text{ch}_2\) less than 0.05, fixed effect is used in the panel data analysis.

### Period 2

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lnafr</td>
<td>0.34859</td>
<td>0.321939</td>
<td>0.266598</td>
<td>0.335212</td>
</tr>
<tr>
<td>Lnppe</td>
<td>0.48132</td>
<td>0.415054</td>
<td>0.0662655</td>
<td>0.078442</td>
</tr>
<tr>
<td>Lnpce</td>
<td>0.02471</td>
<td>0.051750</td>
<td>-0.0270033</td>
<td>0.024970</td>
</tr>
<tr>
<td>Lnbsf</td>
<td>-0.18551</td>
<td>-0.090632</td>
<td>-0.0948809</td>
<td>0.066889</td>
</tr>
<tr>
<td>oir</td>
<td>-0.24320</td>
<td>-0.18515</td>
<td>-0.05805</td>
<td>0.075546</td>
</tr>
</tbody>
</table>

\[
\text{ch}_2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 10.58
\]

\[
\text{Prob}>\text{ch}_2 = 0.0604
\]

Since the value of \(\text{Prob}>\text{ch}_2\) above 0.05, random effect is used in the panel analysis.

### Period 3

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lnafr</td>
<td>0.29473</td>
<td>0.309964</td>
<td>-0.015229</td>
<td>0.018737</td>
</tr>
<tr>
<td>Lnppe</td>
<td>0.19947</td>
<td>0.247531</td>
<td>-0.048059</td>
<td>0.35034</td>
</tr>
<tr>
<td>Lnpce</td>
<td>0.03408</td>
<td>0.034805</td>
<td>0.000725</td>
<td>0.006144</td>
</tr>
<tr>
<td>Lnbsf</td>
<td>0.005531</td>
<td>0.015554</td>
<td>-0.010023</td>
<td>0.013289</td>
</tr>
<tr>
<td>oir</td>
<td>-0.62964</td>
<td>-0.63464</td>
<td>0.004997</td>
<td>0.122844</td>
</tr>
</tbody>
</table>

\[
\text{ch}_2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 4.58
\]

\[
\text{Prob}>\text{ch}_2 = 0.4686
\]

Since the value of \(\text{Prob}>\text{ch}_2\) above 0.05, random effect is used in the panel analysis.
APPENDIX 4: HAUSMAN TEST RESULTS ON SOBs PERFORMANCE

**Period 1**

**Profitability**

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>priv</td>
<td>0.02699</td>
<td>0.02988</td>
<td>-0.00289</td>
<td>0.07474</td>
</tr>
<tr>
<td>cv</td>
<td>-0.0851</td>
<td>-0.0900</td>
<td>0.00489</td>
<td>0.1004</td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B)
\]

\[
\text{Prob}>\text{chi2} = 0.9983
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

**Net interest margin**

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>priv</td>
<td>0.00331</td>
<td>0.0009797</td>
<td>0.00233</td>
<td>0.0025847</td>
</tr>
<tr>
<td>cv</td>
<td>-0.03997</td>
<td>-0.02128</td>
<td>-0.01868</td>
<td>0.011025</td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B)
\]

\[
\text{Prob}>\text{chi2} = 0.2371
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

**Credit risk**

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>priv</td>
<td>0.10339</td>
<td>0.08846</td>
<td>0.01493</td>
<td>0.04329</td>
</tr>
<tr>
<td>cv</td>
<td>0.09471</td>
<td>0.06767</td>
<td>0.0273</td>
<td>0.08526</td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B)
\]

\[
\text{Prob}>\text{chi2} = 0.85
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.
### Period 2

#### Profitability

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>merg</td>
<td>5.617</td>
<td>0.0288</td>
<td>5.589</td>
<td>5.939</td>
</tr>
<tr>
<td>priv</td>
<td>1.952</td>
<td>4.4340</td>
<td>-2.8418</td>
<td>4.259</td>
</tr>
<tr>
<td>tt</td>
<td>-0.613</td>
<td>-0.00461</td>
<td>-0.6090</td>
<td>0.8892</td>
</tr>
<tr>
<td>cv</td>
<td>0.167</td>
<td>-1.812</td>
<td>1.9799</td>
<td>2.3785</td>
</tr>
</tbody>
</table>

\[
\text{chi2(5)} = (b-B)'[(V_b-V_B)^(-1)](b-B) \\
\text{Prob}>\text{chi2} = 0.8682
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

#### Net interest margin

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>merg</td>
<td>0.02375</td>
<td>0.05486</td>
<td>-0.03111</td>
<td>0.074129</td>
</tr>
<tr>
<td>priv</td>
<td>0.00666</td>
<td>-0.01320</td>
<td>0.01986</td>
<td>0.036868</td>
</tr>
<tr>
<td>tt</td>
<td>0.0383</td>
<td>0.03104</td>
<td>0.00733</td>
<td>0.1400</td>
</tr>
<tr>
<td>cv</td>
<td>-0.08757</td>
<td>-0.0870</td>
<td>-0.00052</td>
<td>0.03601</td>
</tr>
</tbody>
</table>

\[
\text{chi2(5)} = (b-B)'[(V_b-V_B)^(-1)](b-B) \\
\text{Prob}>\text{chi2} = 0.9522
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

#### Credit risk

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>merg</td>
<td>0.072571</td>
<td>-0.05675</td>
<td>0.12932</td>
<td>0.14238</td>
</tr>
<tr>
<td>priv</td>
<td>0.132400</td>
<td>0.23615</td>
<td>-0.103775</td>
<td>0.096406</td>
</tr>
<tr>
<td>tt</td>
<td>-0.03363</td>
<td>-0.04716</td>
<td>0.013528</td>
<td>0.02109</td>
</tr>
<tr>
<td>cv</td>
<td>-0.2949</td>
<td>-0.1990995</td>
<td>-0.09586</td>
<td>0.065791</td>
</tr>
</tbody>
</table>

\[
\text{chi2(5)} = (b-B)'[(V_b-V_B)^(-1)](b-B) \\
\text{Prob}>\text{chi2} = 0.078
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.
Period 3

### Profitability

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priv</td>
<td>-0.10724</td>
<td>-0.053469</td>
<td>-0.053771</td>
<td>0.01264</td>
</tr>
<tr>
<td>tt</td>
<td>-0.01942</td>
<td>-0.014430</td>
<td>-0.004990</td>
<td>0.007068</td>
</tr>
<tr>
<td>cv</td>
<td>0.05899</td>
<td>0.07535</td>
<td>-0.01636</td>
<td>0.01606</td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 6.09
\]

\[
\text{Prob}>\text{chi2} = 0.1071
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

### net interest margin

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priv</td>
<td>0.005594</td>
<td>0.2376</td>
<td>-0.01816</td>
<td></td>
</tr>
<tr>
<td>Tt</td>
<td>-0.003125</td>
<td>-0.00329</td>
<td>0.000169</td>
<td>0.00125</td>
</tr>
<tr>
<td>cv</td>
<td>0.003364</td>
<td>0.01314</td>
<td>-0.00978</td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 40.05
\]

\[
\text{Prob}>\text{chi2} = 0.080
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.

### credit risk

<table>
<thead>
<tr>
<th></th>
<th>(b) fixed</th>
<th>(B) random</th>
<th>(b-B) difference</th>
<th>Sqrt (diag V_b-V_B) S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priv</td>
<td>0.11090</td>
<td>0.03228</td>
<td>0.07862</td>
<td></td>
</tr>
<tr>
<td>Tt</td>
<td>0.01029</td>
<td>-0.005686</td>
<td>0.01598</td>
<td>0.006277</td>
</tr>
<tr>
<td>cv</td>
<td>-0.00251</td>
<td>-0.00654</td>
<td>0.00403</td>
<td></td>
</tr>
</tbody>
</table>

\[
\text{chi2}(5) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 22.35
\]

\[
\text{Prob}>\text{chi2} = 0.06
\]

Since the value of Prob>chi2 above 0.05, random effect is used in the panel analysis.