

**MAASTRICHT  
SCHOOL OF MANAGEMENT**

Bank Recapitalization, Bank Performance  
and Real Sector Lending:

An Analysis of Indonesia's  
Economic Recovery from the  
Crises of 1997-1998

Batara Maju Simatupang

the globally networked management school







M<sub>S</sub>M

MAASTRICHT SCHOOL OF MANAGEMENT

**Bank Recapitalization, Bank Performance and  
Real Sector Lending:**  
*An Analysis of Indonesia's Economic Recovery from the Crises of 1997-1998*

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***“Knowledge is the acquiring of facts;  
understanding is the interpreting of facts; and  
wisdom is the application of facts.”***  
*Dr. Edwin Louis Cole (1922-2002).*

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## List of Abbreviations

1GMC.....	First Generation Models of Crisis
2GMC.....	Second Generation Models of Crisis
3GMC.....	Third Generation Models of Crisis
ADB.....	Asian Development Bank
ALMA.....	Assets Liabilities Management
AMC.....	Assets Management Company
API.....	Arsitektur Perbankan Indonesia (Indonesian Banking Architecture)
AU.....	Assets Utilization
BBO.....	Bank Beku Operasi (Frozen Bank)
BCP.....	Basle Core Principles
BI.....	Bank Indonesia (The Central Bank of Indonesia)
BIS.....	Bank for International Settlements
BLBI.....	Bantuan Likuiditas Bank Indonesia (Bank Indonesia Liquidity Support)
BOP.....	Balance of Payment
BPD.....	Bank Pembangunan Daerah (Regional Development Bank)
BRA.....	Bank Restructuring Agency
BSA.....	Bank Support Authority
BTO.....	Bank Taken Over
BUR.....	Bank under Restructuring
CAMEL.....	Capital, Assets, Management, Earning, and Liquidity
CAMELS.....	Capital, Assets, Management, Earning, Liquidity, and Sensitivity to the Market Risk
CAR.....	Capital Adequate Ratio
CIR.....	Cost Income Ratio
DSUs.....	Deficit Spending Units
FFIEC.....	Federal Financial Institute Examination Council
FIs.....	Financial Intermediaries
FSIs.....	Financial Soundness Indicators
GDP.....	Gross Domestic Product
GNP.....	Gross National Product
IBRA.....	Indonesian Banking Restructuring Agency
IDR.....	Indonesian Rupiah
IEO-IMF.....	Independent Evaluation Office IMF
IMF.....	International Monetary Fund
JSX.....	Jakarta Stock Exchange
KLBI.....	Kredit Likuiditas Bank Indonesia (Bank Indonesia Liquidity Credit)
LDR.....	Loan to Deposits Ratio
LLL.....	Legal Lending Limit
LOI.....	Letter of Intent
LOLR.....	Lender of the Last Resort
MFSS.....	Monetary and Financial Systems and Statistics Department
MOF.....	Minister of Finance
NII.....	Net Interest Income
NIM.....	Net Interest Margin
NPLs.....	Non-Performing Loans
NPM.....	Net Profit Margin

OLS .....	Ordinary Least Square
PLS.....	Pooled Least Squares
P-NPL .....	Provision to Non Performing Loans
RGDP .....	Regional Gross Domestic Product
ROA.....	Return on Assets
ROE.....	Return on Equity
SBA .....	Stand-by Arrangement
SBI.....	Sertifikat Bank Indonesia (Bank Indonesia Certificate)
SMEs.....	Small-Medium Enterprises
SSUs.....	Surplus Spending Units
UBPR .....	Uniform Bank Performance Report
WB .....	The World Bank

## Preface

The word *crisis* is one word that invokes fear and has varied and wide impact on human life and activities in the world. It does not matter where the individual human being resides on the surface of the globe. Crisis involves a threat that people face as individuals or collectively as a group or country. This research is a very hard job in its bearing on crisis, that is a currency crisis dovetailing into a financial crisis. Before the crisis in East Asia, the growth of the East Asian economies earned them the accolade of the “Asian Economic Miracle.” Suddenly, all that changed with a currency crisis that escalated into deep, financial crisis in 1997, called the “Asian Economic Crisis.”

The Asian crisis was so devastating that it was not purely a currency crisis, but rather a currency crisis inextricably mixed with banking and financial crisis (Krugman and Obstfeld 2003). Concerning the banking crisis in Indonesia, the government decided to carry out the banks’ restructuring program through national banks’ recapitalization by issuing recapitalization bonds to 36 banks. The banks’ recapitalization brought positive implications for many sectors of the economy, especially in its impact on the banking intermediation function such as reforming the real sector as an engine of growth.

Unfortunately, the program of recapitalization was accompanied by the problem that the banks could not directly run their function as intermediary institutions, especially in channeling credit to the real sector. The major research question of this study involved what the impact of the banks’ recapitalization program was on the real sector in enhancing Indonesian economic recovery from the 1997-1998 crises. There are two main issues in the research. They are banks’ performance and the effectiveness of the capital injected through banks’ recapitalization. This research is very important because no research has been conducted to test the effectiveness of capital injected on bank lending into the real sector. However, the cost of recapitalizing tired banks reached IDR430.43 or US\$82.32 billion (converted at the rate of IDR 8,000/US\$1). This has been a great fiscal cost to succeeding Indonesian governments. Therefore, this research is expected to examine whether banks’ performance after the injection of capital has influenced the banking capacity to lend to the real sector. In addition, this research is an attempt to answer the question of whether government policy has aligned itself or not with the banking recapitalization criteria that has been applied to the recapitalization program.





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## **Abstract**

This study examines the impact of banks' recapitalization on the performance of banks and on the effectiveness of real sector lending in Indonesia. The study was based on the recapitalization bonds issued by the Indonesian government as part of the program to restructure and revitalize the Indonesian-banking sector following the economic crisis that occurred in 1997-1998.

The genesis of the crisis that knocked Indonesia over was triggered by the contagion-effect. It started with the downfall of the Thai Bath on 2 July of 1997. The crisis in Indonesia could be placed in the third generation model of crisis which focuses on how the banking sector might cause a currency crisis. To stabilize the economy and recover the society's confidence, the government took actions to stabilize the banking system. The banking recapitalization and restructuring program was formalized under the Indonesian Banking Restructuring Agency. The bank recapitalization was by the injection of government bonds totaling up to IDR430.4 trillion to 36 banks. This was considered as "too big or too important to fail."

This study's findings (from the empirical analysis of the performance of all recapitalized banks after the capital injection in 1999 and 2000) showed that generally, the performance of banks has significantly improved. Starting from one year, through to five years post-recapitalization, the analysis indicated that the recapitalization had no impact in lowering the provision of non-performing loans, costs-income ratio, and growth of the loan to deposits ratio. This condition made the performance of banks seem to be better, but in fact, from the macro-economic point of view, the 'good performance' was an illusion. It caused the recapitalized banks to have as their dominant assets the recapitalization bonds and Bank Indonesia's Certificates.

The effectiveness of banks' recapitalization to real sector lending was proven to be diverse among the different groups of banks. The behavior of banks with respect to changes in economic fundamentals remained static, even with capital injection, except for the growth of loans in the regional banks. Based on the individual sectors, four sectors showed stagnant or negative growth. On the whole, the fiscal cost of the recapitalization program could not directly help in accelerating the economic recovery from the crisis, contrary to the Claessens, Klingebiel, and Laeven (2001) research findings that a package of specific resolution measures can help accelerate the recovery from such crisis with significant fiscal costs.

The implications from the point of view of both internal and external banking were found to be many and varied. Of course, as long as the recapitalization bonds gave higher gains than those from the other portfolio of the banks, the banks preferred to hold and maintain the bonds as a source of interest income that has no risks and which hides behind the argument of maintaining their capital adequate ratio (CAR). Again, the banks disintermediation reduced the effectiveness of monetary policies during the crisis and in the post crisis period in Indonesia.

We wish to recommend that the periphery of the real sector be expanded to make the banks the engines of growth. We strongly recommend that the central bank should institute sanctions against banks, which keep large amounts of undisbursed loans. Such banks should be encouraged in the first place to link these funds to the investment prospects in the economy in order to increase the role of the recapitalized banks in the economic recovery process. In order to encourage and accelerate the development of the various sectors such as agriculture sector, mining sector, electricity, water & gas sector, and trade, hotel & restaurant sector. We recommend that the government and the central bank should periodically announce the regulations and lending targets for the different sectors.

# 1 Introduction

## 1.1 Background to the Research

In 1999, the Indonesian government decided to carry out the banks' restructuring program through national banks' recapitalization by issuing recapitalization bonds for 36 banks. The total value of recapitalization bonds was around IDR430.43 trillion or US\$53.8 billion (IBRA, 2000). That amounted to 65.35% of the total of Indonesia's fiscal cost of the banking crisis restructuring that eventually reached IDR658.59 trillion or US\$82.32 billions equivalent of 51.03% Gross Domestic Product (GDP) in 2000. This banks' recapitalization program is part of the program to restructure and revitalize the Indonesian-banking sector following the financial crisis that started in 1997-1998.

The Indonesia financial crisis is part of the East Asia crises in the late 1990s which was a very dramatic crisis. Before the crisis, the World Bank in 1993 in their policy research report had referred to the growth of the East Asian economies as the "Asian Economic Miracle." But, suddenly, there occurred a currency crisis that escalated into a deep, financial crisis in 1997. This became known as the "Asian Economic Crisis."

The problems in the banking sector are typically preceded by a currency crisis, as in the case of the Asian currency turmoil (Kaminsky & Reinhart, 1999). While the currency crisis deepens the banking crisis thereby activating a vicious spiral, financial liberalization often precedes a banking crisis. Irvin and Vines (1999) specifically stated that the Asian financial crisis is a multiple-equilibrium model and to understand whatever happened to Asia, a new "generation third" model is needed which puts the crisis in the financial system at centre-stage. This is designed to combine insights from Krugman (1988), Dooley (1999a, 1999b) and Sachs (1995, 1996). Sander & Kleimeier (2000, 3) have three suggestions for the third-generation model of crisis (3GMC). These are moral hazards<sup>1</sup> in lending through implicit government guarantees, a currency crisis as the other side of the coin of a banking crisis, and a meltdown in the real economy. The 3GMC is influenced also by existence of the transfer problem and the balance sheet issue shares in equipping the currency and debt crises, which knocked over Asia (Krugman 1999 and Sander 1988).

In fact, the crisis that knocked over Indonesia was a good example of a 3GMC. Precisely, it was a banking crisis, which was occasioned by a currency crisis. The seemingly central policy of banks, which had a moral hazard effect by the implicit guarantee from central bank as the lender of last resort (LOLR), had been exploited by banks to shift their risk to the central bank. This was occasion by poor banking protection, inadequate regulation, and ineffective supervision on the part of the central

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<sup>1</sup> Moral hazard is closely associated with the concept of adverse selection, where it arises after the transaction occurs. The lender runs the risk that the borrower will engage in activities that are undesirable from the lender's point of view because it become less likely that the loan will be paid back (Mishkin 2006, 174). Adverse selection means asymmetric information problem that occurs before the borrowing transaction occurs. For detailed description of where the moral hazard occurs in relation to the financial fragility, please see Silva, Louis, and Masaru: "Can Moral Hazard Explain the Asian Crises?" *ADB Institute*, Tokyo.2001.

bank. This situation in turn pushed the banks to take on large debts and give loans to the various sectors, which were highly risky<sup>2</sup>. On the other hand, there were transfers and balance sheet problems. The behavior of large capital inflows accompanied by rapid capital outflows caused the crisis in the capital account<sup>3</sup>. The dangerous effect of capital outflows, largely uncontrolled lending (financial bubbles) and the capital account crisis was the currency mismatch (un-hedged foreign currency denominated debt). This precipitated the debt crises (i.e. credit fell dramatically)<sup>4</sup>. The banking crisis had a direct correlation with the monetary conditions and fiscal policies at the time. Banks' recapitalization was one of the actions government took to enhance economic recovery from the crises.

Whenever countries simply allowed their currencies to drop, rising import prices would threaten to produce dangerous inflation<sup>5</sup>, and the sudden increase in the domestic currency value of debts might push the many potentially viable banks and companies into bankruptcy (Krugman and Obstfeld 2003, 691). The main causes of this bankruptcy were liquidity and insolvency due to credit failure, fraud, and liquidity mismatches (Sabirin 2001, 3). While the stagflation and instability were taking place in the Indonesian economy, especially in the period of 1998/99, the non-performing loans (NPLs) reached 58.7% from 19.8% in 1997/98 and 9.3% in 1996/97 (Bank of Indonesia, Annual Report 1998/97, 99).

McLeod (1999, 209-240) explained that the crisis reflected the failure in observing several principles such as higher capital inflows (in response to attractive domestic investment opportunities), which caused the depreciation of the exchange value, despite the government's concentration on efforts to overcome the impact of negative exports and market intervention. Kaminsky and Reinhart (1999, 491) found that banking and currency crises are closely linked in the aftermath of financial liberalization, with banking crisis, in general, beginning before the currency collapse. Nevertheless, the way was open also for the possibility of the currency crisis being a by-product of the impact of government budget deficits (Krugman 1997). Rose (2003, 544) wrote that "when government deficits are large, substantial amounts of new debt securities have to be issued" and "the impact of these massive borrowings on the money and capital markets and the economy depends, in part, on the source of borrowed funds."

As one of the strategic actions taken by the Indonesian government in enhancing economic recovery from the crises, the Indonesian Bank Restructuring Agency (IBRA) was established on January 27, 1998. The government formed the IBRA to stabilize the national banking system. Undeniably, with 16 banks closed, this would bring systematic risk directly to Indonesia banking system. Specifically, it was expected to trigger the contraction effect in the short term, which in turn would cause the happening of fund-migration of closed bank customers to other banks, or even out

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<sup>2</sup> See Sabirin (2001, 3). He is a Former Governor of Bank Indonesia during 1998-2003.

<sup>3</sup> See, Hadori & Rekan (2003, 36).

<sup>4</sup> See, Schneider and Tornell (2001, 883).

<sup>5</sup> Inflation in Indonesia tipped its top in the year 1998 and reached 60.7%. This inflation, more precisely told, was the effect of cost push-inflation, and was especially pushed by foreign exchange rates which were rocketing up. Tarmidi (1998, 17) called this 'foreign exchange induced inflation'.

of the country. Although short term, if fund-migration happened on a large scale, it could be ascertained that it would depress the national payment systems, that is, in the form of capital outflows. In the end, the trust the society has in the Indonesian banking system would diminish progressively.

Thus, the policy of banks' recapitalization brought positive implications for many sectors, especially its impact on the banking intermediation function such as reforming the real sector as an engine of growth. However, arising out of the program of recapitalization was the problem that the banks could not directly run their function as intermediary institutions, especially in channeling credit to the real sector. In addition, basically, the banks would remain to face the internal issues of selling recapitalization bonds and extend giving of credit to the real sector after the recapitalization program. The condition of the banks depended then on how big or small their Capital Adequacy Ratios (CAR) was, whether they could give credit or not, as well as how high the rate of interest acceptable to the real sector was.

After the government released the fiscal cost of the banking crisis restructuring, in reality, the speed at which the recovery of Indonesia economy took place was very tardy. That was not all. The level of cost of restructuring tired banks was 50% of GDP in 1999 to 75% of the portfolio of Banking non-performing loans (NPLs). Compared to other countries like Korea, the cost reached 60% of GDP to 50% portfolio of banking NPLs, Malaysia had 45% of GDP to 45% portfolio of banking NPLs, and Thailand was 45% of GDP to 53% portfolio of banking NPLs (Hill 1999, 24). By 2005 the cost of restructuring tired banks in Indonesia had reduced to 10.53% of GDP (see Appendix 3), and that of NPLs had reduced to 19.26% of GDP.

What we learn from the above explanation (and which had been stated earlier) is that the cost of recapitalizing tired banks reached IDR430.43 trillion (US\$53.8 billion). The expense of recapitalization equal to the figure above was an expense directly borne by the government from the budget. Since the government did not have the fiscal cash to support directly the expenses, the government decided to issue a governmental obligation with the aim of recapitalizing some banks as part of the restructuring program in order to bail them out from the effects of the economic crises of 1997-1998.

## **1.2 Problem Statement**

Interventions in banking operations are often an integral element of government's program for addressing a systemic banking crisis (Enoch 2000, 1). From the advent of the Indonesian crisis, since November 1, 1997, the government has conducted interventions in the form of closing some banks, takeovers, mega-mergers of some state-owned banks, liquidations, and finally issuing the banks' recapitalization program that started on March 13, 1999.

The main goal of the banks' recapitalization program was to strengthen and improve the capital of bank, so that they could run their functions better and play their role as the engines of economic growth. With the improvement of their capitals, it is expected

that the banks could become facilitators of an efficient national payment system; could support the growth of the real sector which in turn could push the growth of the economy (Suta & Musa 2003, 75; Enoch, Garcia and Sundarajan 2001, 58).

The banks' recapitalization program was based on the results of the due diligence undertaken by the Government and which categorized banks into three groups according to their Capital Adequacy Ratio (CAR). On 13 March 1999, the Indonesian government announced the results of due diligence as follows: 119 solvent "A" banks with CARs of 4% or above and could continue their intermediation function without government support but they had to prepare business plans in order to improve their performance; 24 insolvent "B" banks with CARs between 4% and -25%; and 51 highly insolvent "C" banks with CARs of less than -25%. The B and C banks were required to prepare and submit business plans to Bank Indonesia as part of the joint recapitalization programme that was determined by a Committee made up of Bank of Indonesia, IBRA, and the Ministry of Finance (MOF).

Unfortunately, the performance of the Indonesian banking system was poor with many having their CARs to be negative. In 1998 and 1999, this was equal to -15.7% and -8.12% respectively. If in the banking system a bank shows a negative CAR, it means that it cannot give credit to any third party. Rather, it must concentrate more on how to maintain its liquidity. Therefore, banks that have been recapitalized by government, from our preliminary investigations, cannot directly conduct their functions as full intermediary institutions; they could only be allowed to function as outlets for payments of transactions and as depositories. The problems with the banking recapitalization program (which was embarked upon to help the real sector enhance the Indonesian economic recovery from the crisis) were that:

1. Banks recapitalized by the government, from our preliminary investigations, had not yet reached their peak performance as before the crises; and
2. The low level of loan to deposits ratio (LDR), as reflected by the banking system, which from our preliminary investigations, had still not fully recovered its function, made it impossible to release financing to the real sector after the government undertook the banks' recapitalization program in 1999 and 2000. Post-crisis (September 1997) growth of loans by LDR (Loan to Deposits Ratio) drastically declined from **83.20%** in 1997/1998 to **36.0%** in 1999. The LDR grew very slowly from 1999, i.e. 37.3% in 2000, 38.0% in 2001, 43.2% in 2002, and 48.5% in 2003 (Various BI Annual Reports). The Banks were recapitalized in 4 phases, i.e. 7 Private Banks on April 21, 1999; 12 Regional Development Banks on May 28, 1999; 4 State-Owned Banks from March – July 2000; and 13 Banks Taken Over (BTOs) from March – June 2000.

Another problem is how to assess the effectiveness of the bank restructuring program, and especially, to evaluate the banks' recapitalization program to determine the extent to which it has improved banks performance and whether truly the Indonesian economic recovery was enhanced by the contributions of real sector lending.



### 1.3 Research Questions

The major research question is “What was the impact of the banks’ recapitalization on banks’ performance and real sector lending in enhancing Indonesia’s economic recovery from the 1997-1998 crises?”

The minor research questions consist of the following:

1. What was the impact of the recapitalization program on banks’ performance for those group of banks, which received recapitalization bonds?
2. How effective was the capital given to the different bank groups that were recapitalized?
3. What was the relationship between performance of banks’ and real sector lending after recapitalization?

### 1.4 Research Objectives

The study will use the facts relating to the banks recapitalization to study its impact on the banks performance and real sector lending in the context of the Indonesian economic recovery from the crisis of 1997-1998. The researcher aims at doing an empirical study to investigate what contribution of banks’ recapitalization to the Indonesian economic recovery and to test whether it can be considered to have been successful or not.

The quantitative empirical study is aimed at looking for what factors affected the efficacy or failure of the banks’ recapitalization program. Data from the research would be used to assess the impact of the recapitalization program. The quantitatively derived results would be analyzed to give meaning to the various effects of the banks’ recapitalization on bank performance and lending to the real sector and the economy as a whole.

### 1.5 Significance of the Study

There have been many previous studies conducted on the character of macro-level examination pursuant to inter-states data. Enoch, Garcia, and Sundarajan (2001) in their study of “Recapitalizing Banks with Public Funds” focused specially on *‘operational and technical issues that relate to two items: the granting of assistance through capital injections and asset rehabilitation to facilitate the continued operation of banks that are to be kept open’*. Michael Andrews (2003) indicated that *‘banks with insufficient interest income, or risk exposure imbedded in their holdings of recapitalization bonds, are likely to suffer losses leading to the need for subsequent intervention and a renewed attempt at restructuring.’*

Another study regarding banks recapitalization conducted by Diamond (2001) focused on *‘the future effects of bank recapitalization on banks and their existing borrowers’*. In Japan, Montgomery and Shimizutani (2005) conducted a study on the effectiveness of bank recapitalization policies, using PLS (Pooled Least Squares) on a panel of international and domestic banks. They concluded that *‘the capital injections do not*

*appear to affect lending to SMEs for either bank types, but for international banks, the receipt of injected capital seems to relax the constraint that capitalization makes on overall loan growth.'*

The current study argues that these previous studies focused on other problems associated with banks recapitalization, but the impact of the program on banks performance in relation to real sector lending has not yet been examine directly. This means that the various policy recommendations cannot touch directly the important aspects of individual states in the region and their entire local payload problems.

Based on the focus of the earlier studies as outlined above, this study is important for several reasons. First, for understanding the relationship between the injected capitals (aimed at improving the CARs of the recipient banks) as models of the banks' recapitalization and banks' performance. Secondly, the study will examine the effectiveness of banks' recapitalization policies in Indonesia. Thirdly, the study is aimed at understanding the contribution of the banks' recapitalization to achieving economic recovery, specifically, in the real sector lending of the Indonesian economy.

## **1.6 Methodology**

In the light of our research objectives, this study has two-perspective focuses, which are *banks performance* and *real sector lending*. CAMELS<sup>6</sup> indicators will be use as a measurement of the banks' performance for all banks that received the injected recapitalization bonds. The method of data analysis will be the Wilcolxon Signed Ranks Test and Manova Test. These will be used to examine the hypotheses of banks' performance before and after receiving the capital injection through the banks' recapitalization. The Manova test will be used to assess the overall difference in performance of banks before and after capital injected.

Panel regression analysis will be used to examine the effectiveness of the impact of banks recapitalization to the real sector lending. The data sources of this examination are Bank Balance Sheets and Income Statements and lending sector for Fiscal Years 1995S2–2005S2.

## **1.7 Delimitations and Limitations of the Study**

There are two main delimitations of this research study:

1. The envisaged research requires data for a period of four years before the crisis and seven years after the crisis, precisely from 1995-2005. This period is recognized as being relevant for data collection, though the source data will be limited to the 36 banks that received recapitalization bonds. Banking liberalization in Indonesia started since 1 January 1983 (Simatupang 2004, 4) but

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<sup>6</sup> CAMELS stand for capital, assets quality, management, earnings, liquidity, and sensitivity to the market risk.

because of the dearth of data, the researcher decided that the study be conducted using the available data. The researcher discovered that data is available from 1995 until 2005 on the bases of semester reports from each bank.

2. The independent variable was assumed as the object of government policy to be empirically tested for its efficacy level.

On the other hand, the limitations of the study stem from the fact that the operating periods of the recapitalization bonds were not uniform. The time of execution of the banks recapitalization program was divided into four phases or rounds with differences in the time for each group of banks to receive the injected bonds. The other limitation is that a few years into the recapitalization program, precisely on 30 June 2000, the Government (Bank of Indonesia, Annual Report 2000, 114) either merged nine banks taken over (BTO) to Bank Danamon. So that, finally, not all the 36 banks participated in the recapitalization process and completed it. In this research, therefore, only the post-merger recapitalized banks would be considered. In the end, 23 banks would be included in the analysis of the recapitalization program.

## **1.8 Organization of Study**

The organization of study follows the flow of the research activities as shown in Figure 1.1. The research report includes the process of data collection, measurement of the variables, data analysis, findings and conclusions, and summary of the conclusions.

Related to the research activities, the report of this study is organized in six chapters. The focus of chapter 1 is on introduction while that of chapter 2 is on literature review. Chapter 3 discusses the Indonesian banking crisis and recapitalization, whereas chapter 4 contains the conceptual framework and research methodology. Chapter 5 gives the summary of the research findings. The report ends with chapter 6 which covers the conclusions, recommendations and suggestions for further research. The details of each chapter are given below.

Chapter 1 consists of eight preliminary sections. In the first section, the background to the research is given briefly but concisely. From the background, the report builds up the problem statement and research questions and highlights the research objectives. The significance of the study is then outlined after which the research methodologies that are applied in the research are defined. Another crucial part of the report relates to the definition of the boundaries of the study. These are given in the delimitation and limitations sections of the study report. In addition, the chapter terminates with a brief outline of the organization of the study.

The focus of chapter 2 is on literature review. The chapter consists of five sections. The first section concerns issues like the genesis of the financial crisis that culminated in the Indonesian banking crisis. The chapter starts with the theoretical model of the crisis, the crisis transmission mechanisms, the twin crises and other banking matters.

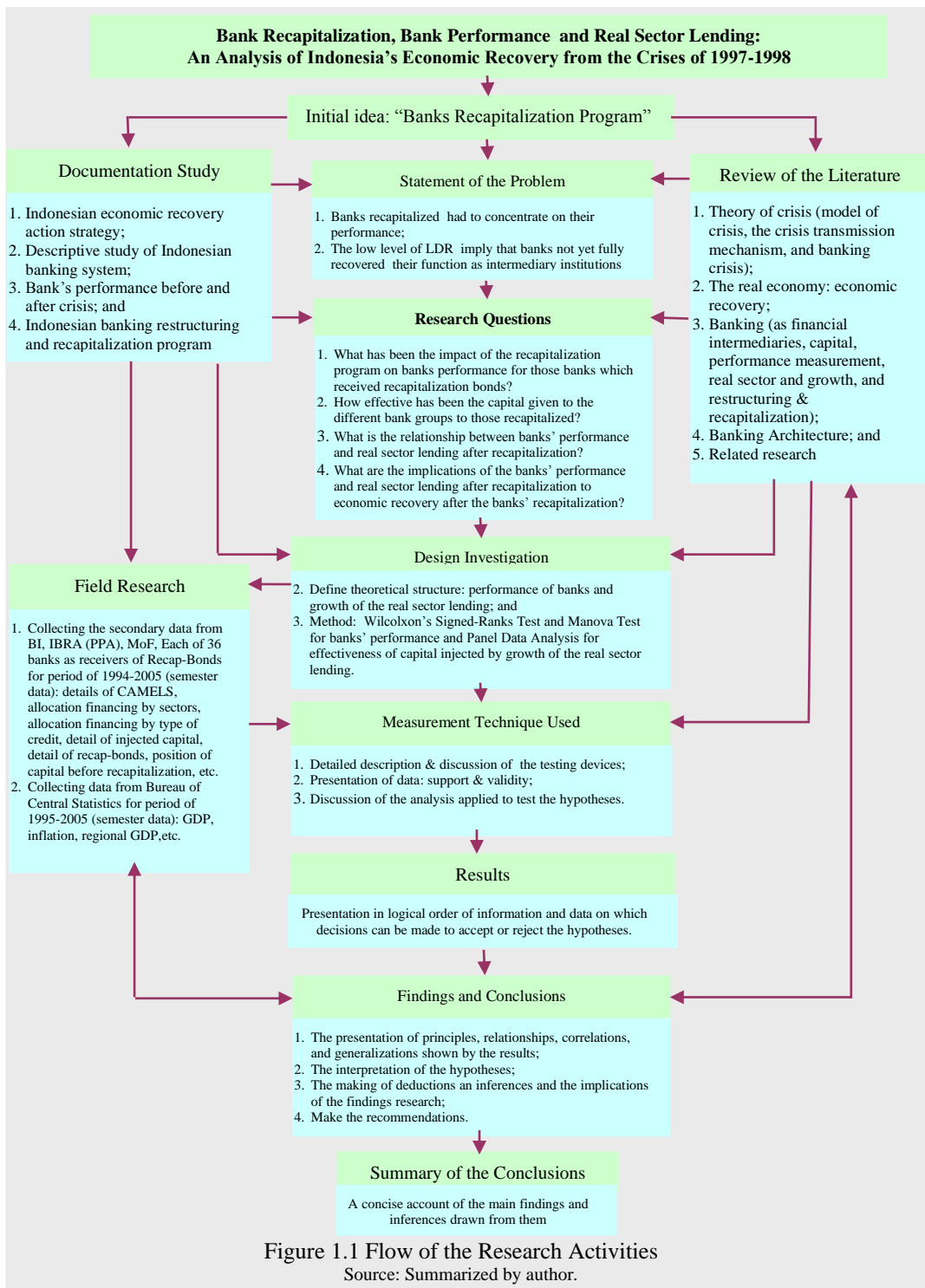


Figure 1.1 Flow of the Research Activities

Source: Summarized by author.

The second section discusses Indonesian banking and the real economy while the third section discusses the banking and the real economy vis-à-vis banking performance measurements. The next section highlights bank recapitalization with respect to timing and the possibility of using bank recapitalization to improve bank performance. The fifth section ends the chapter with a general summary.

Chapter 3 pays attention to the Indonesian banking crisis and the recapitalization program. The issues covered include the macro-economic background of the Indonesian economy and the genesis of the crisis, and the Indonesian banking evolution and bank restructuring. This discussion is important to engender an understanding of the correct approach to the implementation of the recapitalization policy by the government. This chapter needs to be extended in future to cover bank performance subject to the effect of other variables not included in this research. The chapter closes with a brief general summary.

Chapter 4 focuses on the conceptual framework and research methodology. The details of the conceptual framework and design of the research are sharply defined. Furthermore, strategies for data collection and analysis are outlined, as well as the details of the methodology and the building and testing of the research hypotheses. This chapter also closes with a brief summary.

Chapter 5 gives an account of the research findings. The chapter is divided into three main sections. Firstly, the research findings based on the analysis of the Indonesian banking crisis and the recapitalization and linked to the literature review. Secondly, the research findings based on the banks' performances before and after the recapitalization, and thirdly, the effectiveness of bank recapitalization program on real sector lending. In addition, the chapter closes with the research findings on the effectiveness of the recapitalization program on Indonesian economic recovery process as a whole.

Chapter 6 is the final chapter of the research report. This chapter contains the conclusions, recommendations, and suggestions for further research.



## 2. Review of Literature

In this chapter, we review the relevant literature to explain systematically what the crisis was. We will evaluate the kind of impact the crisis had on the real economy and explain what role banking played in the crisis, define the concept of banking architecture and the nature of the Indonesian banking architecture after the crisis.

The Oxford Dictionary for Business World (1993, 193) has divided articulation of crisis into two terms. They are the ‘time of danger or great difficulty’ and ‘decisive moment turning point’. In Marxian economics, “crisis” is a phase of trade cycle, which is the upper turning when an economy turns down from a boom to a recession (see Dictionary of Economics 1992, 103). To soften the word “crisis” or “panic,” President Herbert Hoover of the USA, around the year 1930, used term *depression*, interpreted as an “endless period with very high unemployment levels during which companies operate under their capacities.” However, because the term ‘depression’ gave ugly connotations, it has now been replaced by the term ‘recession’. This time, recession is defined as the degradation of GNP within at least two quarters of a year (see Samuelson & Nordhaus 1985).

Generally, crisis in economic terms is very often hands in glove in its bearing with a banking crisis. To comprehend furthermore how this matter took place, we will theoretically look at the crisis model and crisis mechanism of what happened, its bearings with the real economy, and its impact as it is hand in gloves with the banking world. Theoretically, the structural problems of a banking system are determined by how its banking architecture is managed by the central bank.

### 2.1 Financial Crisis to Banking Crisis

In the 1970s, there were seven countries, which adopted financial liberalization. These were Chile, Mexico, and Spain in 1974, Brazil in 1975, Uruguay in 1976, Argentina in 1977, and Malaysia in 1978 (Kaminsky & Reinhart 1999, 478). Indonesia started to liberate her financial system in 1983. From the empirical data presented by Kaminsky and Reinhart, the banking crises that occurred were accompanied by balance of payments crises in 20 countries, which had liberalized their financial systems. In fact, financial liberalization often precedes the financial crisis that leads to the banking crisis or vice versa. This is often seen as the “twin crises.”

Financial crisis is defined as a collapse in the price of financial obligations, which may lead to a collapse in the economy (Oxford Dictionary of Finance & Banking 2005, 153). To comprehend further about the occurrence of the financial crisis and its bearing with other economic crises, a discussion of the type of crisis, the crisis transmission mechanism, and the ‘twin crisis’ of banking, is an important perspective.

### 2.1.1 Theoretical Model of Crisis

In economic history worldwide, there exists literature on models of some of the worst crises that have occurred. The crises occurred in certain countries, in different economic regions, in a particular sequence within an economic region or occurred at the same time. Even from recent literature, we find that a crisis that happened in one region can generate another crisis for other countries in different economic regions<sup>7</sup>.

There are three formal models of crisis. They are the first generation model of crisis, second-generation model of crisis, and third generation model of crisis. Each model of crisis has separate characteristics, but each model relates with one model or with the other model. Understanding the crisis models will very much assist in understanding how related the chain of economic crisis, financial crisis, banking crisis and the other forms of economic crisis which almost knocked over the entire hemisphere were.

#### 2.1.1.1 First Generation Models of Crisis

The first generation model of the crisis (1GMC) was for the first time demonstrated by Krugman (1977) based on the canonical crisis model derived from the work done by Salant (1970), which was concerned with the pitfalls of schemes to stabilize commodity prices. Later, Flood and Garber (1984a) elucidated the models. Krugman's model was on balance-of-payments crisis. He argued that in recent crises the continuous deterioration in the economic fundamentals becomes inconsistent with the attempts to fix the exchange rate. According to Krugman, and Flood & Garber, intrinsically this crisis is the product of budget deficits. In Krugman's model, the source of the problems is the excessive creation of domestic credit to finance fiscal deficits, which the authorities cannot support and finally results in a weak banking system.

Where the government has been unable to sustain its expenditure (fiscal expenditure), the matter is made worse again with the existence of excessively expansionary fiscal policy which is financed by issuing domestic credit (Eichengreen, Rose, and Wyplosz 1994, 6). Thereby government is forced to use the foreign exchange reserves it owns. The effect is the dwindling of its assets of domestic currency seriously and a fall in foreign exchange reserves becomes critical. By cleaning the foreign reserves, there will be no other way out of the situation than to let the exchange rates float. This situation, which is aggravated by the existence of currency attack, mostly affects the investor who then makes efforts to obviate larger losses.

Based on the Krugman model, Flood and Garber (1984a) elaborated the uncertainty about the rate of domestic credit creation. Unfortunately, in their discrete-time formulation, they did not anticipate the impact of increase in domestic credit. This is one of the issues that cause the shadow exchange rate to exceed the pegged data temporarily (see Eichengreen, Rose, and Wyplosz 1994, 8). 1GMC predicts

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<sup>7</sup> See van Rijckeghem and Weder (1999) in Sander & Kleimeier (2000, 2). Here, they give an account of Mexican Crisis, Asian Crisis, and Russian Crisis that were affecting in the crisis period across on the economic region.



expansionary fiscal policies and/or rapid growth of money and credit, increasingly overvalued exchange rates, and steady drain of reserves (ibid, 10). Nevertheless, 1GMC does not predict any particular shift in the stance of monetary and fiscal policy following the attack.

The effect of all these is that currency speculators come attacking. The recent crisis of currency in Indonesia came from speculating attacks and at the same time, the budget deficits resulting from balance-of-payment problems. These conditions imply that 1GMC have heavy implications for the behavior of macroeconomic and financial variables. In addition, the 1GMC account for the institutional framework of government that has pursued inconsistent policies. However, the government gets trapped and unavoidably has to pay for the price or outcome of inconsistent policies.

### 2.1.1.2 Second Generation Models of Crisis

The second-generation model of the crisis (2GMC) was first formulated by Flood & Garber (1984b) and later by Obstfeld (1986). In the 2GMC, the crisis is thought to come from the possibility of self-fulfilling speculative attacks. This model is built on two assumptions. These are: (1) that the government is an active agent that maximizes an objective function, and (2) that a circular process exists, leading to multiple equilibrium (Krugman 1997). Both assumptions show the existence of interaction between government behaviors with private sector behaviors.

There are new aspect which features of this model, that are there equilibria multiple, they have differentiate between each equilibria occur. Here, the economy can jump out from the one equilibrium to the new equilibrium, likes from *no attack equilibrium* to the *attack equilibrium* witch triggered by a sudden and unpredictable shift in market expectation. Logically, it can be said that the impact which emerge effect from jumping movement of equilibrium that will relative, depend on big or small changes that happened.

In 2GMC, the economic fundamentals play a key role in determining when crisis may occur (Esquivel & Larraín B. 1998, 5) and focusing on a self-fulfilling crisis mechanism (Sander & Kleimeier 2000, 2). The sources of the problem come from the result of conflict between a fixed exchange rate and the desire to pursue a more expansionary monetary policy. The other problem is the possibility that there will be a sudden attack by speculators.

When an attack is big, it generates larger ones or convulsions. This matter, of course, will trigger government to alter the policy on exchange rates. Krugman (1999, 2) elaborated that when investors begin to suspect that the government will choose to let the parity go, the resulting pressure on interest rates can itself push the government over the edge. Although government can specify the policy on exchange rates and self-fulfilling mechanism able to validate public expectations, it is important to note that resistance to speculation will generate a big expense for the government.

In contrast, it is suggested that rational self-fulfilling attacks should be followed by shift in monetary and fiscal policies in a more expansionary direction (Eichengreen, Rose, and Wyplosz 1994, 11). The main message of the 2GMC is that crises can be the unpredictable outcome of a change in market expectations. Thus, these self-validating crises can occur despite sound macroeconomic fundamentals<sup>8</sup>, that timing is arbitrary, and that there are possibilities for multiple equilibria (Sander & Kleimeier 2000, 2).

### 2.1.1.3 Third Generation Model of Crisis

Irwin & Vines (1999, 1) mentioned that, to understand whatever happened to Asia, a new “third generation” model of the crisis is needed, which puts the crisis in the financial system at centre-stage. In reality, theoretically, the 1GMC and 2GMC do not yet explain how the crisis happened in East Asia, particularly, in Indonesia and Korea, which were involved in the crises but had no serious fiscal deficits and possessed quite well fundamental conditions<sup>9</sup>. To be able to explain the East Asian crisis, requires that some models be joined together to become one, the so-called third generation model of the crisis (3GMC). The 3GMC was designed to combine insights from Krugman (1998), Dooley (1999a, 1999b), and Sachs (1995, 1996) by Irwin & Vines (1999).

The most important finding from the crisis in East Asia was the happening of the twin problems of the occurrence of a currency crisis in big percentages of devaluation that progressively deepened the banking crisis<sup>10</sup>. Thus, for this reason, most problems of the 3GMC focus on how the banking sector might cause a currency crisis. As Krugman (1998, 3) pointed out, the problem began with the financial intermediaries, namely, the institutions whose liabilities were perceived as having an implicit government guarantee, but were essentially unregulated and therefore subject to severe moral hazard problems. Further, how does a currency crisis cause the large banks to fail as consequence of alliance of large foreign currency<sup>11</sup>?

In response to the various problems that have been highlighted above, Irwin & Vines (1999) united the opinions of Krugman, Dooley, and Sachs into a model, which they named as the multiple-equilibrium model of the Asian financial crisis. They elaborated that the economics of Krugman-style of over-investment were caused by ugly and weak financial regulations by government guarantees. On the other hand, the version of Dooley implied that the government has a limited willingness to pay up on its guarantees if things go bad and so the guarantees may lack credibility. Models have long-run balance with excess of investments. However, in the short-run, where the capital stock is fixed, it also will have multiple equilibria. If lenders assume that a loan has low risks, they will allow it to continue. Nevertheless, if they expect that the high

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<sup>8</sup> Esquivel & Larraín B. (1998, 5) also suggested that crises are not affected by the position of the fundamentals, instead they may simply occur as a consequence of pure speculation against the currency.

<sup>9</sup> See IEO-IMF (2003, 11-12) on their Evaluation Report on The IMF and Recent Capital Account Crises: Indonesia, Korea, Brazil.

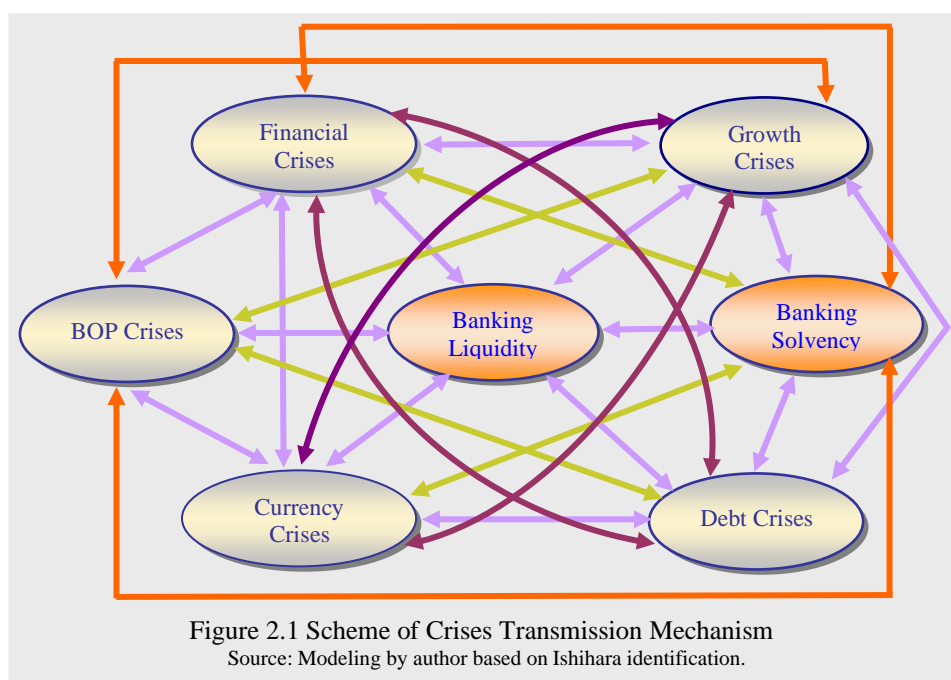
<sup>10</sup> Kaminsky & Reinhart (1999) traced that crises occur as the economy enter a recession, following a prolonged boom in economic activity that was fuelled by credit, capital inflows, and accompanied by an overvalued currency.

<sup>11</sup> Flood & Marion (2000, 24) conclude that bank and currency collapses are related but they are not the same thing.

risk lending and expenses for guarantees will rise, they will make lending high-risk and the risk premium self-justifying. This has been argued by Irvin & Vines in their use of the model to study panic and collapse, as popularized by Sachs in discussions of the Asian crisis. In addition, the 3GMC based on balanced analysis was developed to understand how capital account movements drive currency, and financial crisis<sup>12</sup>, to cause banking crisis and visa versa.

### 2.1.2 The Crisis Transmission Mechanism

In theory, Ishihara (2005, 16) has identified that there are 42 relationships between seven different types of crises if the directional causalities are taken into account. All of these relationships between crisis types are described as the crises transmission mechanism. This is shown in Figure 2.1.



Few studies have generally handled the five types of crisis together, i.e. banking, balance of payments, currency, debt, and financial crises. In the Ishihara model, other types of crisis are added. These are growth crisis that having conceptual definition is a sharp decline in real outputs which measure with year-on-year growth rate of GDP, and banking crisis divided into liquidity type banking and solvency type banking (Ishihara 2005, 7).

<sup>12</sup> Based on Allen, Rosenberg, Keller, Setser, and Roubini (2002, 10). Dornbusch (2001) has given more explanations that are elaborate in his paper: "A Primer on Emerging Market Crises."

The crises transmission mechanism for BOP (Balance of Payments) crises to financial crises and BOP crises to currency crises based on Krugman (1979), Flood & Garber (1984), and Krugman & Obstfeld (2003, 502-4). They summarized that an impending change in the exchange rate gives rise to a balance of payments (BOP) crisis, and the reserves loss accompanying a devaluation scare is often labeled capital flight (financial crises). This is because the associated debit in the balance of payments accounts is a private capital outflow. On the other hand, Kaminsky & Reinhart (1999, 2) stated that the loss of reserves will lead to a credit crunch which, in turn, will increase bankruptcies and financial crises.

From the banking crisis to the currency crisis, according to Kaufman (2000, 13), the banking problems may also ignite currency problems, particularly in smaller countries, caused by open economic on fixed or semi-fixed exchange rate standards. From a currency crisis to banking crisis, on the other hand, Kaminsky & Reinhart (1999, 474) find that the peak of the banking crisis most often comes after the currency crash, suggesting that existing problems were aggravated or new ones created by the high interest rates required to defend the exchange-rate peg or the foreign-exchange exposure of banks. Both of Mishkin (1996) and Kaminsky and Reinhart (1999, 475) asserted that if a devaluation occurs, the position of banks could be weakened further if a large share of their liabilities is denominated in foreign currency. Furthermore, Miller (1996) expressed that a speculative attack on a currency can lead to a banking crisis if deposit money is used to speculate in the foreign exchange market and banks are loomed up. In such a state, the liquidities grow worse and the crisis shifts up in its solvability.

The banking crisis to financial crisis scenario can be analyzed through the work of Demirgüç-Kunt & Detragiache (1997, 2). They argued that the banking crisis may also jeopardize the functioning of the payments system and, by undermining confidence in domestic financial institutions, they may cause a decline in domestic savings or large-scale capital outflows. On the contrary, from financial crisis to banking crisis, since the boom is usually financed by a surge in bank credit, as banks borrow abroad, when capital inflows become outflows and assets market crash, the banking system caves in (Kaminsky & Reinhart 1999, 475).

From the banking crisis to growth crisis, Demirgüç-Kunt & Detragiache (1997, 19) asserted that the banking crisis disrupts the flow of credit to households and enterprises, reducing investment and consumption and possibly forcing viable firms into bankruptcy. In contrast, low GDP growth is associated with increased risk to the banking sector (ibid, 19). Dell’Ariccia, Detragiache, and Rajan (2005) found that the real effect of banking crises is usually followed by decline in financing and growth. They summarize that banking crises tend to take place during economic downturns, and banking sector problems have independent negative effects on the economy. At the time the crisis takes place, if the banking crisis has an exogenous detrimental effect on real activity, then the sector that is more dependent on external finance should perform relatively worse during banking crisis. Related to this condition, the differential effects across sectors are stronger in developing countries and in countries with less access to foreign finance where banking crises have been more severe.

The financial crisis to growth crisis, which demonstrates capital flight, has been shown to have caused an erosion of the tax base and a reduction in domestic investments (Kaminsky 1999, 7). On the other hand, as capital flight leads to the build up of gross foreign debt, it fuels a currency crisis as foreign investors become doubtful about the ability and the will of the emerging economy to pay back (ibid). Laeven, Klingebiel, and Kroszner (2002, 16) investigated the linking between financial crises and industry growth. They found that financial crises have a disproportionately negative effect on externally dependent sectors, especially for developing countries. These results differentiate between externally dependent firms that have tended to obtain relatively less external financing in shallower financial systems. In addition, a crisis in such countries has less of a disproportionately negative effect on the growth of externally dependent sectors (ibid, 17). On the other hand, Dermirgüç-Kunt and Maksimovic (1997) demonstrated that well developed financial systems are associated with externally financed firm growth.

As regards the debt crisis to growth rate the crisis mechanism, the difficulties in rolling over short-term debt during currency crisis could squeeze the liquidity available within the economy and shrink the level of economic activities. In the currency crisis to debt crises, Kaufman (2000, 3) argued that the currency crisis characterized by a sharp depreciation in exchange rate is likely to increase the burden of debt denominated in foreign currency. The crisis could squeeze the liquidity available within the economy and shrink the level of economic activities.

Based on research concluded by Ishihara (2005, 23) on the transmission mechanisms, tests were conducted for five Asian countries (i.e. Indonesia, Korea, Malaysia, the Philippines, and Thailand)<sup>13</sup>. Five main findings emerged. These are that:

1. The East Asian countries have higher number of positive relationships between the crisis types than in other countries;
2. The relationship between liquidity type banking crises and currency crises was positive in eleven countries out of 15 followed by the relationship between currency crises and growth rate crises. The results suggest that currency crises tend to be associated with liquidity type banking crises and growth rate crises;
3. Granger causality test for the five Asian countries found that currency crises tended to trigger other types of crises, and the bidirectional relationships were rarely observed.

Mishkin (1999, 16-17) affirmed that there were two special issues which led to the crisis in East Asia (and in Mexico also). These were the debt contracts and the denomination in foreign currencies. The effects of debt contracts were generated by three mechanisms. The first mechanism was the direct effect of currency devaluation on the balance sheet of firms. The second mechanism was linking the financial crisis and the currency crisis that arose and caused by the devaluation of the domestic currency. This led to further deterioration in the balance sheets of the banking sector. In addition, the third mechanism was linking the currency crises in emerging markets, where the devaluations led to higher inflation in the region. These explanations were accepted by

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<sup>13</sup> The relationships and transmission mechanism are analyzed based on correlation coefficients for all 15 countries by Granger Causality test and the sample period is Q1 1980-Q4 2002.

Lindgren et al. (1999, 1). These writers submitted that the origins of the crisis came from the financial and corporate sector weaknesses that combined with macroeconomic vulnerabilities to spark the crisis. According to Krugman and Obstfeld (2003, 697-698), a large part of what made the Asian crisis so devastating was that it was not purely a currency crisis, but rather a currency crisis inextricably mixed with a banking and a financial crisis.

### 2.1.3 The Twin Crises and Banking Matters

The banking crises in Asian countries were strongly associated with an appreciation followed by a sharp depreciation in the real effective exchange rate and a parallel movement in the gross foreign liabilities of the banking sector (Hardy and Pazarbaşıoğlu 1999, 256). Kaminsky and Reinhart (1999, 474) found that the peak of the banking crisis most often comes after the currency crash, and the collapse of the currency deepens the banking crisis, activating a vicious spiral. When they compared the episodes in which currency and banking crises occurred jointly (the twin crises), they found that the economic fundamentals tended to be worse, the economies were considerably frailer, and the twin crises were far more severe.

A banking crisis that precedes a currency crisis usually becomes a systemic crisis in the banking world. To identify the systemic crisis episodes, previously, Demergüç-Kunt and Detragiache (1997, 16) used the multivariate logit analysis to predict the likelihood of a banking crisis. They argued that for systemic crisis episodes, at least there must be one condition, which must be fulfilled out of four conditions. These are that:

1. The ratio of non performing assets to total assets in the banking system exceeds 10%;
2. The cost of rescue operation is at least 2% of GDP;
3. Banking sector problems result in large scale nationalization of banks;
4. Extensive bank runs take place or the government in response to the crisis enacts emergency measures such as deposit freezes, prolonged bank holidays, or generalized deposit guarantees.

Based on the four conditions above, it is easy to see the emergence of a banking crisis and to differentiate the banking crisis as individually or as systemic crisis. Meanwhile, Hardy and Pazarbaşıoğlu (1999, 247-8) affirmed that banking sector difficulties might also differ greatly in severity: some may be categorized as *severe distress* and others as *full-blown crises*. The severe distress recognized that banking sector difficulties might be severe without reaching the level of a crisis (Demergüç-Kunt and Detragiache, 1997), and more domestic in origin and effect, such as especially rapid credit expansion and growth in consumption, and are associated with rising domestic real interest rates (Hardy & Pazarbaşıoğlu 1998, 28). In contrast, full-blown banking crises are shown to be associated more with external developments and constraints, such as heavy reliance on external funds that seems to magnify the impact of a negative shock to the financial system, and it may contribute to foreign exchange market turbulence (ibid).

Furthermore, Demergüç-Kunt and Detragiache (1997, 2000), Kaminsky and Reinhart (1999), and Demergüç-Kunt, Detragiache, and Gupta (2000) have studied and identified

banking crises with the operational definitions based on liability, assets, and government assistance. Caprio and Klingebiel (1996) studied the banking crisis with operational definition based on capital. Hoggarth, Reis, and Saporta (2001) have also studied the banking crisis with operational definition based on liability, capital, and government assistance. With respect to Ishihara (2005, 3), the liability approach focuses on the liability side of the bank's balance sheet. The essence of this approach is the incidence of bank runs. The capital account approach focuses on the capital account of the balance sheet. Moreover, the government assistance approach identifies banking crises as at least one of the policies such as (i) large-scale nationalizations of banks, (ii) deposit freezing, (iii) bank closure, and (iv) bank recapitalization. Therefore, the actual banking crisis identification depends on which approach is used (ibid).

Meanwhile, Hardy and Pazarbaşıoğlu (1999, 257) suggest that banking distress is associated with a largely contemporaneous fall in real GDP growth, boom-bust cycles in inflation, credit expansion, and capital inflows; rising real interest rates and declining incremental capital output ratio; a sharp decline in the real exchange rate; and adverse trade shock. Kaminsky (1999, 14) affirmed that two types of events identified the beginning of a banking crisis:

1. Bank runs can cause the closure, merging, or takeover by the public sector of one or more financial institutions; and
2. If there are no runs, the closure, merging, takeover, or large-scale government assistance program of an important financial institution.

In addition to these events, Kaminsky (1999) has added those that are often not seen as systemic at the time and thus are not seen as heralding a crisis: that the banking crisis event, depending on the difficulties in the banking industry, (the equivalent of speculative attacks), occurs sometime after the events that mark the beginning of the crisis. Therefore, the crisis occurs as a reflection of economic recession, often preceded by economic activity which is booming and which culminates in high credit or lending, and capital inflows that are accompanied by an over-valued currency (ibid; Goldfajn & Valdés 1997<sup>14</sup>).

The banking crisis was defined by Demergüç-Kunt, Detragiache, and Gupta (2000, 4) as a period in which significant segments of the banking system become *illiquid* or *insolvent*. The banking crisis started as a liquidity problem. When the liquidity crisis could not be overcome, the bank would experience solvency crisis and later on face bankruptcy. Illiquidity is the current and potential risk to earnings and the market value of stockholders' equity that a bank cannot meet payments or clearing obligations in a timely and cost-effective manner (Koch & MacDonald 2000, 124). Further, insolvency is operationally a situation where a failed bank's cash inflow from debt service payments, new borrowings, and asset sales are insufficient to meet mandatory cash outflows due to operating expenses, deposit withdrawals, and maturing debt obligations (ibid, 128). This matter causes the banking crisis always to be divided into two: illiquidity and insolvency crises.

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<sup>14</sup> Their paper focuses on the interaction of liquidity creation by financial intermediaries with capital flows and exchange rate collapses. They found that in the intermediaries' role of transforming maturities is shown to result in large movements of capital and a higher probability of crisis.

If a banking crisis occurs, it is an indication of illiquidity and insolvency. These are serious problems for any bank. They are referred to as ‘**banking matters**’, and they herald the onset of bankruptcy. In banking matters, the problem of illiquidity and insolvency imply that the bank cannot conduct its functions as an intermediary financial institution. As a result, the real sector, which is fragile, must be supported by many doses of credits. The corporate entity then falls into complete disarray and experiences the domino effect on its balance sheet. It also gnaws at the capital account. Moreover, the real sector is unable to repay its credits to the banks as a result of the high interest rates. Again, any company, which uses many imported components, will be dragged into bankruptcy because of its inability to pay resulting from the effects of the currency crisis. Thus, we make the proposition that a banking crisis directly and negatively influences the growth of the economy as a whole since there is little or no supply of credit to the real sector (compare with Stiglitz & Greenwald 2003, 137-148).

## 2.2 Banking and the Real Economy

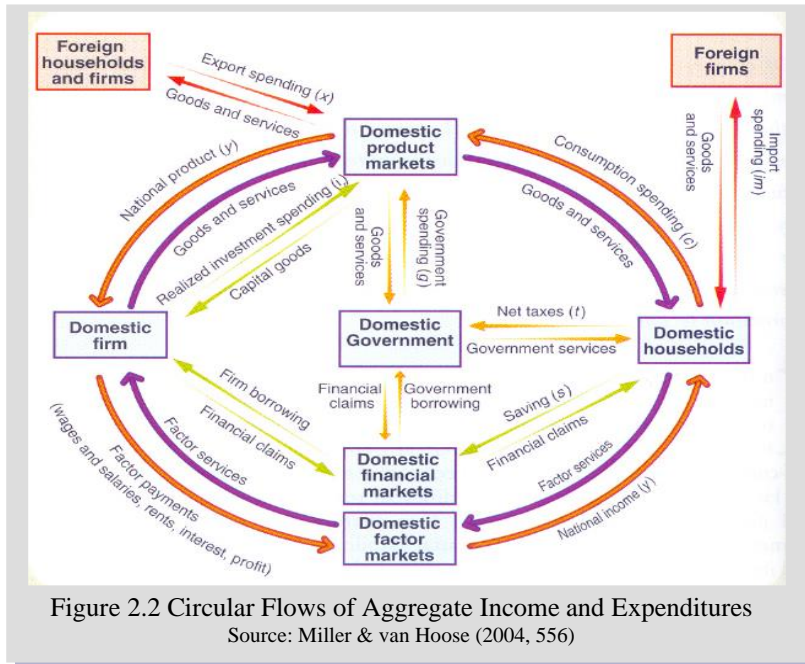
Economic systems have basic functions, which are to allocate scarce resources-land, labor, management skill, and capital - to produce the goods and services needed by society (Rose 2003, 3). Based on macroeconomic perspectives, all economic units can be classified into households, business firms, and governments (Kidwell, Peterson, and Blackwell 1997, 29). Each economic unit, generally, must operate within a budget constraint imposed by its total income and expenditures for a period. In comprehending the real economy, the relationship between economics and money can be made by premise of how the circular flow of income and expenditure work widely. This relationship can be seen from the basic Keynesian<sup>15</sup> approach, which tends to the determination of the national income. Truly, many circles of economists do not have the same opinion about classical economics, but utilize it to give understanding to how the circular flow of national income and expenditure looked in reality; hence, the Keynesian approach can be used to explain the real economics model. Figure 2.2 provides a more detailed version of the circular flow of aggregate income and expenditures.

Based on the circular flow in Figure 2.2, there are key relationships implied by the circular flow of income and expenditures. Firstly, the income identity segment identifies domestic households’ allocation of real income to domestic consumption, import spending, savings, and taxes. Secondly, the product identity side identifies the real value of output of goods and services as equal to the real expenditures on that output, and all of them precisely in the form of domestic consumption, desired investment, government spending, and export spending by foreign residents.

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<sup>15</sup> The British Economist, John Maynard Keynes, proposed a prominent role for fluctuations in business investment as a factor in economic cycles. He formulated the theory during the Great Depression in the 1930s, and he published a book with the title “The General Theory of Employment, Interest, and Money” in 1936. Keynes assigned a rather different role to monetary policy than is played in classical economics. For detailed discussion, please see Keynes, John Maynard (1964): The General Theory of Employment, Interest, and Money, New York: Harcourt Brace Jovanovich.





On the **expenditures** perspective, that the components of aggregate desired expenditures are composed of households' consumption of domestically produced goods and services, desired investment spending by firms, government spending, and export spending by foreigners. In Keynesian economics, the entire components are assumed to be autonomous, that consumption spending has positive relationship with disposable income, and in the end, the aggregate expenditures schedule slopes upward<sup>16</sup>.

In accordance with the circular flow of income and expenditures, all of the relationships show the **real economic activities**. Based on the circular flows, the Keynesian model more broadly highlights the: (i) aggregate desired expenditures and equilibrium national income, (ii) business cycles, equilibrium income, and monetary policy, and (iii) monetary policy, national income, and the balance of trade (see Miller & van Hoose 2004).

Krugman & Obstfeld (2003, 358), McConnell & Brue (2002, 244-5), and Mishkin (1995, 51) affirmed that real **economic activities** need money. Money can be thought of as a particularly simple way of keeping accounts (Stiglitz & Greenwald 2003, 293). In that context, a bank is a financial intermediary that has lending as its core business. There is a close relationship between the creation of credit and the creation of money.

<sup>16</sup> For more details, please compare the opinions of Miller and VanHoose (2004, 566), with Gärtner (2003, 252-5) on the government in the Solow Model.

The relationship between money and credit is an endogenous one, and is always affected by economic policy, including monetary policy (ibid, 295; and Stiglitz 1997, 761-2).

### 2.2.1 Bank as Financial Intermediaries

To run transaction of payment of fund (money) in an economic activity, really we need also the financial intermediaries (FIs) – both depository institutions (like banks, savings institutions, and credit unions) and non-depository institutions (like investment banks, securities firms, insurance companies, finance companies, and mutual funds). In the real world, the economy has developed an alternative and indirect way to channel households and/or government to the corporate sector through financial intermediaries.

Banks are financial institutions that accept money deposits and make loans (Mishkin, 1995, 9), but nowadays they are, more broadly, a global payment system. They engage in global transactions such as transfers by checks and travelers checks, and transactions by cyber-banking. Mishkin (1995) argued that banks are important to our understanding of money and economics for three reasons:

1. The banks provide the channel for linking people who want to save with those who want to invest;
2. The banks play an important role in determining the money supply and in transmitting the effects of monetary policy to the economy; and
3. The banks have been a source of the rapid financial innovation that is expanding the ways in which we can invest our savings.

From the above description, it can be said that the business of the banks have an element of *trust*. In accordance with the state of *unit trust*, the banking system differentiates between the other financial institutions. Because banks are institutions of trust, when a bank no longer gets the trust of its customers or other parties who have interest therein, the occurrence of bank runs and bank failure may be anticipated.

As unit trusts, banks take unsecured deposits from third parties or the public and this condition makes the banks have particular characteristics. Some reasons are that the banks' functions become special as absorbers of the available economic liquidities, as a core payment mechanism, and as a principal financing source for most economic activities, e.g. in the giving of credit. Banks also have idiosyncrasies of their deposit balances, especially in running their function as intermediary institutions, with a clear distinction between their obligations (liabilities) and assets (assets). This matter can be seen from the lower cash ratio to assets, the low capital ratio to assets, and fund ratio in the short-range to total deposit. From this perspective, it can be said that a bank has systematical risk or otherwise and the bank's management must be sensitive to the impact of possible systematical risk the effect of which may be operational failure.

In addition, banks are special because they have the exclusive power to create of money and create of credit to advance it at an interest. This differentiates banks from financial intermediaries in some unique way, giving them a special influence on the economy's resources distribution process and industrial corporate governance structure (Bossone 2000, 25).

Financial institutions have been articulated as institutions that issue deposits and other financial liabilities and invest predominately in loans and other financial assets while financial intermediaries have been described as institutions or financial service firms that issue liabilities to surplus-spending units (SSUs) and use the fund so obtained to acquire liabilities of deficit-spending units (DSUs).

Saunders & Cornett (2005, 10) summarized that financial intermediaries (FIs) are shown to be special because of the various services they provide to sectors of the economy. The general areas of FIs specialness include information services, liquidity services, price-risk reduction services, transaction cost services, and maturity intermediation services. Meanwhile, the area of institution-specific specialness is money supply transmission (bank), credit allocation, intergenerational wealth transfers or time intermediation (life insurance companies, pension funds), payment services (banks and thrifts), and denominations and intermediations (pension funds and mutual funds).

To distinguish between banks and other financial institutions, the summary of the most important assets held and liabilities issued by the financial institutions are shown in Table 2.1. If we pay attention to the Table 2.1, it can be clearly seen that the banking system functions directly and indirectly to support the growth and continuity of the real sector. The assets of banks are used to finance the economy in the form of business loans, consumer loans, and mortgages. On the other side, the liabilities collected from the public or third parties fluctuate with the liquidity distortions of a bank.

Levine and Zervos (1998) found that stock market liquidity and private sector credits have strong independent effects on growth. Commenting on this deduction, Beck, Levine, and Loayza (1999, 30) found that an economically large financial intermediary development is associated with growth. From this intervention, it was also stated that better functioning financial intermediaries improve resource allocation and accelerate total factor productivity growth with positive repercussions for long-run economic growth. They argued that the finance growth nexus runs primarily through total factor productivity growth and not through savings and physical capital accumulation. Furthermore, Levine, Loayza, and Beck (1999) verified that the exogenous components of financial intermediary development are positively associated with economic growth.

Table 2.1 Principal Financial Assets and Liabilities Owned by Financial Intermediaries

TYPE OF INTERMEDIARY		ASSETS (Direct Securities Purchased)	LIABILITIES (Indirect Securities Sold)
1	Deposit-type institutions Commercial banks  Saving and loan associations  Mutual savings banks Credit unions	Business loans Consumer loans Mortgages Mortgages  Mortgages Consumer loans	Checkable deposits Saving deposits Time deposits Saving deposit & time deposits Saving deposits Saving deposits
2	Contractual savings institutions Life insurance companies  Casualty insurance companies   Private pension funds  State & local government pension funds	Corporate bonds Mortgages Municipal bonds  Corporate stock Government securities Corporate stocks Corporate bonds Corporate bonds  Corporate stocks Government securities	Life insurance policies  Casualty insurance policies Pension funds' reserves  Pension funds' reserves  Pension funds' reserves
3	Others fund financial institutions Finance companies  Mutual funds   Money market funds Federal agencies	Consumer loans Business loans Corporate stock Government securities Municipal bonds Corporate bonds Money market securities Government loans	Commercial papers Bonds Shares in fund   Shares in fund Agency securities

Source: Kidwell, Peterson, and Blackwell (1997, 45)

### 2.2.2 The Lending Channel

The continuity of the banking system has a strong influence on fiscal and monetary policy, which in the end has impact on the growth, and continuity of the real sector. Furthermore, the growth of the real sector will also help in determining the growth and continuity of economy as a whole. With the existence of links between each other and the relationship between monetary policy, fiscal policy, the banking system, and the real

sector, it is important to maintain this link by running good balances and must guard against the possibility of the incidence of economic-shock, whether systemic or non-systemic.

Bernanke and Blinder (1988, 1992) focused their model on the bank-lending channel, based on assumptions that so many firms engaged in economic activities are critically dependent on bank credit for their operations. Most recently, Ramirez & Shively (2005) in an empirical research using U.S. level quarterly time series data from 1900Q1 through 1931Q2 for the 48 contiguous states found from their structural model that bank failures have only minor subsequent effects within the banking sector. Unfortunately, their research addresses whether bank failures has an independent effect on real economic activity, the essence they called credit or lending channel.

Mishkin (2005, 619) elucidated that in the monetary transmission mechanism,<sup>17</sup> there are three points of view. These are the interest rate effect view, other assets price effect view, and credit view. All these we know as components of spending (GDP). The credit view is divided into the bank lending channel, balance sheet channel, cash flow channel, unanticipated price level channel, and household liquidity effect. The other assets price effect view consists of exchange rate effects on net exports, Tobin's theory, and wealth effects. In addition, Bernanke and Gertler (1995, 3) emphasized that according to the credit view, a change in monetary policy that raises or lowers open-market interest rates tends to change the external finance premium in the same direction. This occurs because the additional effect of policy on the cost of borrowing (which is broadly defined) and, consequently, on real spending and real activity is magnified (ibid).

### 2.2.3 Credit and Real Economy

Lindgren, Garcia, and Saal (1996, 58) discovered that episodes of fragility in the banking sector have been detrimental to economic growth in the countries concerned. In the fact, Dermigüç-Kunt, Detragiache, and Gupta (2000); Kaminsky and Reinhart (1999); Dermigüç-Kunt and Detragiache (1997) also found that during the recent banking crisis, the growth of output, and private credit growth dropped significantly below normal levels, but they did not test the bidirectional relationships.

Dell'Arricia, Detragiache, and Rajan (2005, 18) studied the effect of banking crisis on growth on industrial sectors and found that in sectors that are more dependent on value added external finance, capital formation, and the number of establishments grew relatively less than in sectors less dependent on external finance. These matters indicate

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<sup>17</sup> Based on Keynesian analysis. The channels through which the money supply affects the economic activity, called as the transmission mechanism of monetary policy. The structure evidence:  $M \rightarrow i \rightarrow I \rightarrow Y$ . Where: M = Monetary (money supply); i = interest; I = Investment spending; and Y = Output. Interpreted from credit view (i) Bank lending channel if  $M \uparrow \Rightarrow$  bank deposits  $\uparrow \Rightarrow$  bank loans  $\uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$  (ii) Balance sheet channel if  $M \uparrow \Rightarrow P_s \uparrow \Rightarrow$  adverse selection  $\downarrow$ , moral hazard  $\downarrow \Rightarrow$  lending  $\uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$ ;  $P_s$  is stocks prices (iii) Cash flow channel if  $M \uparrow \Rightarrow I \downarrow \Rightarrow$  cash flow  $\uparrow$ , adverse selection  $\downarrow$ , moral hazard  $\downarrow \Rightarrow$  lending  $\uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$  (iv) Unanticipated price level channel if  $M \uparrow \Rightarrow$  unanticipated P  $\uparrow \Rightarrow$  adverse selection  $\downarrow$ , moral hazard  $\downarrow \Rightarrow$  lending  $\uparrow \Rightarrow I \uparrow \Rightarrow Y \uparrow$  and (v) Household liquidity effects if  $M \uparrow \Rightarrow P_s \uparrow \Rightarrow$  financial assets  $\uparrow$ , likelihood of financial distress  $\downarrow \Rightarrow$  consumer durable and housing expenditure  $\uparrow \Rightarrow Y \uparrow$  (see Mishkin 2005, 621-4).

that empirically the role of banking in sustaining business activity on the real sector is very dominant. They also interpret that channel of lending to be very important at the time of a crisis. In detail, the crisis convulsions that happened resulted from the happening of twin weaknesses, that is, weakness of the banking system as well as weakness of the economy. The banking distress automatically lessens supply of lending and shows adverse effect on growth. Their findings were true since in reality that was what happened. The effect was stronger in developing countries (likes Sri Lanka 1989, Chile 1981, Indonesia 1992, Nepal 1988, Nigeria 1991, and Venezuela 1993)<sup>18</sup>. This matter was so because these are countries with less access to foreign finance. They again found that the effects of recession and financial crisis during the period, showed empirically that the basic weaknesses of the banking system are the liquidity and solvency problems.

The results of the research showed that the existence of policies made by the authorities or government have the truth and support of their decisions, that is more important to support the banking industry compared to commercial enterprise. In a situation like that, it is difficult to replace the role of the bank as source of finance suddenly. This is a new irony that profitable production activities may have to be reduced and viable investment projects neglected. Here, the banking system has been trapped in, that is, through misallocations of their resources via unanticipated economic conditions. The bank-lending channel will generate contractions of an economic activity as well as bank distress reinforces each other.

Ghost and Ghost (1999) used disequilibrium framework to investigate a possible credit crunch in the East Asian crisis countries (Indonesia, Korea, and Thailand) during 1997-1998. Jayaratne and Strahan (1996) in studying relaxation of bank branch restriction in United States expressed their opinion that money market earnings directly influence the growth of economies. In contrast, the increased volume of bank lending (not at moment's notice) improved growth, exactly faster growth reached with improvements of loan quality by the banks. For Indonesia, they summarized that there was a sharp contraction in the real supply of credit, coupled with a concomitant increase in credit demand. It meant that the supply of credit was the binding constraint. Then the demand for credit contracted as well, and supply of credit was no longer the constraining factor (ibid, 3).

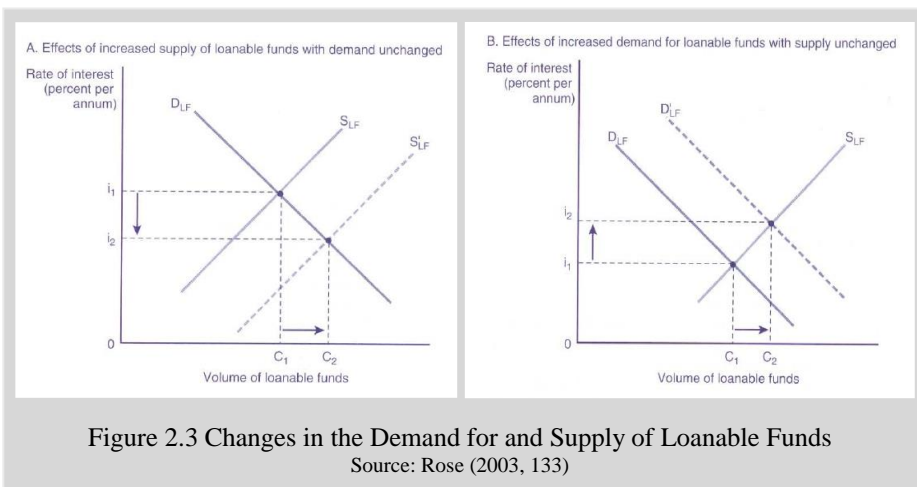
Disyatat (2001, 3) stated that when the banking sector is healthy, the standard Keynesian effect applies: out put increase as monetary policy is eased and real factor cost decline, but when banks are weak, a devaluation will bring about contraction in the real economy. Furthermore, Disyatat stated that an economy whose banks are weak, in term of low net worth, high exposure to currency risk, and bad quality assets, is much more vulnerable to output collapse in the wake of currency crisis.

The problems that emerge at periods of crisis are how to design and apply policies in so many pressures, like economic and political pressures. To see the real impact between

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<sup>18</sup> Based on cost of crisis from bank lending channel above 15% GDP (Dell'Arricia, Dereagiache, and Rajan 2005, 30)

banking and economic growth, the pressures can be evaluated using the loanable funds theory<sup>19</sup> of interest as presented in Figure 2.3.



Remarks:

$$S_{LF} = \text{Domestic savings} + \text{Newly created money} + \text{Foreign lending to domestic credit markets} - \text{Hoarding Demand for cash balances}$$

$$D_{LF} = D_{\text{consumer}} + D_{\text{business}} + D_{\text{government}} + D_{\text{foreign}}$$

If the total supply of loanable funds and total loanable funds demand change slowly, the volume of money and capital markets will increase and as a result, the interest rate will fall. This is illustrated in Figure 2.3A by the supply schedule shift to the right side, from  $S_{LF}$  to  $S'_{LF}$ . The effect of this sliding shows a new balance downhill on the interest rate, which is from  $i_1$  of to  $i_2$ . Its consequence is total loanable funds traded in financial system will increase from  $C_1$  to  $C_2$ .

In the illustration in Figure 2.3B, the demand curve of the loanable funds increase from  $D_{LF}$  to  $D'_{LF}$  driving the interest rate upward from  $i_1$  to  $i_2$ . This situation is pushed by the existence of requests for the loanable funds with no change in the total supply of funds available. This is the effect of the volume of credits extended, but this matter is accompanied with higher interest rate.

From the explanations given on illustration 2.3.B, we can summarize that in the periods of crisis, the interest rates go higher, but the real sector (communion of firms) still have

<sup>19</sup> This theory just thought about loanable funds without credit rationing. The ideal banking system should be by credit rationing, so that the decrease in the supply of loans translates directly into a reduction in economic activity, not mediated at all by change in the real interest rate (see Stiglitz and Greenwald 2003, 46-7). The determinants of the interest rate are the loanable funds theory based on Fisher's theory (see Irving Fisher, *The theory of interest Rate*, New York: Macmillan, 1930), and the liquidity preference theory of Keynes.

strong constraints to get the lending, leading to the so-called credit crunch<sup>20</sup>. There are two points of view, from banking to borrowers, as follows:

1. At the new point of equilibrium, only companies which have good performance are capable to source financing from outside the banking system while companies whose performance are not so good remain to cope to get bank lending, and
2. Banks can look for high-yield government securities in their assets portfolio to protect their balance sheet from credit risky.

In other words, banks see performance as an indicator of a company's competence before they give financing or not. Thus, the determining factor is the company's financial performance, which can be seen from their financial statements. However, when that financing becomes risky, banks will choose to place their funds in government securities or other securities that produce the high-yield.

Huang, Marin, and Xu (2004, 7) called the condition as banking-trap and this affects the existence of separation and hinders banking sector development and economic growth although on the surface there is financial exuberance, particularly in the government securities market. They also emphasized, however, that whether economic recovery and growth can continue depends critically on whether banking development can be sustained (*ibid*, 28).

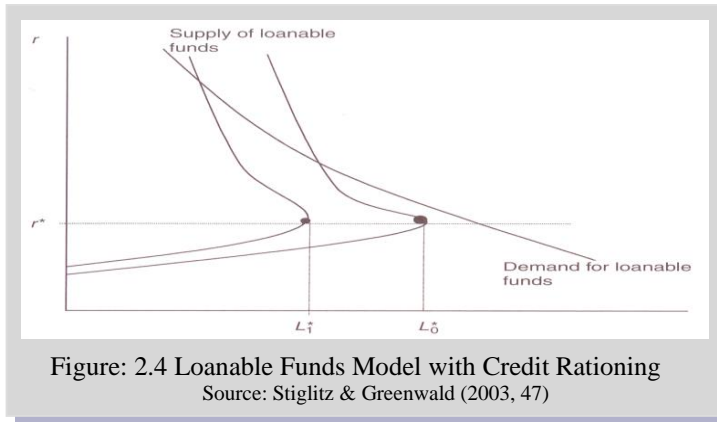
On the other hand, Stiglitz and Greenwald (2003, 46) argue that matter on the loanable theory (no rationing credit) is not just supply of savings, funds are not spent on consumption goods, but a supply of credit, then credit that can finance investment of firms or consumption of households. Here, the financial institutions are playing the role important in determining the supply of credit. In a state of recession, the decrease in the supply in a recession may well outpace the decrease in the demand for funds, so that even the interest rates were determined by the intersection of supply and demand for funds, the real interest rate facing borrowers could rise, thereby exacerbating the downturn (*ibid*).

On the credit rationing, the interest rates may not be determined by the intersection of the supply and demand of loanable funds. The loanable funds model with credit rationing presented on Figure 2.4. In addition, we can interpreted that loanable funds model with credit rationing more extent to explain that the credit or lending very important component to have influence directly to the real economy activity.

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<sup>20</sup> Credit crunch is a period during which lenders are unwilling to extend credit to borrowers. This condition has linking with credit squeeze as a set of measures to reduce economic activity by restricting the money supply (Dictionary of Finance & Banking 2005, 98).





Remarks:

With credit rationing, the equilibrium interest rate (the rate that maximizes expected returns for the lender) is below the level at which the demand for loanable funds equals the supply. The leftward shift in the supply curve for loanable funds leads to less lending but no change in the interest rate, then the extent of credit rationing is increased. This matter caused by expected returns actually decrease when the interest rate exceeds  $r^*$ , the supply of loanable funds decreases (the theory of credit rationing was first developed by Stiglitz & Weiss 1981).

## 2.3 Banking Performance Measurement

### 2.3.1 Banking Indicator Measurement

In the global banking arena, the measurement of the performance of all banking systems comes under Basel II umbrella. Generally, the banking system has adopted uniform performance report, like the Uniform Bank Performance Report (UBPR). The Federal Financial Institute Examination Council (FFIEC) has made a comprehensive analytical tool for the UBPR. This tool uses the bank financial statements including balance sheet and income statement (see Appendix 1 for general reference).

The bank's balance sheet presents financial information about assets, liabilities, and equity (where total assets = total liabilities + capital). Assets indicate what the bank owns, liabilities represent what the bank owes, and equity refers to the owners' interest (Koch 1995, 94-5). The assets of a bank, as uses of funds, can be grouped into some general categories: reserves, cash items in the process of collection, deposits at other banks, investment securities, loans, and other assets. On the other hand, the liabilities of a bank, as sources of funds, include checkable deposits, non-transaction deposits, and borrowings. In addition, bank capital as equity or the bank's net worth, consists mainly of common and preferred stock (listed at par value), surplus or additional paid-in capital, and retained earnings.

In the beginning, Cole (1972) in Koch and MacDonald (2000, 111) introduced a procedure for evaluating bank performance via ratio analysis<sup>21</sup>. He made the nature of bank profits by the decomposition of return on assets (ROA) as shown in figure 2.5. Based on the composition of the ROA model as shown, we can break down the performance measures to calculate the aggregate bank profitability i.e. return on equity (ROE), net income (NI), expense ratio components (ER), and net interest margin (NIM)<sup>22</sup>.

The ROA by definition is:

$$ROA = \text{Net Income} / \text{Total Assets}$$

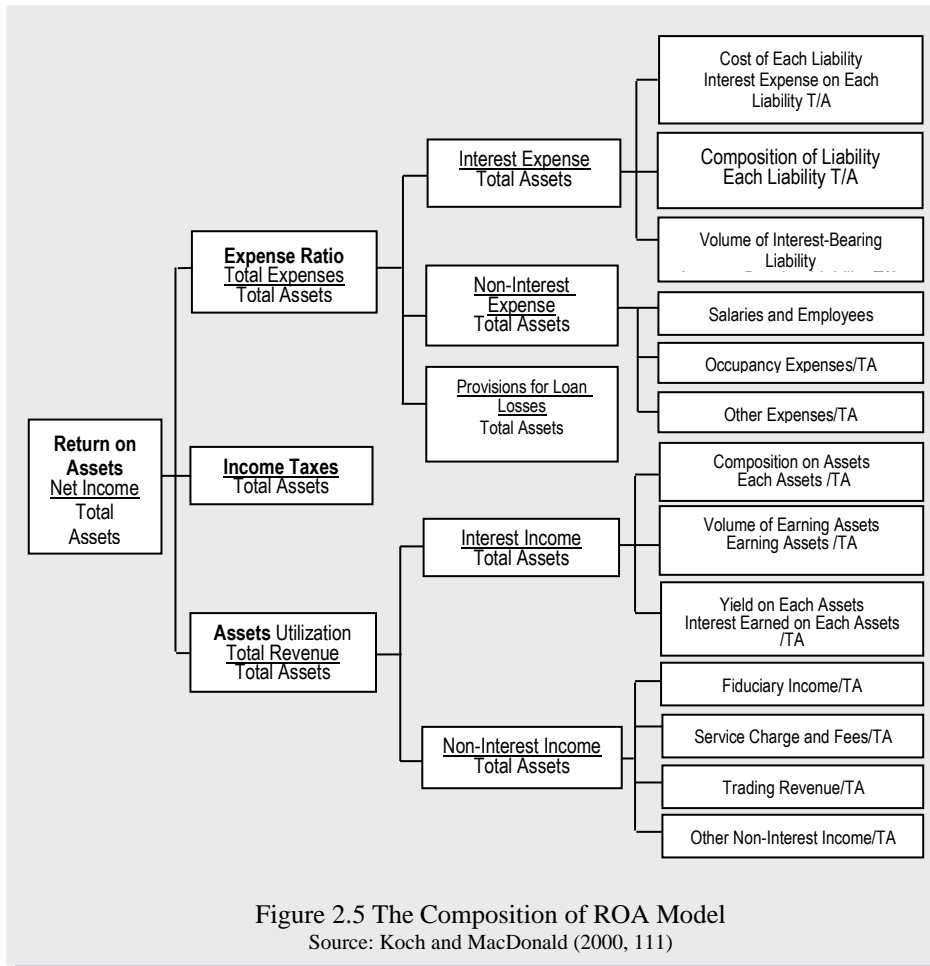


Figure 2.5 The Composition of ROA Model

Source: Koch and MacDonald (2000, 111)

<sup>21</sup> Cole gave an account of ratio analysis based on DuPont financial analysis in 1972.

<sup>22</sup> All of calculated based on balance-sheet and income statement, which the measure of formula into account, it can compare between Koch & MacDonald (2000, 103-119), Madura (2003, 557), and Mishkin (1995, 265-7).

Here, the ROA measures the level of net income per dollar on average assets owned during one period. There are simple relations between ROE and ROA with financial leverage, which for ROE can be defined as follows:

$$\text{ROE} = \text{Net Income} / \text{Total Equity}$$

ROE is interpreted as percentage return on each dollar of stockholders' equity. The higher the rate of return, the better the ability of the bank to retain its earnings and pay more in cash dividends.

Hereinafter, the link between the ROE and the ROA can be explained through the equity multiplier (EM) and is defined as:

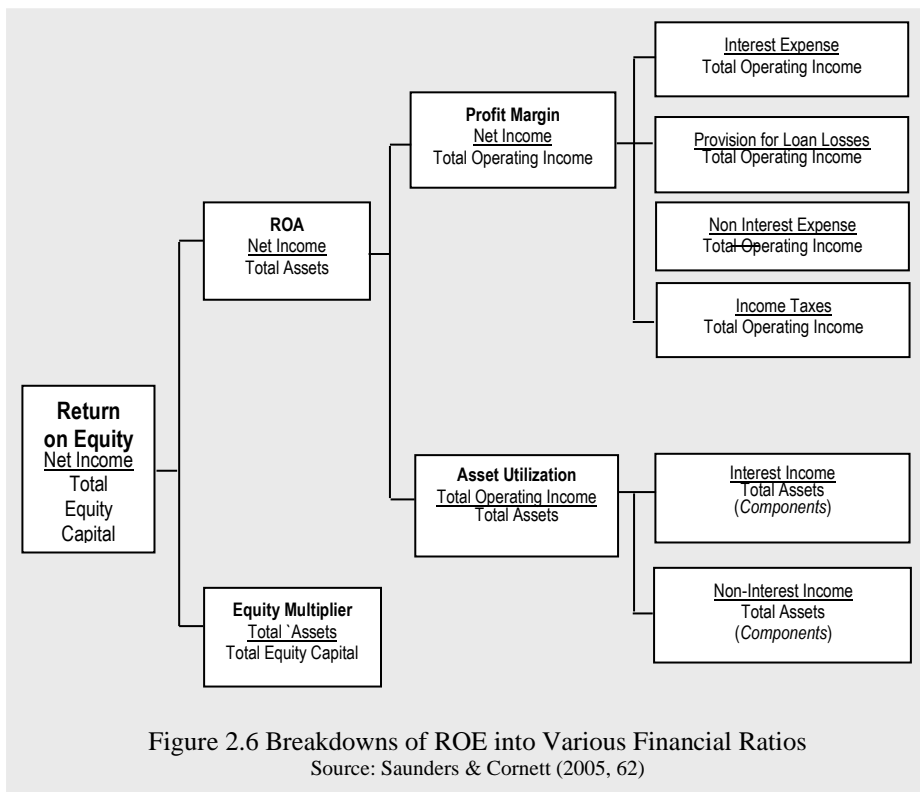
$$\text{ROE} = \frac{\text{Net Income}}{\text{Average Total Assets}} \times \frac{\text{Average Total Assets}}{\text{Average Total Equity}}$$

$$\text{ROE} = \text{ROA} \times \text{EM}$$

The value of ROE expresses the level of ability of stockholder equity to debt financing by comparing the level of equity multiplier to assets. Where EM can be calculated, it measures financial leverage showing leverage measure and risk. This matter is expressed with multiplier impact, which it owns to assets (ROA) in determining the level of ROE. This means that the improvement of ROE can be obtained with improvement of ROA or improvement of solvability. Thereby EM as risk measure can be used as reference to show how big the assets must be to allow default before a bank becomes insolvent. At positive net-income, the higher EM will improve ROE to indicate high capital or solvency-risk. The breakdowns of ROE into various financial ratios are as shown in Figure 2.6.

We should still be on guard as regards the ratios calculated from the historical accounting records since they have their weaknesses. For ROE (which is an accounting valuation method similar to the return on investment, ROI), some possible factors of the weaknesses come from the length of a project's life, capitalization policy, the rate at which depreciation is taken in the books, the lag between investment outlays and the recoupment of these outlays from cash inflows, and the growth rate of new investments (Bragg 2000). Furthermore, Bragg added that on top of this, "ROE is sensitive to leverage: by assuming that proceeds from debt financing can be invested at a return greater than the borrowing rate, ROE will increase with greater amounts of leverage." That is why ROE may be subject to manipulation for short-term benefits at the expense of long-term prospects.

From Figure 2.6, we can explain that the Profit Margin (PM) measures the ability to pay expenses and generate net income from interest and non-interest income, and the Assets Utilization (AU) measures the amount of interest and non-interest income generated per dollar of total assets (Saunders & Cornett 2005, 62).



The ROA consists of two principal parts, i.e. income generation and expense control (including tax).

For net income (NI), by definition:

$$NI = \text{Total Revenue (TR)} - \text{Total Operating Expenses (TOE)} - \text{Taxes}$$

Where:

$$TR = \text{Net Sales} + \text{Others Income}$$

$$TOE = \text{Interest expense} + \text{Non-interest expense} + \text{Loan provision} + \text{Lease losses}$$

The impact of specific types of operating expenses is calculated in three ratios:

1. Interest expense ratio = Interest expense (IE) / Average total assets (TA);
2. Non interest expense ratio = Non interest expense (NIE) / Average total assets (TA);  
and
3. Provisions for loan loss ratio = Provision for loan losses (PLL) / Average total assets (TA).

Furthermore, the other aggregate profitability measures that are usually used are the: NIM (net interest margin), spread burden, and efficiency ratios:

1.  $NIM = \text{Net Interest Income (NII)} / \text{Earning Assets}$ ;
2.  $\text{Spread} = \text{Interest income} / \text{Earning Assets} - \text{Interest expense} / \text{Interest bearing liabilities}$ ; and
3.  $\text{Burden ratio} = (\text{Non interest expense} - \text{Non interest income}) / \text{Average total assets}$ ; and
4.  $\text{Efficiency ratio} = \text{Non-interest expense} / (\text{Net interest income} + \text{Nominal interest income})$ .

From above description may affirm that a basic measurement of bank profitability based on capital affects returns to equity holders. The equity holders in the low capital bank are clearly a lot happier than the equity holders in the high capital because they are earning more than twice as high a return (Mishkin 2005, 215). It is mean; by low percentage of capital bank can created the higher the return for the owners of the bank. This is the dark side of the capital composition, which is way the Basel Committee was applied the capital minimum requirement (CAR) of equal to 12%.

Koch (2000) elucidate that there are two fundamental weaknesses of the risk-based capital requirements. First, the formal standards do not account for any risks other than credit risk. This matter affirms that asset composition determining formal capital composition for a bank, because, in fact, bank asset is obligation of bank of third party fund. However, third party fund very fragile to liquidities, for the reason, the regulator also determines other measure, which used in determining the liquidity of do a bank. Second, the book values of capital not reflection the most meaningful measure of soundness. Here, the problem is the measure disregard change by market price of asset on loss or profit which not yet be realized of bank investment and other asset value. Because in practice, the book values can be manipulated through accounting ploys an often substantially overstate the firm's true market value.

The formal standard to measure the bank performance usually referred to the international standard has been applied around the world. The Monetary and Financial Systems and Statistics Department (MFSS) IMF (2003, 40) proposed a revision to *core* and *encouraged sets* for the Financial Soundness Indicators (FSIs) as shown in Table 2.2.

For this research, the bank performance should be adopted from the regulator that is Bank Indonesia (BI, Central Bank of Indonesia). The variable of banking performance is based on the component factors from BI circular letter No. 6/23/DPNP dated 31 May 2004 concerning Rating System for Commercial Banks. Bank rating is the qualitative rating of various aspects affecting the condition or performance of a bank by means of quantitative rating and/or qualitative rating of the factors of capital, assets quality, management, earnings, liquidity, and sensitivity to market risk. The quantitative rating is rating of the position, developments, and projection of financial ratios of the bank. The qualitative rating is rating of the factors supporting the results of quantitative rating, application of risk management, and the compliance of bank. The scope of bank rating encompasses rating will resume on Table 2.3.

Table 2.2 Financial Soundness Indicators for Deposit-taking Institutions and Corporate Sector	
Financial Soundness Indicators	
Deposit-taking institutions (CAELS)	Core Set
Capital adequacy	Regulatory capital to risk-weighted assets Regulatory Tier I capital to risk-weighted assets
Assets quality	Non performing loans to total gross loans Non performing loans net of provisions to capital Sectoral distribution of loans to total loans
Earnings and profitability	Return on assets Return on equity Interest margin to gross income Non-interest expenses to gross income
Liquidity	Liquid assets to total assets (liquid asset ratio) Liquid assets to short-term liabilities
Sensitivity to market risk	Durations of assets Durations of liabilities Net open position in foreign exchange to capital
	Encouraged Set
Corporate Sector	Total debt equity Return on equity Earnings to interest and principal expenses Corporate net foreign exchange exposure to equity Number of applications for protection from creditors
Source: Monetary and Financial Systems and Statistics Department (MFSS) IMF (2003, 40)	

Based on the rating of each component referred to in Table 2.3, the composite rating shall be determined based on the rating of each of the factors referred to in Table 2.3. The composite rating shall determine by:

1. Composite rating 1 (CR-1), indicating the bank is in excellent condition and able to withstand impact from negative changes in economic conditions and financial industry;
2. Composite rating 2 (CR-2), indicating that the bank is in sound condition and is able to withstand impact from negative changes in economic conditions and financial industry, notwithstanding the bank still has minor weaknesses that can be quickly resolved through routine measures;
3. Composite Rating 3 (CR-3), indicating that bank fairly sound condition but has weaknesses that may lead to deterioration in composite rating if the bank does not take immediate corrective actions;
4. Composite Rating 4 (CR-4), indicating that the bank is in poor conditions and sensitivities to impact from negative changes in economic conditions and the financial industry;
5. Composite Rating 5 (CR-5), indicating that the bank is in sound condition and highly sensitive to impact from negative changes in economic condition and financial industry, and is experiencing financial difficulties endangering its survival.

Table 2.3 Bank Rating Factors		
No	Factor	Remarks
1	Capital	<ul style="list-style-type: none"> <li>• Adequacy, composition, and projection (forward trend) in capital and the capacity of bank capital to cover problem assets;</li> <li>• Capacity of the bank to meet the need for additional capital from earnings, capital plan of the bank support business expansion, access to sources of capital, and financial performance of shareholders in building the capital of the bank.</li> </ul>
2	Assets quality	<ul style="list-style-type: none"> <li>• Earning assets quality, concentration of credit risk exposure, developments in problem earning assets, and adequacy of allowance for earning asset losses;</li> <li>• Adequacy of policy and procedures, internal review system, documentation system, and performance in management of problem earning assets.</li> </ul>
3	Management	<ul style="list-style-type: none"> <li>• Quality of general management and application of risk management;</li> <li>• Bank compliance with applicable legal provisions and commitments made to regulator.</li> </ul>
4	Earnings	<ul style="list-style-type: none"> <li>• Performance in return on assets (ROA), return on equity (ROE), net interest margin (NIM) and level of efficiency of the bank;</li> <li>• Development in operating profit, diversification of revenues, application of accounting principles in recognition of revenues and expenses, and prospects for operating profit.</li> </ul>
5	Liquidity	<ul style="list-style-type: none"> <li>• Ratio of liquid assets/liabilities, potential for maturity mismatch, condition of loan to deposit ratio, cash flow projection, and funding concentrations;</li> <li>• Adequacy of policy and management of liquidity (assets and liabilities management/ALMA), access to funding sources, and stability of funding.</li> </ul>
6	Sensitivity to market risk	<ul style="list-style-type: none"> <li>• Capacity of bank capital for covering potential loss from adverse movement in interest rates and exchange rates;</li> <li>• Adequacy of application of market risk management.</li> </ul>
Source: Summarized from Bank Indonesia Regulation Number 6/10/PBI/2004		

### 2.3.2 Bank Capital Structure

Banks as a part of the financial institutions is one of the industries in the world, which is full of regulations. One of them is the adequacy or sufficiency of capital measured by the capital adequate ratio (CAR). To measure the CAR, we must understand the role bank capital performs. According to Kidwell, Peterson, and Blackwell (1999, 442), bank capital performs four principal roles as follows:

1. Provide a financial cushion that enables banks to continue to operate even if they suffer temporary operating losses;
2. Adequate capital helps maintain public confidence in the soundness and safety of individual banks and the banking system;
3. Adequate capital provides some protection to depositors whose bank accounts are not fully insured; and
4. Capital is a source of funds for the bank's growth and addition of new products, services, or facilities.

In addition to all the above, Mishkin (1995, 265) mentioned that there are three reasons why banks make decisions about the amount of the capital to hold. These are as follows:

1. Bank capital helps prevent bank failure which is a situation where the bank cannot satisfy its obligation to pay depositors, creditors and other parties;
2. The amount of capital affects the return for the stock-holders of the bank; and
3. Regulatory authorities require a minimum amount of bank capital.

Bank capital consists of two basic components that are described as Tier 1 and Tier 2. Table 2.4 shows the element from both components. The capital adequacy ratio (CAR) is calculated using the definition of regulatory capital and risk-weighted assets. According to Basel II<sup>23</sup> capital adequacy rules, the calculation of CAR is based on one of two components of credit-risk-adjusted-assets as denominator. They are credit-risk-adjusted on-balance sheet assets, and credit-risk-adjusted off-balance sheet assets. The total capital adequacy ratio must be no lower than 8%.

This is calculated as:

$$\text{Capital Adequacy Ratio} = \frac{\text{Tier 1} + \text{Tier 2}}{\text{Credit risk-adjusted assets}} \geq 8\%$$

For the Tier 1, Capital Adequacy Ratio is calculated as:

$$\text{Capital Adequacy Ratio} = \frac{\text{Tier 1}}{\text{Credit risk-adjusted assets}} \geq 4\%$$

According to BI Regulations Number 5/12/PBI/2003<sup>24</sup> concerning the minimum capital requirement for commercial banks, account must be taken of market risks, which are divided into three criteria as follows:

1. Banks with total assets equal to or greater than IDR 10 Trillion;
2. Foreign Exchange Bank with a securities position and /or derivative transaction position in the Trading Book equal to or greater than IDR 20 billion; and
3. Non-Foreign Exchange Bank with a securities position and/or derivative transaction position in the Trading Book equal to or greater than IDR 25 billion.

For any Bank that meets the three criteria above, it shall be required to continue to take into account Market Risk in the minimum capital requirement. Therefore, a Bank may include Tier 3 Capital for calculating the minimum capital requirement. Inclusion of Tier 3 Capital into the calculation of the minimum capital requirement may only be used for calculation of market risk. Accounts that may be included as Tier 3 Capital are short-term subordinated loans. Furthermore, Tier 3 Capital for taking account of market risk may only be used subject to the criteria (i) not exceeding 250% of the portion of Tier 1 Capital allocated for taking account of market risk, and (ii) the sum of Tier 2

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<sup>23</sup> Basel II focuses on four conditions: credit risk and operating risk, three pillars (minimum capital requirements, supervisory review, and effective market discipline), and the goal is not raise average capital requirements, and have same Tier I and Tier II capital concept.

<sup>24</sup> This regulation has been in line with BIS (Bank International for Settlement) Standard, called as Basel Standard.



Capital and Tier 3 Capital does not exceed 100% of Tier 1 Capital. Moreover, any unused Tier 2 Capital may be added to Tier 3 Capital.

Table 2.4 Primary Capital and Secondary Capital on Banking Industries

COMPONENT	MINIMUM REQUIREMENT
<p>Core Capital (Tier 1)</p> <p>Common stock holder's equity</p> <p>Qualifying Cumulative &amp; no cumulative perpetual preferred stock</p> <p>Minority interest in equity accounts of consolidated subsidiaries.</p> <p>Less: Goodwill.</p>	<p>Must equal or exceed 4% of weighted-risk assets</p> <p>No limit.</p> <p>Limited to 20% of the sum of common stock, minority interest, and qualifying perpetual preferred stock.</p> <p>Organization should avoid using minority interest to introduce elements not otherwise qualifying for Tier 1 capital</p>
<p>Supplementary Capital (Tier 2)</p> <p>Allowance for loan lease losses</p> <p>Perpetual preferred stock</p> <p>Hybrid capital instrument, perpetual debt, and mandatory convertible securities</p> <p>Subordinated debt and intermediate-term preferred stock (original weighted-average maturity of five years or more)</p> <p>Revaluation reserves (equity and buildings)</p>	<p>A tier 2 capital is limited to 100% of Tier 1 capital.</p> <p>Capital subject to the limit of 1.25% of risk weighted assets.</p> <p>No limit within Tier 2</p> <p>No limit within Tier 2</p> <p>Subordinated debt and intermediate-term preferred stock are limited to 50% of Tier 1; amortized for capital purposes as they approach maturity</p> <p>Not included; organization encouraged to disclose; may be evaluated on a case by case basis for international comparisons and taken into account in making an overall assessment of capital.</p>
<p>Deductions (from sum of Tier 1 and Tier 2)</p> <p>Investment in unconsolidated subsidiaries</p> <p>Reciprocal holdings of banking organizations' capital securities</p> <p>Other deductions (such as other subsidiaries or joint ventures) as determined by supervisory authority.</p> <p>Total capital (Tier 1 + Tier 2 – Deductions)</p>	<p>Deduction must be on the basis of 50% from Tier 1 and 50% from Tier 2</p> <p>As general rule, one-half of the aggregate investments would be deducted from Tier 1 capital and one-half from Tier 2 capital</p> <p>One case-by-case basis or as a matter of police after formal rule making</p> <p>Must equal or exceed 8% of weighted risk assets</p>

Source: BCBS (2004, 12-4) and Saunders & Cornet (2005, 581)

### 2.3.3 Impact of Capital Adequacy Requirement

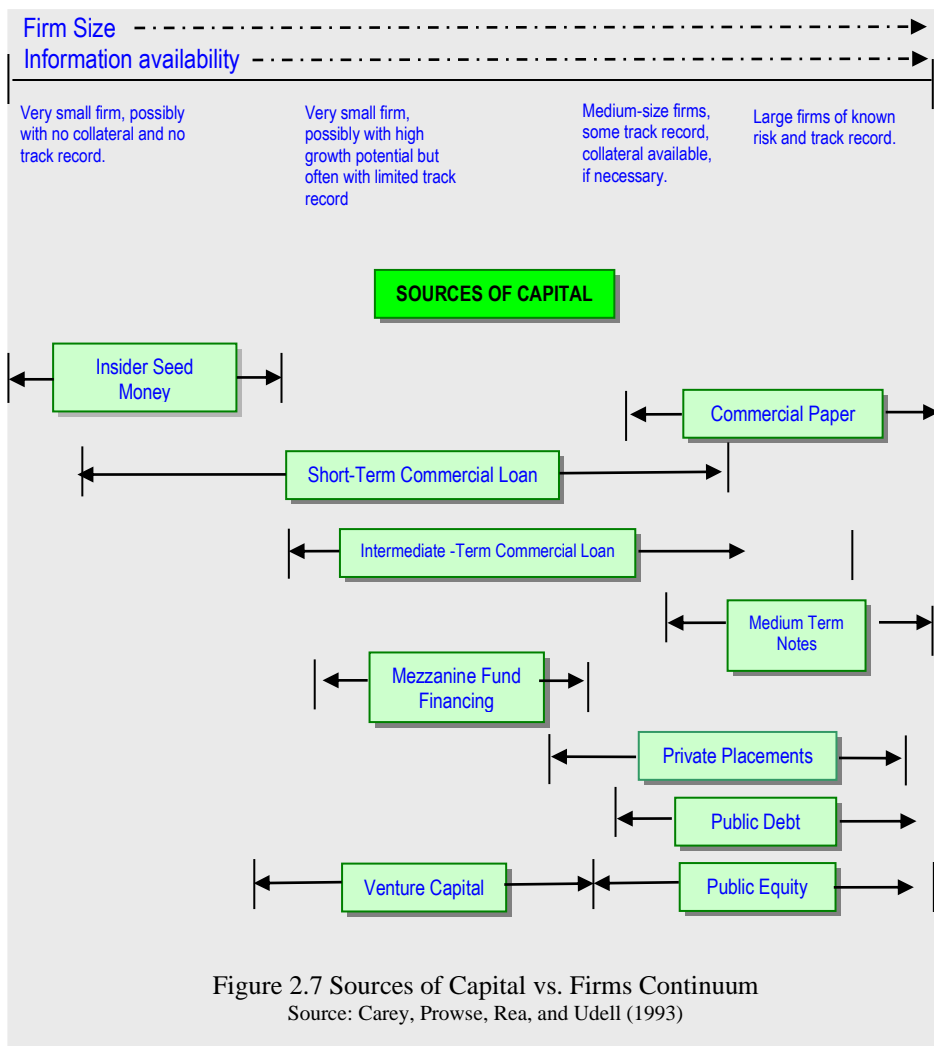
Under BI standards, the capital requirements are risk-related with the other standards, like reserve requirements. Stiglitz and Greenwald (2003, 84-87) elucidate that CARs' impose a limit on the amount of lending that a bank with a fixed asset base can engage in. This condition at anytime will generate the bank undertakes more additional risk within its portfolio, monitoring less and charging in higher interest rate. According to this research, after bank recapitalized, they got additional capital by government bonds. It means, they have additional assets by government bond excluding the existing loans. Increasing CAR leads to reduction for loans, hence, the impact not only to the limited loans also to inefficient matter.

Form of inefficiency matter can be in the form of the increasing of interest rate, moving to a riskier loan portfolio, and investing less in screening and monitoring. When banks can invest in either long-term bonds or loans, an increase in the CAR may lead to little reduction in risk, but a large reduction in lending (Stiglitz and Greenwald 2003, 87). If a large reduction in lending will be come for long-term, hence, the lending stag will be effluence directly to economy activities by domino effects.

### 2.3.4 Banking Architecture

Koch and MacDonald (2000, 39) mention that the commercial banks play an important role in facilitating economic growth. On the macro economic level, they represent the primary conduit of Central Bank monetary policy. The Central Bank has a few main functions to conduct as their mission. The bank is charged to: (i) maintain monetary stability, (ii) maintain the financial sustainability, (iii) strengthen the effectiveness of monetary management, (iv) create a sound and effective banking system and financial system stability, (v) maintain the security and effectiveness of the payment system, and (vi) give full support to increase the effectiveness of good governance implementation for all banks under its authority. By and large, the Central Bank's effort to control the nation's reserves and money supply are accomplished by changing the availability of credit at banks to boost economic activity. On micro economic level, commercial banks represent the primary source of financing or credit to most firms, such as SMEs, corporate enterprise, and many individuals.

How the intermediate markets work, especially in the banking system can be put under the umbrella called banking architecture. How the banking system works as sources of capital in the financial system is explained via the firms' continuum in Figure 2.7. From Figure 2.7 and the foregoing explanation, the role of banks as the dominant financing source for economic activity cannot be overemphasized. What is needed is the regulation by central bank, how the road map or banking architecture is practiced. The banking architecture is the materialization of the banking landscape in a country. When the banking architecture in a country is weak, it can trigger off the onset of systematic banking risk, with extensive currency crisis or monetary crisis. To establish the banking systems, there is need for a sophisticated arrangement of the banking architecture.



The financial intermediaries’ services have been subject to dramatic changes since “the Asian crisis.” Within the decade, the banking architecture has been influenced not only by the monetary or financial crisis but also by the systemic banking crisis. According to the Group of Ten (2001) from Basel, the main forces encouraging consolidation in mature market banking systems are globalization, information technology, deregulation, and discouraging of the lack of information and transparency, cross-country differences in regulatory frameworks, ownership structures, and cultures in emerging markets. All of the encouraging and discouraging factors will have influence to rapidly change the banking architecture.

According to Gelos and Roldós (2002), in most of the Asian crisis countries, government-led restructuring processes have led to a reduction in the number of banks,

but the degree of concentration has remained relatively stable. They used Herfindahl-Hirschman Indices (HHI) by the share in total deposits of the largest banks (see Box 1). The HHI uses a concentration of ratios to evaluate competitive conditions and relies on the theoretical predictions of the structure-conduct-performance paradigm.

### Box 1: Calculation of the Herfindahl-Hirschman Index (HHI)

The HHI formula expression by

$$HHI = \sum_{i=1}^n MS_i^2,$$

MS = The market share of bank *i*  
*n* = Number of banks in the market

For example:

	Deposit market share
Bank 1	30
Bank 2	25
Bank 3	21
Bank 4	16
Bank 5	8

The HHI = 30<sup>2</sup>+25<sup>2</sup>+21<sup>2</sup>+16<sup>2</sup>+8<sup>2</sup> = 2,286

Suppose that banks 3 and 5 merge. After the merger, the HHI = 30<sup>2</sup>+29<sup>2</sup>+ 25<sup>2</sup>+16<sup>2</sup> = 2,622 , with a post-merger increase ΔHHI = 336.

In antitrust evaluation this merger may be rejected, because it violates the 1,800/200 rule.

By construction, the HHI has an upper value of 10,000, in the case of a monopolist firm with 100 percent share of the market, and tends to zero in the case of a large number of firms with very small market shares.

The HHI synthesizes information on both the distribution of market shares and the number of banks in the market. With some manipulation it could be rewritten as

$$HHI = \frac{V^2 + 1}{n},$$

where *V* is the coefficient of variation of deposit market shares, and *n* is the number of firms in the market. This feature of the HHI makes it more popular than other concentration indicators, such as the *n*-firm ratio, calculated as the sum of the market shares of the *n* largest firms in the market, where *n* are usually 3 or 4.

Source: Adopted from Cetorelli (1999, 3)

Previous research by Panzar and Rosse (1987) used the relationship between revenue and marginal costs to assess changes in the competitive structure, but unfortunately, the approach has typically been applied to cross-sectional data from developed countries only. The advantage of the Panzar and Rosse (PR) model is that it uses bank-level data, differences in specific bank production functions and types of banks (such as large versus small, foreign versus domestic). The PR model assumes that the banking industry is in long run equilibrium, the other method comes from Bresnahan (1989) that uses the condition of general market equilibrium. The basic idea is by placing maximum profit of company in equilibrium to determine price and quantities such that marginal costs equal their marginal revenue.

Koch & MacDonald (2000, 45) separate the structure of banks into five categories, i.e. global banks, nationwide banks, super regional banks, regional banks, and special banks (limited region and limited product line). But in fact, the development of the banking landscape or banking architecture in an state, very much depended on the policy of the local monetary authority and how far the influence of bank business go, society circumstances, beside the bank culture that serves as its background.

## 2.4 Banks Recapitalization

Dziobek & Pazarbaşıoğlu (1998, 2) argued that systemic bank restructuring aims to improve bank performance, that is, restore solvency and profitability, improve the banking system's capacity to provide financial intermediation between savers and borrowers, and restore public confidence. For corporate level (borrowers of banks), the definition of restructuring is different with banks, but still have the same aims. According to the Oxford Dictionary of Finance and Banking (2005, 353), restructuring is rescheduling a debt, often also involving changes to the internal workings of the borrowing organization, its contracts, or even its products. The borrower usually undertakes restructuring voluntarily, whereas the lender ensures that the debt is serviced regularly. This often imposes rescheduling.

There are three types for systemic bank restructuring. These are financial restructuring, operational restructuring, and structural as summarize in Table 2.5.

Table 2.5 Instruments of Systemic Bank Restructuring	
Type of Instruments	Examples
Financial Immediate financial support to banks	Central bank liquidity support State guarantees State support (bonds, grants, loan, etc.) Private equity and bond injections
Operational Improving governance and efficiency	Additional capital New management More efficiency staffing Twinning Facilitate entry for reputable foreign banks
Structural Restore competition	Closure Merger/splits and downsizing Assets management; debt restructuring Privatization Enterprise restructuring
Market based instruments should be implemented and monitored by a designated leas agency and supported by measures to improve the accounting, legal and regulatory environment.	
Source: Dziobek (1998, 9)	

From the facts presented in Table 2.5, there are some ways, which were selected by the Bank Support Authority (BSA) in conducting bank restructuring. Each choice of bank restructuring instrument had its implications and consequences. These, among others, were how the speed of the economic recovery will be applied in the field, how big the fiscal expense which must be accounted for by government in the recovery, and whether the applied policies can improve performance of national banking.

Banks Restructuring, in fact, is the governmental part of interventions<sup>25</sup> in the efforts at recovering the banking system from systematical risk and to enhance economic recovery as a whole. Financial intervention can be done through two paths, which pass through the central bank and the ministry of finance (MOF). Through the central bank as the monetary policies authority, this gives the facility of window dressing in the form of liquidity-support. Here, the function of the central bank is as lender of the last resort (LOLR), by which it gives temporary bailouts of liquidity requirements on healthy banks during a period of crisis<sup>26</sup>. Through the Ministry of Finance (MOF) as the fiscal policies authority, it issues government bonds like short-term, medium-term, and long-term bond for recapitalizing the banking systems. The government will be ready to allocate budgetary support for interest installments and initial repayments. In determining the fiscal policies, government must consider the solvency (sustainable budget deficit) and liquidity (ability to repay) via government budget.

Enoch (2000) divided the intervention in structural instruments into two. These are through “closures” or “open bank resolutions.” For the open bank resolution, banks remain to continue the business under new rules for the conduct of business with new owners or maybe as part of another institution. In either case, Enoch emphasized that the cost of intervention arises not only at the time of intervention, but as the assets and liabilities of the banks are dealt with.

In practice, financial instruments of government intervention, like bailouts and recapitalizations have invited moral hazard problems between borrowers and creditors. Also in structural instruments, the closures strategy mitigates the moral hazard problems that would arise with any “bail out” of the bank (ibid). Krugman (1998) emphasized that institutions whose liabilities were perceived as having an implicit government guarantee, were essentially unregulated and therefore subject to severe moral hazard problems<sup>27</sup>.

There are major methods of government assistance in resolving banking problems (see on Table 2.6). There is a primary distinction between direct and indirect methods of government assistance. Direct methods aim at explicit financial transfer from the government to the troubled banks. In practice, the government, including other institutions, act as the new investors or buyers. Indirect methods are fiscal operations that directly have no benefits to the troubled banks. These include government servicing of non-performing enterprise debt, that do not lead to higher explicit government outlay such as tax breaks or lower regulatory requirements (Daniel 1997, 13).

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<sup>25</sup> The intervention may take several forms: an insolvent bank may be closed; an undercapitalized bank may be nationalized, placed in conservator ship, or given capital assistance while under close supervision.

<sup>26</sup> Krugman (1999, 6) describe that bank runs played an important role in the unfolding of the crisis, particularly in Indonesia, and a freezing up of the credit system played at least some role in deepening the recession after the crisis hit.

<sup>27</sup> Krugman (1998) also elaborate those moral hazards have linking with the excessive risky lending of these institutions created inflation by assets prices. The overpricing of assets was sustained in part by a sort circular process. This circularity, in turn, can explain both the remarkable severity of the crisis and the apparent vulnerability of the Asian economies top self-fulfilling crisis- which in turn helps us understand the phenomenon of contagion between economies with few visible economic links.

**Table 2.6 Major Methods of Government Assistance in Resolving Banking Problems**

Methods	Budgetary Classification
<b>Direct Method</b>	
1. Recapitalization	
A. Equity Injections	
Cash	<ol style="list-style-type: none"> <li>1. Expenditure, capital.</li> <li>2. Expenditure "restructuring and net lending"</li> <li>3. Expenditure "equity and net lending"</li> <li>4. Expenditure "development expenditure and net lending"</li> </ol>
Long-term loan	<ol style="list-style-type: none"> <li>1. Not recorded in expenditure.</li> <li>2. Expenditure, net lending.</li> <li>3. Expenditure, "financial investment."</li> </ol>
B. Bond Transfer	
Exchange for bad loans	Principal exclude from expenditure, interest included
Unrequited	<ol style="list-style-type: none"> <li>1. Neither interest nor principal recorded in expenditure.</li> <li>2. Principal excluded from expenditure, interest included.</li> </ol>
C. Assumption of (net) Liabilities	<ol style="list-style-type: none"> <li>1. Loan repayment operation excluded from expenditure.</li> <li>2. Not included in expenditure.</li> <li>3. Compensation to depositors classified as expenditure.</li> <li>4. All cash and debt components included in expenditure, "restructuring, and net lending," Write off treasury claims (uncashed checks) recorded as negative revenue.</li> <li>5. Only interest and debt recorded in expenditure.</li> </ol>
2. Short/medium-terms loans	
Standard loan	<ol style="list-style-type: none"> <li>1. Quasi-fiscal lending by central bank included in expenditure.</li> <li>2. Excluded from expenditure.</li> <li>3. Bank debt to central bank assumed by government in expenditure.</li> <li>4. Operating position of central bank included in fiscal accounts</li> </ol>
Placement of deposits	Excluded from expenditure.
<b>Indirect Methods</b>	
Tax breaks and lowering regulatory requirements	Not included in the budget
Assumption of enterprise debt	Expenditure, net lending
Equity conversion of non budget public deposits/claims	Excluded from expenditure
Loans or transfer to enterprises to allow servicing/repayment of bank debt	<ol style="list-style-type: none"> <li>1. Excluded from expenditure.</li> <li>2. Expenditure, lending or subsidy expenditure</li> </ol>

Source: Daniel (1997, 14) adapted from IMF document.

According to Daniel (1997), generally, in recapitalization, governments react to the problem of troubled banks by increasing their net worth. There are three ways for government to recapitalize the trouble banks, as follow:

1. Increasing the capital account via capital injection by purchasing new shares or by extending long-term loans to the troubled bank;
2. Issuing public debt to the banks or bond transfer by increasing the asset side of the balance sheet; and
3. Government assumption of bank's (net) liabilities that typically involves the government redeeming or assuming depositors, and possibly other creditors', claims on the bank for government debt or cash.

Furthermore, to determine which banks should receive government assistance in recapitalization, the BSA must make the classification by position of CAR. Theoretically, Enoch, Garcia, and Sundarajan (2001, 70-71) based on Ingves and Lind (1997) grouped the banks into four classes using their capital adequacy ratio (CAR) as shown in Figure 2.9. First, class A banks have CAR above 8% and have solvency and liquidities so that they do not need assistance. Second, class B banks have CAR between 4% and 8%. This group might recover very slowly without assistance. When given assistance, they will be able to recover themselves beyond performance of the A banks. Third, class C banks have CAR below 4% but still have the potential to recover when given assistance. Without assistance, such banks cannot recover. Fourth, class D banks, whose CAR position is precarious and deteriorating swiftly and incisively without the ability to repay.

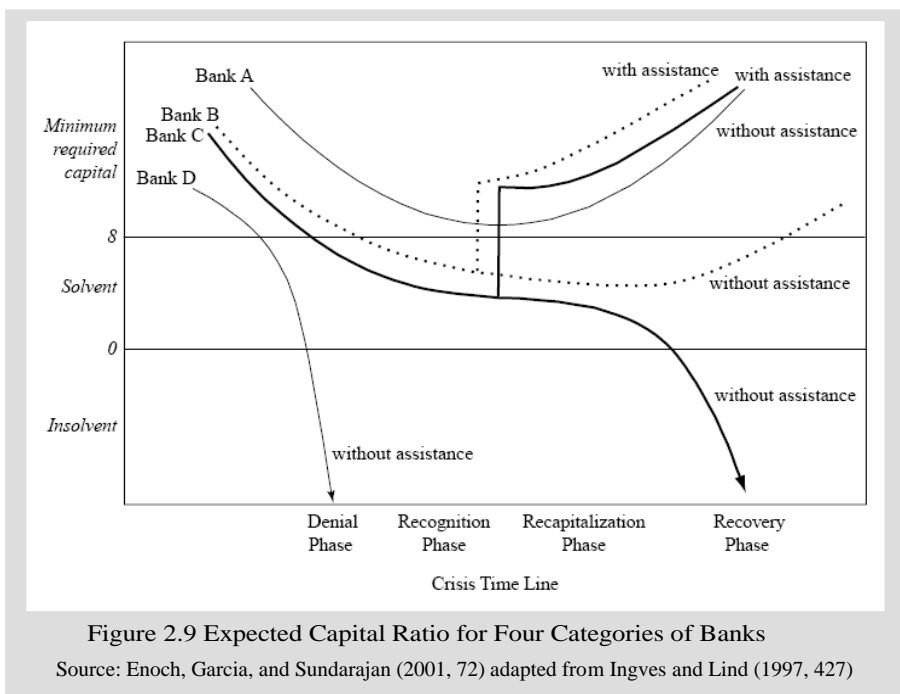


Figure 2.9 Expected Capital Ratio for Four Categories of Banks

Source: Enoch, Garcia, and Sundarajan (2001, 72) adapted from Ingves and Lind (1997, 427)



If the bank has a big asset, its systemic risk rises progressively, and the only solution is to recapitalize it. The difficulty that emerges is the choice of whether to recapitalize or give assistance to bank B, if the results of the valuation exercise predict a higher priority without aid as compared to unassisted recovery of bank C. On the other hand, when the bank restructuring agency (BRA) assesses the bank to be “over-banked” and ‘systematical insignificant’, it could call for liquidation (of both B & C). When BRA has a notion that the bank is ‘systematical important’ and requires to be taken care of under banking restructure competition, it should aid stronger bank B and close bank C. When the assessments indicate that both banks B and C are still needed, then the BRA may support both. If budget resources are constrained, the BRA can invite the private sector or other institutions, even foreign investors, to conduct investments.

## **2.5 Summary of Literature Review on Banks Recapitalization**

In order for an economic system hit by a banking crisis to be restored to its normal function, the banking system must be recapitalized (see Kobayashi 2003). This is because banks are thought to be central to business activity (Dell’Ariccia, Detragiache, and Rajan 2005, 3). The key goal of banks recapitalization is strengthening and increasing the capital of the banking sector, so that it can run its functions of ensuring the banks have enough capital, liquidity, and incentives (see Honohan 2001) as enhanced part of economic recovery by supporting the real sector and an efficient national payment system. In general, conducting the restructuring of the financial and operational systems of the banks, called banking resolution, continues alongside the recapitalization.

Claessens, Klingebiel, and Laeven (2001) found empirically that a package of specific resolution measures could help accelerate the recovery from the crisis with significant fiscal cost. From the point of view of fiscal cost, in Japan, banks recapitalization by fiscal measures is optimal, but implies that Japan’s protracted recession and deflation may have been caused by an inappropriate policy response to bank insolvency (Kobayashi 2003; Diamond & Rajan 2002). Daniels (1997) verified that subsidizing the banking sector, just like any other sector of the economy is a function of the budget.

In a state of crisis, generally, governments do not have enough cash/money to support the sustenance of the banking system from the crisis, therefore in banks recapitalization; the government can inject the new banking capital by issuing the government bonds (see Andrews 2003). Dziobek (1988) and Dziobek & Pazarbaşıoğlu (1997) elucidate that the market-based instruments to resolve systemic banking problems are addressed while appropriate incentives ensure long-term viability. Sharing the cost of bank restructuring between the state, the banks, and to a lesser extent with depositors is an important principle of efficient bank restructuring. Diamond (2001) emphasized that providing subsidized recapitalization of banks with relationship-based loan can be a good policy. In addition, Bonin and Leaven (2000) state that banks may play a role in financial restructuring of their clients. It means that banks recapitalization without an accompanying debtors’ restructuring will be without effect.

Montgomery and Shimizutani (2005) found that capital injections are more effective for international banks than for domestic banks. They examined the effectiveness of banks recapitalization policies by identifying the goal of capital injection plan in Japan. These were: (i) to increase the CAR, (ii) to increase lending in particular to SMEs, (iii) to increase write-offs of NPLs, and (iv) to encourage restructuring.

Among these research approaches listed in Table 2.7, the author summarize that:

1. Banking performance have played a role in financial and operational restructuring by enhancing economic recovery through support to the real sector and an efficient national payment system;
2. Capital injections by issuing government bonds are more reasonable than cash support;
3. Sharing the cost of bank restructuring between the state, the banks, and to a lesser extent with depositors is an important principle of efficient bank restructuring;
4. Banking recapitalization provides one of the solutions to restore the normal banking function as intermediaries in an economic system hit by banking crisis;
5. The success of banks recapitalization will be determined by the policy of government intervention in electing which banks to be given assistance.

Based on the summaries and the approaches of the researches above, especially on performance of banks and banks recapitalization, this researcher intends to modify these approaches to become the basis of the study. Specifically, the study will examine the performance of banks and effectiveness the banks recapitalization to the real sector lending.

Table 2.7 The Related Discussion of the Banking Restructuring and/or Recapitalization

Authors, year, title of paper/research	Approach	Description	Findings
Daniel (1997) "Fiscal Aspects of Bank <b>Restructuring</b> "	Fiscal aspects based on primary balance improvement required to maintain debt sustainability.	The paper examines the fiscal aspects of such assistance: rationale, design criteria, methods, and macroeconomic implications.	Subsidizing the banking sector, just like any other sector of economy, is a function of the budget. Tighter fiscal policy may also be needed to compensate for the inability to achieve, and undesirability of, tight monetary policy.
Dziobek & Pazarbaşıoğlu (1997) "Lesson from Systemic Bank <b>Restructuring</b> : A Survey of 24 Countries"	The samples countries were ranked by relative progress in resolving banking sector problems.	Examines the effectiveness of institutional and regulatory measures, assesses the impact of accompanying macroeconomic policies, and particular <b>restructuring</b> instruments contributed to success. The systemic is defined as a situation where affected banks which, in aggregate, held at least 20% of the total deposits of the banking system.	Successful bank <b>restructuring</b> implies a comprehensive approach addressing not only the immediate stock and flow problems of weak and insolvent banks but also correcting shortcomings in the accounting, legal, and regulatory framework while improving supervision and compliance.
Dziobek (1998) "Market-Based Policy Instruments for Systemic Bank <b>Restructuring</b> "	The surveys and assesses market based policy instruments employed to overcome systemic bank problems.	Considerations regarding the design and mix of instruments as well as cost sharing arrangements are show to be key aspects of effective bank <b>restructuring</b> .	Effective use of market-based instruments to resolve systemic banking system addressed while appropriate incentives ensure long-term viability. Sharing the cost of bank <b>restructuring</b> between the state, the banks, and to a lesser extent with depositors is also an important principle of efficient bank <b>restructuring</b> .
Bonin and Leaven (2000) "Can Banks Promote Enterprise Restructuring?: Evidence from a Polish Bank's Experience"	Based on personal interviews and statistical data to evaluate the banking performance in enhance promoting financial and operational <b>restructuring</b> .	Financial sectors reforms focusing on a bank-led enterprise-restructuring plan that linked directly bank privatization and <b>recapitalization</b> to bad-debt workouts.	Banks may play a role in financial <b>restructuring</b> of their clients. Moreover, for state-owned banks are particularly vulnerable to incentive problems when dealing with large state-owned enterprises that may be too big or too political to fail.

Source: Summarized by author.

Table 2.7 Continued

Authors, year, title of paper/research	Approach	Description	Findings
Diamond (2001) “Should Japanese Banks Be Recapitalized?”	The level of bank capital then has real effects on its borrower’s access to credit.	A subsidized recapitalization of banks with relationship-based loans can be a good policy. The size of <b>recapitalization</b> is critical, because providing too small an amount of subsidized capital can be worse than providing no capital.	Providing subsidized capital to banks without relationship-based loans is never good policy.
Claessens, Klingebiel, and Laeven (2001) “Financial Restructuring in Banking and Corporate Sector Crises: What Policies to Pursue?”	Using data for 687 corporations from eight crisis countries, the author identify government policies that affect the depth of a crisis and ease, sustainability recovery, and analyze their fiscal cost.	A consistent framework – including sufficient resources for loss-absorption and private agents facing the right framework of sticks and carrots – is the although often missing key to successful bank and corporate restructuring. The sustainability of <b>restructuring</b> calls for deeper structural reforms, which often requires dealing with political economy factors up-front.	They find empirically that a package of specific resolution measures can help accelerate the <b>recovery</b> from crisis with significant fiscal cost.
Enoch, Garcia, and Sundarajan (2001) “Recapitalizing Banks with Public Funds”	<b>Recapitalization</b> based on capital injections by public funds.	<b>Recapitalization</b> approaches have varied in the different mixes on direct capital injections and assets purchases and rehabilitation that countries choose.	The choice of an appropriate mix is critical to minimizing the expected present value of government outlays net of recoveries.
Honohan (2001) “Recapitalizing Banking Systems: Implications for Incentives and Fiscal and Monetary Policy”	<b>Recapitalizing</b> banking system to ensuring the bank has enough capital, liquidity, and incentives.	To help restructure a failed banking system, there are also consequences for the incentive structure facing the new bank management, for government’s budget, and for monetary stability.	To apparent conflicts between new bank management, budget, and monetary stability can be resolve by the suitable design of financial instruments and appropriate allocation of responsibility between different arms of government.

Source: Summarized by author.

Table 2.7 Continued

Authors, year, title of paper/research	Approach	Description	Findings
Diamond & Rajan (2002) "Bank Bailouts and Aggregate Liquidity"	Using possibility that natural sequence of bailouts (weakest and most illiquid banks first) with the framework relationship between entrepreneurs with banks.	Governments some times bail out banks by <b>recapitalizing</b> them. Author considers a world with entrepreneurs, investor, and lenders.	Bailout decisions that increase the excess demand for liquidity can cause further insolvencies, and indeed, a meltdown of entire system, where contagion is spread via the common pool of liquidity.
Andrews (2003) " Issuing Government Bonds to Finance Bank <b>Recapitalization</b> and <b>Restructuring</b> : Design Factors that Affect Banks' Financial Performance"	Key elements of a good bond design from perspective of the <b>recapitalized</b> banks' financial performance.	Many conflicting considerations affect the design of the bonds used to pay for public sector investment in bank equity or purchase of significant risk, laying the foundation for future banking sector problems.	Banks with risk exposure imbedded in their holdings of <b>recapitalization</b> bonds are likely to suffer losses leading to the need for subsequent intervention and a renewed attempt as <b>restructuring</b> .
Kobayashi (2003) "Debt Deflation and Bank Recapitalization"	Used Diamond-Rajan Model (2001) based on liquidity risk, liquidity creation, and financial fragility.	Effects of policy responses to bank insolvency, based on moral hazard and premature liquidation of bank assets model, with assume that insolvency of the banking system is caused by an exogenous macroeconomic shock that destroys a portion of banks' assets.	Bank <b>recapitalization</b> by fiscal measures is optimal, but implies that Japan's protracted recession and deflation may have caused by an inappropriate policy response to bank insolvency.
Peura & Keppo (2004) "Optimal Bank Capital with Costly Recapitalization"	Bank accounting returns data, and bank capital ratio.	Optimal bank capital choice as dynamic trade off between the opportunity cost of equity, the loss of franchise value following a regulatory minimum capital violation, and the cost of recapitalization.	Replicate a significant amount of the cross-sectional variation in bank capital ratios by relating to differences in return volatility.

Source: Summarized by author.

Table 2.7 Continued

Authors, year, title of paper/research	Approach	Description	Findings
Montgomery and Shimizutani (2005) "The Effectiveness of Bank Recapitalization in Japan"	They are finding using OLS (ordinary least square) on a panel of individual bank data for international and domestic banks.	The study examines the effectiveness of bank recapitalization policies by identify goal of capital injection plan in Japan: (i) to increase the CAR, (ii) to increase lending, in particular to SMEs, (iii) to increase write-offs of NPLs, and (iv) to encourage restructuring.	Capital injections are more effective for international banks than for domestic banks. They suggest that the receipt of injected capital strengthens the capital position of both international and regional banks.
Williams and Nguyen (2005) "Financial Liberalization, Crisis, and Restructuring: A Comparative Study of Bank Performance and Bank Governance in South East Asia"	Identify that bank governance in terms of bank ownership and measure bank performance via profit efficiency, technical change, and productivity for a sample SE Asian Banks from 1990 to 2003.	The period was characterized by financial deregulation in circumstance on Asian crisis and bank restructuring programs. Tend to support bank privatization and the repeal of the state ownership on economic grounds. For domestic private-owned banks, the challenge is improving bank efficiency. The process of bank restructuring logically concludes with bank privatization; the return of banking system assets to private hands.	Bank privatization has raised bank performance to levels in excess of pre-privatization bank performance. Bank privatization was associated with superior profit efficiency performance compared with others types of bank governance. The author evidence suggests domestic private-owned banks should target improvements in profit efficiency if they expect to compete with other institutions in SE Asia.

Source: Summarized by author.

### **3. Indonesian Banking Crisis and Recapitalization**

#### **3.1 Macroeconomic Background and Genesis of the Crisis**

Indonesian economy has had adequate performance before the crisis happened in 1997-1998. The crisis brought Indonesia into economic weakness and loss of trust from the world community. In comprehending, how this happened and the evolution of the economic recovery, the discussion will focus on the situation of the macroeconomic structure (i.e. the weaknesses of the financial system and structural vulnerability), the genesis of the crisis, and the chronology of the crisis that knocked over Indonesia, as a historical lesson.

##### **3.1.1 The Macroeconomic Background**

The macroeconomic fundamentals were appropriate and strong before the crisis. This condition was shown through the macroeconomic indicators of Indonesia in Table 3.1. From 1994-1996, some of the major macroeconomic indicators showed strong characteristics like real GDP, fiscal balances was in surplus, inflation under 10% per year, and the rising credit growth. The annual GDP reflected the happening of good investment climate, the fiscal balance reflected that the Indonesian government could repay the external debt, and inflation under 10% reflected that the Indonesian government could control the rate of inflation. Unfortunately, some economic indicators identified behaviors that indicated vulnerability. These included the large capital inflows and the associated foreign debt, the fragile state of the banking system that had links to government problems, and a creeping return to more interventionist policies that restrained the free operations of the markets and created rent-earning opportunities for the well-connected (IEO-IMF 2003, 13). Others were the currency crisis of July 1997, the aftermath, and the vulnerability becoming the trigger for the heavy economic crisis. All these macroeconomic indicators became negative, inflation rose until 77.54%, and IDR against USD reached IDR8.065 at the end of the period.

##### **3.1.2 Genesis of the Crisis**

The crisis that knocked Indonesia over was triggered by the contagion-effect<sup>28</sup>, which started from the Thai Bath that was floated and depreciated by 15-20 percent on July 2, 1997. This directly led to pressure on the Indonesian Rupiah (IDR). Beginning from July 11, 1997, the Bank Indonesia (i.e. the Central Bank of Indonesia) made efforts to defend the Rupiah from speculative attack by intervening in the market by widening the intervention bands from 8% to 12%. Unfortunately, intensive market pressure forced Bank Indonesia to abolish its intervention, causing the Rupiah to free-float on August 14, 1997. This contagion-effect swiftly encompassed the whole region and successively devalued the domestic currency exchange rates against the US dollar. For example, the currency of Thailand was depreciated by 87.09%, Malaysia by 55.43%,

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<sup>28</sup> Contagion-effect is "excess co-movement" in financial and economic variables across countries in response to a common shock (Kaminsky, Reinhart, and Végh 2003, 55).

Korea by 83.04%, Philippines by 51.37%, and Indonesia, the most affected, by 231% from July 2, 1997 up to February 16, 1998 (Kaushik Basu 2003, 888).

Table 3.1 Macroeconomic Indicator of Indonesia 1994-2004

INDICATORS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Real GDP growth (%)	7.50	8.20	7.80	4.70	-13.10	0.80	4.90	3.40	4.50	4.80	5.10
Real private consumption (%)	7.80	12.60	9.70	7.80	-6.20	4.60	1.60	4.40	3.80	3.90	5.00
Real fixed investment (%)	13.80	14.00	14.50	8.60	-33.00	-18.20	16.70	7.70	4.70	0.60	14.60
Real private fixed investment (%)	13.80	18.90	16.60	5.40	-33.00	-40.30					
Production Component (annual Growth)											
Agriculture	1.00	-1.30	2.70	1.70	-1.30	2.70	1.90	1.70	3.20	4.30	4.10
Mining	2.10	-2.80	-2.40	2.30	-2.80	-2.40	5.50	1.30	1.00	-0.90	-4.60
Manufacturing	5.30	-11.40	3.80	6.20	-11.40	3.80	6.00	3.10	5.30	5.30	6.20
Electricity, gas, water	12.40	3.00	8.30	8.00	3.00	8.30	7.60	8.20	8.90	5.90	5.90
Building	7.40	-36.40	-0.80	8.80	-36.40	-0.80	5.60	4.40	5.50	6.70	8.20
Trade, hotel and restaurant	5.80	18.20	0.10	6.70	-18.20	0.10	5.70	3.70	3.90	5.30	5.80
Transportation and communication	7.00	-15.10	-0.80	5.70	-15.10	-0.80	8.60	7.80	8.40	11.60	12.70
Finance, rental, and company services	5.90	-26.60	-7.50	9.40	-26.60	-7.50	4.60	5.40	6.40	7.00	7.70
Services	3.60	-3.80	1.90	4.70	-3.80	1.90	2.30	3.10	3.80	3.90	4.90
Inflation (y.oy. %)	9.60	9.00	6.00	2.20	77.54	1.90	9.35	12.55	10.03	5.06	6.40
Base money (end-period, %)	22.00	34.00	13.90	6.80	32.50	35.50	22.80	2.10	5.97	14.25	10.20
Broad money (M1, end-period, %)				22.20	29.20	23.20	30.10	9.59	7.99	16.60	13.41
Broad money (M2, end-period, %)	20.20	27.60	29.60	23.20	62.30	11.90	15.60	12.99	4.72	8.12	8.14
Current account balance (US\$, billion)	-2.80	-6.40	-7.70	-4.90	4.10	5.80	8.00	6.90	6.60	7.10	5.60
Export growth (US\$, %)	8.80	13.40	9.70	7.30	-8.60	-0.40	27.70	-16.10	0.80	1.80	-2.20
Import growth (US\$, %)	12.90	27.00	5.70	-2.90	-34.40	-12.20	39.60	-17.50			
External debt (US\$ billion, end-period)	100.90	113.70	121.10	146.60	159.80	158.40	149.60	139.80	131.30	135.40	137.40
International reserves (US\$ b, end-period)	12.10	13.70	18.30	16.60	22.70	26.40	28.50	27.20	32.00	36.30	36.30
Exchange rate (Rp/US\$, end-period)	2,215	2,330	2,407	4,673	8,065	7,136	9,643	10,452	9,314	8,575	8,933
Real effective exchange rate	100.20	100.00	103.90	62.10	65.80	72.70	62.90	66.30	94.20	95.00	87.00
Central government balance (% of GDP)	0.20	0.90	1.10	-1.30	-2.30	-1.50	-1.10	-3.70	-1.60	-2.00	-1.40

Sources: BI, IMF, Statistic Central Bureau

1. Calendar years, unless noted otherwise.

2. Fiscal years.

3. Foreign currency stocks measured at constant exchange rates to avoid valuation changes.

4. End-period; average of 1990 = 100.

5. Fiscal years. Fiscal year 2000 covers nine months from April to December, as Indonesia's fiscal year changed from April–March to a calendar year in April 2000. The fiscal balance excludes privatization proceeds and includes the interest rate cost of bank restructuring.



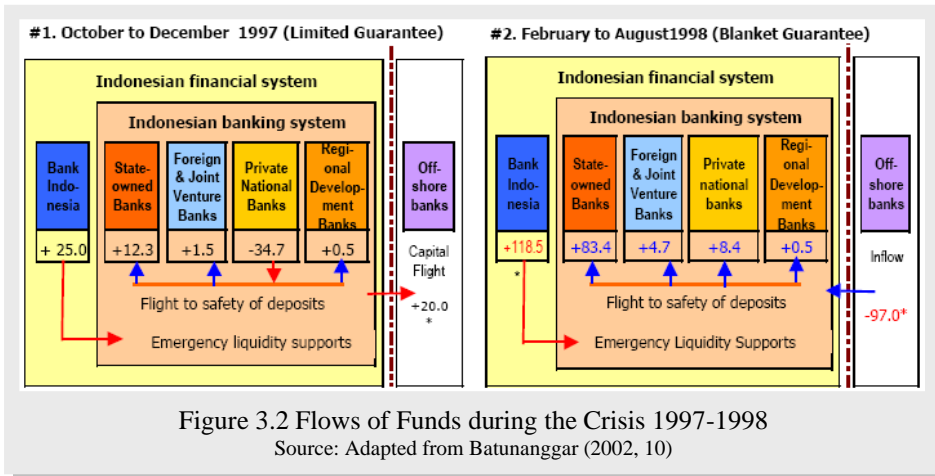
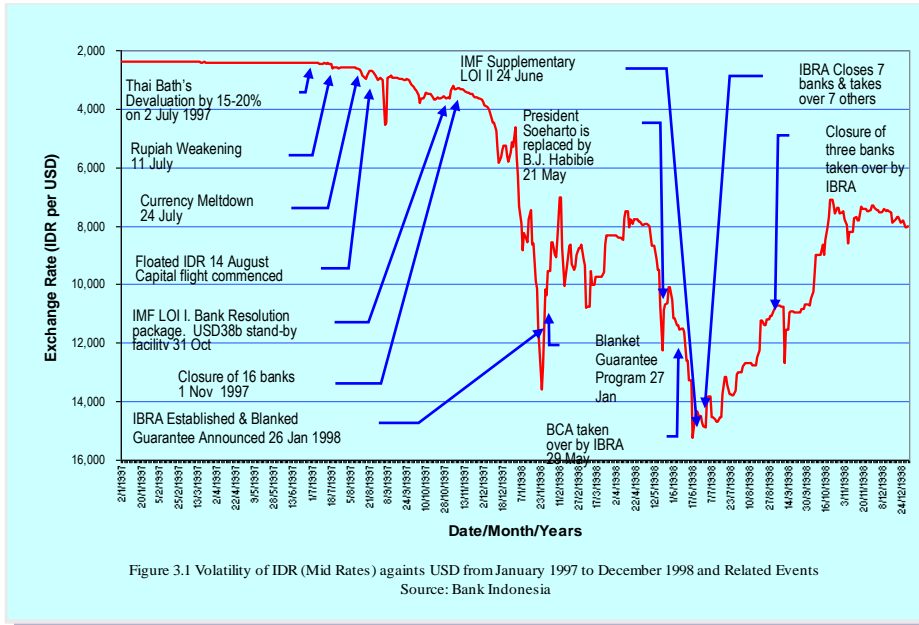
In March 1998, the exchange rate of the IDR had fallen to around IDR11.000 for US\$1.00 (compared to IDR2.431 for US\$1.00 in June 1997). Even from June of 1997, the depreciation of the Rupiah increased until it reached IDR15.250 per dollar. It was interesting to notice the depreciation of the Rupiah's value to the dollar because the currency was self-supporting. Some matters that enlarged the problem were the value of the Rupiah, which was overvalued to the dollar before the crisis (Tarmidi 1998, 4) and the accumulated amount of overseas debts, governmental debt and private sector debt, which had fallen or would fall due for payment. The difficulties here were with the overseas debt structure. The majority of the debts were short-term loans denominated in U.S. dollars or with liability dollarization. The sharp real currency depreciation created a situation where those who had borrowed in U.S. dollars were unable to repay, because of the fact that corporate earnings were in local currency but their debts were in U.S. dollars (Calvo and Mishkin 2003, 105). Of course, this made the corporate world in Indonesia very fragile with the threat of bankruptcy and the possibility of failure to repay their liabilities. The typical episode began with a lending boom and an appreciation of the real exchange rate. This was followed by a real depreciation, which coincided, with widespread defaults by the domestic private sector on un-hedged foreign-currency-denominated debt (Schneider & Tornell 2004, 883).

The financial turbulence, which knocked over emerging markets in the East Asian region, could initially be seen from the devaluation of Thai Bath on 2 July 1997. The contagion effect swiftly covered the region, which successively dashed down domestic currency exchange rates to the US dollar (Simatupang 2004).

The contagion effect is a reflection of the open financial market as an integrated part of the new global economic structure. By embracing the open financial system in its globalization arena, the economic relations of strong nations will be able to influence economies of regional blocs. Thus, what happened in the East Asian area was the contagion effect in an integrated worldwide economy. The currency exchange rates fell so dramatically, resulting in the occurrence of a monetary crisis, which later on became an economic crisis for the area of emerging markets in Asia.

After 1997, Indonesia fell into a deep crisis, when a period of monetary crisis led to an economic crisis, banking crisis, and even a confidence crisis. It started with the downfall of the Thai Bath on 2 July of 1997. Then, it crept into the Philippines; to the regional markets and the latest to be hit was Indonesia. The contagion effect forced the Rupiah to depress heavily and, as a result, on 14 August of 1997, the Bank of Indonesia was forced to release a free-floating exchange rate mechanism for the Rupiah. This was part of a tight monetary policy, especially the IDR to the USD, and that meant that Indonesia left the system of managed, floating exchange rate, which was in use during the time and had been Indonesia's foreign exchange regime since the devaluation of October 1978. Figure 3.1 shows the trend in exchange rates with the volatility of IDR against USD and what the related major events accompanying them. Moreover, after the free-floating exchange rate, emerged the bearish view of the domestic economy, with the lack of confidence in the banking system and leading to the withdrawal of foreign funds and capital flight (Prasentiantono, et.al. 2000, 49). In

Figure 3.2, we show the flow of funds during the crisis of 1997-1998 when the capital flight commenced on August 14, 1997.



**REMARK**

- Signs indicate net movements of funds in the banking system: "+" as inflows; and "-" as outflows.
- The exchange rate effect (IDR depreciation to USD) was excluded by using the rupiah (IDR) exchange rate to US dollar (USD) of Rp 2,559 in July 1997 as a constant rate; while the rupiah deposits were not adjusted.
- The capital flight (November to December 1997) was reflected in a decrease of total deposits while in contrast the capital inflow (February to August 1998) was reflected in an increase of total deposits.
- 83% of BI's liquidity support (February to August 1998) was provided to 4 highly insolvent private national banks and to BankExim (state-owned) which had a foreign exchange transaction loss of IDR20 trillion.

Besides the capital flight, the other effects of tight monetary policy dried up liquidity in the money market. This matter showed fantastic increases in the inter-bank overnight rates from over 100% to about 300%. At the same time, BI raised the SBI (Bank Indonesia Certificates) rates for tenors of 1 and 3 months to 30% and 28%, and all of BI facilities, like discount window facilities, SBI Repos, and Bank Indonesia Liquidity Credit (KLBI), were temporarily terminated. Nevertheless, on the other hand, BI remained to execute its function as the lender of last resort (LOLR), and giving aid or liquidities assistance (BLBI) to stabilize the economy and to recover the society's confidence in the national banking system.

Mostly, to stem the capital flight acceleration, the deposits rate of national banks rose higher to 68% with the consequence of a negative-spread. It meant that the third party fund rates were higher than the lending rates. Although, during October 1997, the BI decreased the SBI rates three times (by 3%, 2%, and 2%) and the Ministry of Finance (MOF) announced ten concrete steps but, in fact, it was unable to retain the occurrence of bank rushes. On November 1, 1997, the government revoked the operational licenses of 16 banks in conformity with IMF directives. Unfortunately, this liquidation caused the decline of confidence in national banking, not only from domestic customers but also from overseas parties. This situation turned to become the trigger of the occurrence of continued bank rushes, where IDR12 trillion (about USD2.7 billion) of IDR deposits shifted from small private banks to state owned banks, large private banks, and foreign banks, and about USD2 billion of USD funds left the banking system entirely (see IEO-IMF 2003, 75).

On the other hand, according to Lindgren et.al (1999, 1), financial and corporate sector weaknesses combined with the macroeconomic vulnerabilities to spark the crisis. Linking the crisis with the macroeconomic indicators, it was argued that Indonesia's fundamental economic problems since 1990 had been due to large amounts of un-hedged offshore borrowing and dollarization (Nasution 1997; Tarmidi 1998, 5; and Batunanggar 2002, 6). The currency depreciation worsened the real burden of external debt faced by Indonesian government, financial institutions, and firm that heavily borrowed in foreign currency. During the five years before the crisis of 1997, foreign currency debts of the non-bank private sector increased from US\$28.2 billion in 1992 to US\$78.1 billion in 1997, exceeding the government offshore loan borrowing of US\$59.9 billion in 1997, which was 38.98% lower for the non-bank private sector. According to Suta and Musa (2003, 203), the economy of Indonesia had experienced recession by the end of 1996. This occurred because of (i) the short-range nature of big capital streams which entered the economy of Indonesia and made it easy to be affected and easy to experience the situation of overheating; (ii) domestic interest rates and inflation started to mount; and (iii) the deficit of transaction balance grew higher and reached 3.4% of GDP. It was not surprising that the crisis that knocked over Indonesia came from the problem of un-hedged offshore borrowing. It broke down the economy of Indonesia and was noted as one of the ugly crises that happened in East Asia.

## 3.2 The Indonesian Banking Evolution

Indonesian banking history from time to time has always been developing. Therefore, banking has been witnessing internal and external changes. The internal changes come from the acceleration of information technology, systems and procedure changes, deregulation and law changes from the central bank, and changes in the requirements of human resources capability in banking industry. In addition, the external changes came from customer and debtor expectations for various products that increase their utility function, the effect of the international banking system development that was promoted by Bank Settlement for International (BIS), and called the Basel Principles. Again, the need for globalization of transaction without borders of geography and time – social, economic, law, and political conditions, real sector conditions – and confidential rating from the international banking society in Indonesia.

In general, Indonesia's banking history is divided into six terms or periods as follows:

1. Period I – the Rehabilitation Period (1967-1973): Early Stages of Development as the Dutch colonial banking era gave to the national banking regime with high priority given to the restoration of economic stability through measures such as the new banking law of 1967 and through restructuring of banking system;
2. Period II – the Ceiling Period (1973-1983): There are three major instruments of monetary policy that has been implemented.
3. Period III – the Growth Period (1983-1988): The growth period following the banking deregulation of 1 June 1983 that removed the interest rate ceilings;
4. Period IV – the Acceleration and Deregulation Period (1988- July 2, 1997): The acceleration period following the impact of extensive bank reforms in October 1988 and consolidation in which prudential banking principles were introduced including capital adequacy and bank ratings;
5. Period V- the Crisis and Restructuring Period (July 2, 1997/1998 – September 2003): The crisis came from the contagion effect that started from the monetary crisis in emerging markets in East Asian Countries.
6. Period VI – the Rehabilitation Post –Crisis Period (October 2003 – Present): The national banking rehabilitation post-crisis period, marked by the restructuring of Indonesian Banks based on Presidential Instruction 5/2003 issued on September 15, 2003.

### 3.2.1 Period I (1967-1973)

The control of the Indonesian banking system was based on the law of 1967 that was passed by the government of President Soeharto. The government had a high priority given to the restoration of economic stability, particularly, for the operation of a more stable inflation rate, improvement of exports and availability of enough clothing products. At the time, the banking services were limited to supporting Indonesian development program. According to the Law of 1967, the banking system consisted of four main components, (i.e. commercial banks, development banks, savings banks and small-scale credit banks), all of them under the control, supervision and guidance of the central bank known as the Bank of Indonesia. The central bank was established in 1968 by Law No. 13. In early 1970, the government discontinued giving permission

for opening new private and foreign banks because the number of banks at that moment had reached 135. At the end of 1973, the number of banks had reduced to 130 with 1,531 bank offices.

From 1967 to 1973, the Indonesian banking system grew both in size, assets and sophistication under a regime of extensive and restrictive controls by Bank Indonesia. The five state-owned commercial banks handled most banking business; each of them was directed to deal with activities pertaining to specific priority sectors of the economy on favourable terms, and government institutions and state-owned enterprises could not deposit funds with the state banks (Lasserre & Garg 2004, 3). During this period, the banking system was characterized by financial repression.

### 3.2.2 Period II (1973-1983)

In this period, three major instruments of monetary policy were implemented. These were: (i) the systems of credit ceiling for individual banks, with sub-ceiling for various loan categories; (ii) the maintenance, and even extension, of rediscount or refinancing mechanism to allocate credit and subsidies for priority sectors in the economy; and (iii) control over interest rates charged by state-owned banks, though private banks were free to set their own interest rates. Djiwandono (1997, 340) traced that these policies exerted a strong influence on the evolution of the banking system, leading to the build-up of excess reserves and producing some undesirable side effects.

Ever since the late 1980s, the IMF, The World Bank and the leading economies of the world had lobbied for the opening up of economies around the world. To reach the target of the Indonesian government to sustain the efficacy of the first phase of the five-year development plan, the government in 1983 began to liberalize the banking sector.

### 3.2.3 Period III (1983-1988)

The process of liberalization of the banking system began on 1 June 1983 with the banking deregulation and the liberalization of interest rates, the giving of authority to state-owned banks to fix their interest rates and increase the mobilization of funds from the public, the elimination of credit ceilings to commercial banking, and the introduction of indirect monetary instruments. As a result, real interest rates became positive and time deposits increased dramatically, the ratio of M2 to GDP rose from 18 percent in 1982 to 30 percent by 1988, and the share of private domestic banks in total bank assets increased from 12 percent to 26 percent over the same period (Pangestu & Habir 2002, 4-5). The Central Bank, Bank Indonesia, in 1984 started to issue the Bank Indonesia Certificate (SBI) and since 1985 issued the Money Market Marketable Securities (SBPU) and discount facility.

Since the beginning of the deregulation from 1983 to 1988, the number of banks decreased from 130 to 124, but the bank offices increased from 1,531 to 2,044 (see Table 3.2).

Year	Number of Banks	Bank Offices
1983	130	1.531
1984	129	1.598
1985	129	1.665
1986	125	1.751
1987	125	1.868
1988	124	2.044

Source: Bank Indonesia and Binhadi in Simorangkir (2002, 4)

### 3.2.4 Period IV (1988 – August 1997)

A package of deregulatory measures passed on October 27, 1988 included a reduction in the reserves requirement from 15 percent to 2 percent, the reopening of licensing for new private banks and foreign joint-venture banks, and the granting of permission to state-owned firms to deposit 50 percent of their short-term funds with private banks, instead of only with state-owned banks (Montgomery 1997, 11). Between 1988 and 1991, the number of new banks entering the system increased from 124 to 192.

Bank Indonesia introduced an act into the deregulations the following year that eliminated the need for Bank Indonesia's approval for medium and long term loans and removed the ceiling on offshore loans. Furthermore, Bank Indonesia also enacted a restriction on bank lending to related parties, a limit on net foreign exchange open positions and limits on equity activities of banks.

Since the deregulations were implemented, the banking sector has grown rapidly in total assets as well as in terms of the number of banks. Particularly, the number of banks increased substantially, from 192 in 1991 to 240 in 1994 (see Table 3.3). The conditions in the deregulations of the banking system eased the requirements and the limitations on equity to open new banks. The local conglomerates anticipated this opportunity and took advantage by establishing their own new banks. In addition, Enoch et.al (2001, 23) argued that while the doors were wide open for new banks to enter the market, no proper exit mechanism was set up for banks that failed to operate profitably.

According to Nasution (1997), Tarmidi (1998, 5) and Batunanggar (2002, 6), one of Indonesia's fundamental economic problems since 1990 had been the large amount of un-hedged offshore borrowing by the private sector. During the five years before the crisis of 1997, foreign currency debts of the non-bank private sector increased from US\$28.2 billion in 1992 to US\$78.1 billion in 1997, exceeding the government offshore loan borrowing of USD\$59.9 billion in 1997 which was 38.98% lower than that of the non-bank private sector.

Table 3.3 Indonesia: Composition of the Banking Sector, 1991-1997

Group of Banks		1991	1992	1993	1994	1995	1996/97	1997
I.	Commercial Banks							
	Number of Banks	192	208	234	240	240	237	222
	Number of Bank Offices	5,358	5,557	5,838	6,091	6,655	NA	7,570
	State-owned Banks							
	Number of Banks	7	7	7	7	7	7	7
	Number of Bank Offices	1,395	1,434	1,455	1,490	1,635	NA	1,772
	Private National Banks							
	Number of Banks	129	144	161	166	165	162	144
	Number of Bank Offices	3,260	3,385	3,601	3,806	4,160	4,796	4,887
	Joint-venture Banks							
	Number of Banks	19	20	29	30	31	31	34
	Number of Bank Offices	24	31	45	50	52	55	58
	Foreign Banks							
	Number of Banks	10	10	10	10	10	10	10
	Number of Bank Offices	99	94	98	100	103	39	41
Regional Development Banks								
Number of Banks	27	27	27	27	27	27	27	
Number of Bank Offices	580	613	639	645	705	745	812	
II	Total Assets Banking System	154.2	179.9	215.0	249.7	310.1	NA	447.4
	State-owned Banks	78.0	93.3	100.6	104.5	122.6	NA	152.6
	Private National Banks	58.5	66.3	88.2	113.8	147.5	NA	237.9
	Joint-venture Banks	5.6	7.5	11.8	14.3	17.9	NA	NA
	Foreign Banks	7.4	7.5	7.9	9.2	12.3	NA	NA
	Regional Development Banks	4.7	5.3	6.5	7.9	9.8	NA	12.7

Sources: Bank Indonesia, Report for the Financial Year 91/92, 93/94, 94/95, and 96/97

Referring to Suta and Musa (2003, 203), the economy of Indonesia had experienced recession by the end of year 1996. This was because: (i) foreign investors started to withdraw short-range investments as a result of the by banking crisis in Mexico. Before this, the short-range capital streams that entered Indonesia were very big and made the economy of Indonesia easily affected by the situation of overheating; (ii) domestic interest rates and inflation started to mount; and (iii) the deficit of transactions balance grew bigger and bigger until it was about 3.4% of GDP.

### 3.2.5 Period V (August 1997/December 1998 – September 2003)

This period is the period of Indonesia in deep crisis. It was a period of monetary crisis, which became an economic crisis, a banking crisis, and even trust crisis. It started with the downfall of the Thai Bath Thailand on 2 July of 1997. Later, it crept into the Philippines, to other regional markets and finally into Indonesia. This contagion effect depressed the Indonesian Rupiah heavily and, as a result, on 14 August of 1997, the Bank of Indonesia was forced to release a free-floating Rupiah exchange rate to other foreign currencies, especially the USD. The central bank left the system of managed

floating which had been Indonesia's foreign exchange regime since the devaluation of October 1978.

The effect of the monetary crisis that occurred and the existence of speculator attacks on the rupiah since July 1997, finally dragged the brittle banking sector to systematical risk, and progressively made worse the economy of Indonesia. To overcome the crisis in the field of banking, essentially, involved bank restructuring which consists of two elements: (i) financial restructuring including capital injection and loan restructuring; and (ii) operational restructuring comprising the improvements in a bank's internal organization such as its operational efficiency, governance, risk management and control (Batunanggar 2002, 14).

As for changes in structure, Table 3.4 (from 1997 until 2004) shows that during banking crisis, appropriate interventions can lead to recovery of the economy. From November 1997 to the year 2002, there were interventions by the monetary authorities (i.e. Bank Indonesia) that enhanced the banking restructuring process<sup>29</sup>. These were:

1. On November 1, 1997, the first round closures of 16 small banks, at the same time BI tolerating 34 other insolvent banks. On the closure process, the government provided limited deposit guarantees up to IDR20 million, accounting for 80% of depositors' funds but only 20% of the total deposits of the closed banks.
2. On January 15, 1998, the government gave guarantees to all depositors and creditors of banks and established the Indonesian Banking Restructuring Agency (IBRA) with objectives to restructure the banking sector and curtail their assets problems with the establishment of the Assets Management Company (AMC).
3. On February 14, 1998, the IBRA acted to make special surveillance for 54 banks. The IBRA took over the 54 banks with problems. These consisted of 4 state-owned banks and 50 private and regional development banks. The problems of the banks were that all of them had borrowed from the BI to the tune of more than 200% of their capital.
4. On April 22, 1998, the first take over of 7 banks which accepted more than 75% BI liquidity support; and second round closure of 7 banks which owed loans of more than 500% of their capital took place; their supervision was transferred to the IBRA;
5. In April of 1998, the government froze 7 national private banks that were not viable along with 3 private foreign exchange banks and 4 private non-foreign exchange banks, and took over 7 other private foreign exchange banks;
6. On May 29, 1998, occurred the second round take-over of BCA in line with the larger depositor runs. IBRA suspended the bank owners and replaced the management.
7. The 'Due Diligence' process of 119 private banks started in August 1998. This was conducted together with BI and International auditors on all Indonesian-owned private banks, and was completed at the end of October 1998.

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<sup>29</sup> For complete data, see the Bank Indonesia Annual Report 1998/99, 2000, 2001, 2002 and 2003, compared with Suta & Musa (2003, 209) and Batunanggar (2002, 36).



Table 3.4 Growth of Number of Banks and Banks Office

Group of Banks	1997	1998	1999	2000	2001	2002	2003	2004*	2005
I. Commercial Banks									
Number of Banks	222	208	164	151	145	141	138	133	131
Number of Bank Offices	7,570	7,661	7,113	6,509	6,765	7,001	7,730	7,939	8,236
State-owned Banks									
Number of Banks	7	7	5	5	5	5	5	5	5
Number of Bank Offices	1,772	1,875	1,853	1,736	1,807	1,885	2,072	2,112	2,171
Private Forex Banks									
Number of Banks	77	71	47	38	38	36	36	34	34
Number of Bank Offices	4,158	4,157	3,798	3,302	3,432	3,565	3,829	3,947	4,113
Private Non Forex Banks									
Number of Bank	67	59	45	43	42	40	40	38	37
Number of Bank Offices	729	701	533	535	556	528	700	688	709
Joint-venture Banks									
Number of Banks	34	34	30	29	24	24	20	19	18
Number of Bank Offices	58	65	57	57	53	53	57	59	64
Foreign Banks									
Number of Banks	10	10	10	10	10	10	11	11	11
Number of Bank Offices	41	41	47	53	60	61	69	69	72
Regional Development Banks									
Number of Banks	27	27	27	26	26	26	26	26	26
Number of Bank Offices	812	822	825	826	857	909	1,003	1,064	1,107
II Rural Banks	7,585	7,607	7,772	7,764	7,703	7,571	7,479	NA	NA
BKD (Rural Credit Institution)	5,345	5,345	5,345	5,345	5,345	5,345	5,345	NA	NA
Non BKD	2,240	2,262	2,427	2,419	2,358	2,226	2,134	NA	NA
III Total Assets Banking	715.2	895.5	1,006.7	1,030.5	1,099.7	1,112.2	1,213.5	1,272.1	1,469.8

\*) Bank Indonesia Revoked Operating Licenses for PT Bank Asiatic and PT Bank Dagang Bali on April 2, 2004 and Froze that of PT Bank Global International Tbk. on December 14, 2004.

Sources: Bank Indonesia Annual Report: 1998/1999, 2000, 2001, 2002, 2003, 2004, 2005; Indonesian Banking Statistic 2006, and various Press Release of BI.

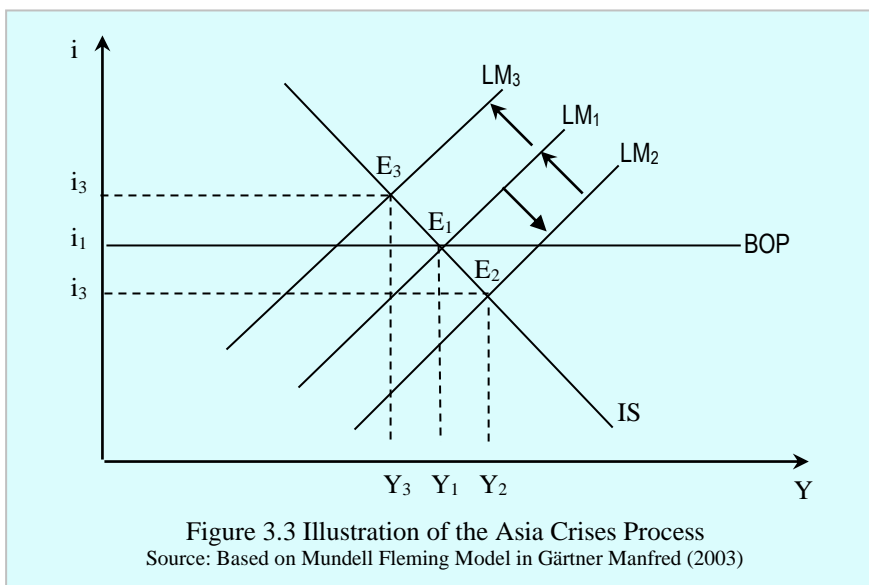
8. On August 21, 1998 was the third round of closure of three frozen banks that had previously been taken over in February 1998 (i.e. BDNI, BUN, and Modern Bank). Their deposits were transferred to state-owned banks.
9. On September 30, 1998, the mega-merger of four state-owned banks (i.e. BankExim, BAPINDO, BBD, and BDN) took place and these became the Bank Mandiri.

10. On October 19, 1998, the authorities announced a plan to liquidate 10 frozen banks. After that date, the IBRA became responsible for only BTO and frozen banks while the others were returned to the BI.
11. On March 13, 1999, the government announced the results of the due diligence process and liquidated 38 banks altogether. At the same time, seven banks were taken over by the IBRA, with nine other banks to be recapitalized.
12. During the period of 1999 to 2000, the number of banks decreased from 164 banks in 1999 to 151 banks in 2000. This was because on June 30, 2000, 9 banks merged with Bank Danamon. There was also the merger of two joint-venture banks on December 24, 1999, which was executed in 2000. In addition, two banks were frozen in October 2000 and 1 bank was frozen in January 2000.
13. By the end of 2001, the number of banks in operation had reduced to 145 banks as a result of the merger of 2 banks on March 27, 2001; 2 more banks merged on September 7, 2001; 3 banks merged on September 28, 2001 and 2 banks were frozen on February 5 and 29, 2001.
14. At the end of 2002, the number of banks in operation had decreased to 141 banks because there were five banks that merged to become the Bank Permata in September 2002 (They are Bank Bali, Bank Arta Media, Bank Patriot, Bank Prima Express, and Bank Universal).
15. By the end of 2003, there were 138 banks in operation because of the closure of 3 joint-venture banks, the merger of 2 more banks and the opening of 1 new bank, (i.e. Bank of China), in July 2003.

A theoretical explanation of the crisis in Asia which falls within the process of the 3GMC (third generation model of crisis) could be illustrated with the Mundell Flemming Model (see Gärtner Manfred 2003) as shown in the Figure 3.3.

As explained before, the 3GMC was designed to combine insights from Krugman (1998), Dooley (1999a, 1999b), and Sachs (1995, 1996) by Irwin & Vines (1999). The currency crisis caused the large banks to fail as a consequence of the alliance of large foreign currencies that progressively deepened the banking crisis. The problem began with the liabilities in the balance sheet of banks that had an implicit government guarantee. The situation to push the banks to give massive lending without applying prudential principles compounded the moral hazard problems. The lending expansion pushed the  $LM_1$  curve to  $LM_2$  while the interest rates decreased from  $i_1$  to  $i_2$  and made the output increased from  $Y_1$  to  $Y_2$  (See Fig 3.3).

The interest rate decrease had an effect on the capital outflows that pushed the  $LM_2$  to  $LM_3$  with output contracting from  $Y_2$  to  $Y_3$  along with an increase in interest rates. This condition was followed by the society's loss of confidence in the banks. The resultant bad loans and bank rush caused on November 1, 1997, the first round of closures involving 16 small banks without full fund guarantee. Of course, the capital outflows facilitated the depreciation of the Rupiah (IDR) against the hard foreign currencies. This explains the consequence of bouncing up of the obligation side of the balance of payments (BOP) of the banking system. Under this condition, the dollarization led to massive liabilities of banks and the corporate sector contributed in a big way to the crisis.



With the agreement of the SBA (Stand-by Arrangement), a loan facility of USD10million was granted by the IMF to Indonesia in November 1997. This ushered in the era of tight monetary policies with high interest rates that were meant to overcome the crisis in Indonesia. These policies brought in their wake new problems in the real sector, i.e. they pushed the onset of output contraction, which tended to kill the real sector as result of the high interest rates.

According to Hutchison (2001), the effect of the currency crises in Asia was expected to slow output growth by between 1-2 percentage points. Unhappily, he also discovered that the implementation of the IMF-program in an effort to achieve economic recovery from the Asian crises (in Indonesia, Thailand, Korea and the Philippines) rather increased the output contraction by about 8%. Arguably, the position of the countries entangled in the crises was that they had entered into the trap of output gap and negative current account. According to Trevor W. Swan (1955), this position brought these countries into quadrant II. It meant that the IMF-program had kept the economies of the countries hit by the crises away from internal balance because of the ever-greater output gap (see Clark et al 1994).

### 3.2.6 Period VI – The Rehabilitation Post-Crises Period (October 2003-Present)

This period was marked by Bank Indonesia’s chartered progress and completion of two listed programs of action under the post-IMF Letter of Intent (LOI) and national economic recovery program (i.e. the Government’s White Paper) based on the Presidential Instruction 5/2003 issued on December 15, 2003. These were the Macroeconomic Stabilization Program and the Financial Sector Restructuring and Reform Program.

The Macroeconomic Stabilization Program (BI 2004, 1-2) until June 2004 consisted of:

- Action Plans, which had been conducted by Bank Indonesia and had achieved results having the character of “in-progress.” This program is still moving forward within the context of implementation of the medium and long-term monetary policies of Bank Indonesia.
- Bank Indonesia’s policy package, which covered three main areas. The first was the control of the Rupiah’s liquidity; the second were improvements to prudential banking regulations concerning the net open position; and third was tighter monitoring and regulation of foreign exchange transactions.
- Bank Indonesia and Government maintained and strengthened their coordination, principally. Under the action plans for: (i) control of economic liquidity generated by sale of government bonds and use of government accounts at Bank Indonesia; (ii) operation of Government accounts at Bank Indonesia; (iii) management of Government foreign and domestic debt; and (iv) use of government securities and SBIs as monetary instruments to support monetary policy.

The Financial Sector Restructuring and Reform Program (BI 2004, 2-3) consisted of:

- Action Plans for this program, which covered: (i) preparatory study on financial stability; (ii) research into financial system stability; (iii) the commercial banks and rural banks linkage program for SMEs loans and micro-credit; (iv) Sharia banking regulations draft; and (v) systems design and technology and the regulations draft and the establishment of a Certification Committee for bank supervisors and examiners.
- Bank Indonesia made further progress to support the concepts of the **Indonesian Banking Architecture** (API). These included: (i) the BI Panel of Experts, comprising one of the programs of pillar 2 for creating an effective system for bank regulation and supervision based on international standards; (ii) technical preparations for the launching of the certification program for risk managers; and (iii) Bank Indonesia’s draft regulations on the customer complaints mechanism and product transparency.
- With regard to compliance with the 25 Basle Core Principles (BCP), Bank Indonesia completed work on the legal provisions related to bank restructuring policy in Bank Indonesia’s Regulations concerning CAMEL and continued the draft Assessment Procedure for the Bank Rating system and the preparation of design and technology for the early warning system.
- Bank Indonesia’s promotion of Rural Banks and Commercial Banks Linkages Program. At the end of March 2004, a total of 28 commercial banks and 802 rural banks were participating in the linkage program with a total loan ceiling of IDR638 billion and outstanding loans at IDR368 billion. The business plans of banks were to be improved through the linkages program. Bank Indonesia is working together with other stakeholders to develop the program for empowerment of banking and financial advisors for SMEs and micro enterprises.

In line with the restructuring process, on April 8, 2004, Bank Indonesia revoked the operating licenses of PT. Bank Asiatic and PT. Bank Dagang Bali, and froze that of PT Bank Global International, Tbk. on December 14, 2004. These actions were taken

by Bank Indonesia because of the failure of the banks to resolve their solvency and liquidity problems marked by drastic losses in operating indicators such as the Capital Adequacy Ratio (CAR) and Statutory Reserve Requirements of the three banks.

Today, the number of commercial banks in Indonesia is 130 (June 2007). When compared to the number of banks in other countries like Thailand's 34 banks, Malaysia's 8 banks and Singapore's three banks, then the number of banks in Indonesia is assumed in many circles to be still too many. However, there are no strong reasons expressed against that number, because the strength of banking industry will be brittle without support by the monetary authorities and central bank supervision by various regulations instructing banks on how to be able to run their function as the machine of economic growth and intermediation.

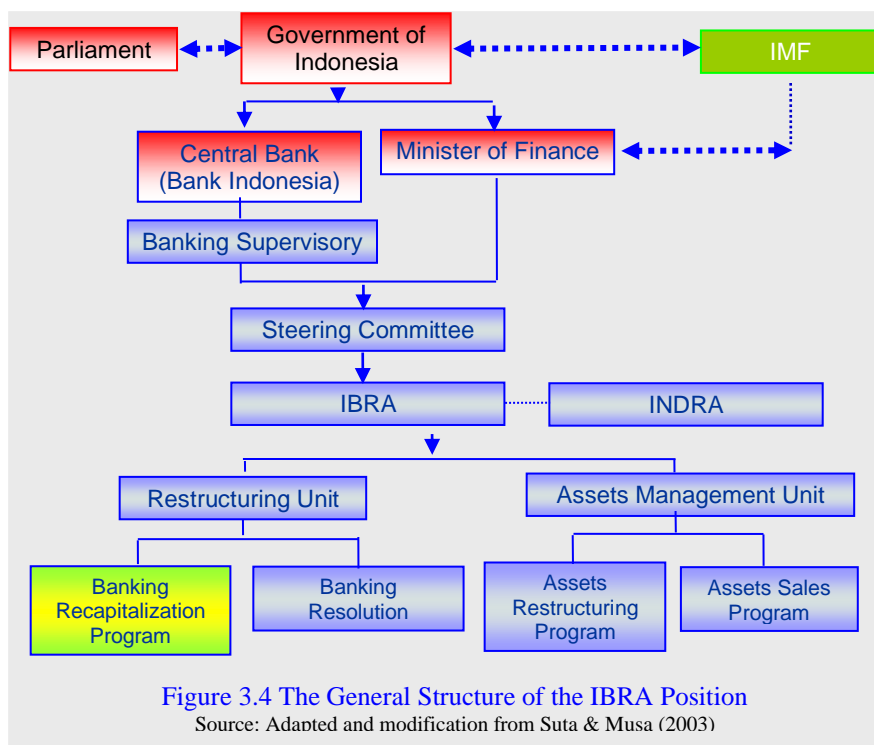
### 3.3 Bank Restructuring

The effect of the monetary crisis and the existence of speculator attacks on the IDR since July of 1997 finally dragged the brittle banking sector to systematical risk, which progressively worsened the economy of Indonesia. On the onset of the Asian financial crisis, Indonesia had 222 banks, many of which became insolvent from the impact of the crisis. In enhancing the Indonesian economic recovery as a whole, the Indonesian government implemented an initiative to recover the banking sector as a core of economic activity. On January 27, 2004, the IBRA (Indonesian Banking Restructuring Agency) established an implementing institution (an ad hoc institution).

The main objective of the IBRA was the recovery of the banking system within 5 years after which it was to be disbanded. The IBRA's core assignments or activities were **bank restructuring, loan assets resolution, shareholder settlement, and recovery of state funds**. The general structure of the IBRA is as shown in Figure 3.4.

#### 3.3.1 The Bank Restructuring Program

A bank-restructuring program, which is used to overcome a banking crisis, consists of two elements: (i) financial restructuring including capital injection and loan restructuring; and (ii) operational restructuring comprising the improvements in a bank's internal organization such as its operational efficiency, governance, risk management, and control (Batunanggar 2002, 14). During the crisis, the Indonesian banks were hemorrhaging funds, draining the BI reserves at a rate of IDR144.54 trillion for the bank restructuring (see IBRA 2002, 15). These amounts were in the form of channeled liquidity support each month from August 1997 until January 1999 for 48 banks that received the liquidity support (Appendix 2). From Appendix 2, it could be seen that four bank received the biggest liquidity support. They are the BDNI (Bank Dagang National Indonesia) 25.62%, BCA (Bank Central Asia) 18.41%, Bank Danamon 15.94%, and Bank Umum National (BUN) 8.35%.



### 3.3.2 The Indonesian Bank Recapitalization Program

As part of the continuing banks restructuring program, the Indonesian government also conducted the banks recapitalization program for selected commercial banks, including some banks under the IBRA’s control. As explained previously, the banks recapitalization program was to address the problems in order to make the banking system healthy, and to maximize its contribution to the economy as a whole.

Essentially, the core of the banks recapitalization program addresses the maintenance of the continuity of banking operations and prospects, especially in the efforts at quick recovery of the national economy, including the restructuring of the ownership of banks. The indicators used in the recapitalization program measure how big or small the capital deficiency of a particular bank is. Nevertheless, in general, the Indonesian government has specified some special criteria in conducting the banking recapitalization (see Box 2).

The recapitalization process involved several steps, such as transferring a bank’s bad loans to the IBRA; signing the recapitalization agreement between the government, the BI and the bank’s management; and injecting additional capital by owners in the form of fresh money as well as the issuance of **the government bonds as capital injection**.

Before deciding on which bank to be recapitalized, the BI was assisted by a team of international auditors who performed due diligence on all the banks. The due diligence process started in August 1998 and was completed in December 1998. It was performed on all Indonesian-owned banks in order to determine their solvency and cost of recapitalization.

### Box 2 The Criteria for the Recapitalization Program

The Indonesian Government decided that the eligibility of a bank to join the recapitalization program was based primarily on two main aspects:

1. The viability of bank's business plan; and
2. The fitness and probity of a bank's management and the controlling shareholders. The assessment was conducted by several committees (Technical Committee, Evaluation Committee, and Policy Committee) representing Bank Indonesia, Ministry of Finance and IBRA. To ensure transparency and objectivity, independent observers representing the IMF, World Bank, and ADB were invited to the meetings but without any rights over the decision making process.

#### **Business Plan Review**

1. *Main criteria*, included:
  - Ability of bank's shareholders and/or new investors to inject minimum of 20% funds to meet a 4% CAR,
  - Compliance with the existing regulations (legal lending limit, net open position, etc.),
  - Bank's viability to raise up their own CAR to 8% by the end of 2001, based on a stress test model (developed by international consultants).
2. *Additional criteria*, included assets rehabilitation plan, business development plan, franchise values (networks, IT/IS) and significance to the economy, projected ROE of 15% at the end of 2001.

A bank will pass the business plan review if it met at least all the main criteria.

#### **Fit and Proper Test**

The fit and proper test was conducted on banks' controlling shareholders (owners of more than 25% of the shares), board of commissioners, and board of directors. The fit and proper test consists of:

1. *Fitness Test*: The competence and independence of a bank's board of commissioners and directors will be passing from fitness test.
2. *Propriety Test*: The integrity, fulfillment of commitment to BI, enlistment of bad debts and/or other imprudent fraudulent actions of a bank's management and controlling shareholders.

Source: Joint Decision, between MoF of RI and BI Governor, 8 February 1999, Concerning Execution of Recapitalization of Commercial Banks.

The due diligence<sup>30</sup> process was conducted as a step for early selection. The Government decided on three bank categories in terms of CAR. They are categories A, B, and C. The Bank with a CAR of 4% or more is categorized as A; the bank with a CAR of between -25% and 4% entered as category B while the bank with a CAR of below -25% entered as category C (See Table of 3.5).

<sup>30</sup> The due diligence focused on capital aspects and productive assets by paying attention to subsequent events (See BI Annual Report 2000, 112).

Table 3.5 The Results of Due Diligence on Commercial Banks

Group of Banks	A Category CAR ≥ 4%	B Category -25% < CAR < 4%	C Category CAR < -25%	Total
State-owned Banks	0	0	7	7
Regional Development Banks	15	8	4	27
National Private Banks	74	16	38	128
Joint-Venture Banks	30	0	2	32
Total	119	24	51	194

Source: BI 2000

Category A banks did not participate in the recapitalization program, but were required to prepare and submit to the BI their business plans. Banks categorized as B were obliged to follow the recapitalization program as long as they fulfilled selected clauses (see Box 4). Banks categorized as C were given time up to 30 days to add to their capital or improve their productive asset quality until they reached category B status, so that they can be allowed to follow the recapitalization program.

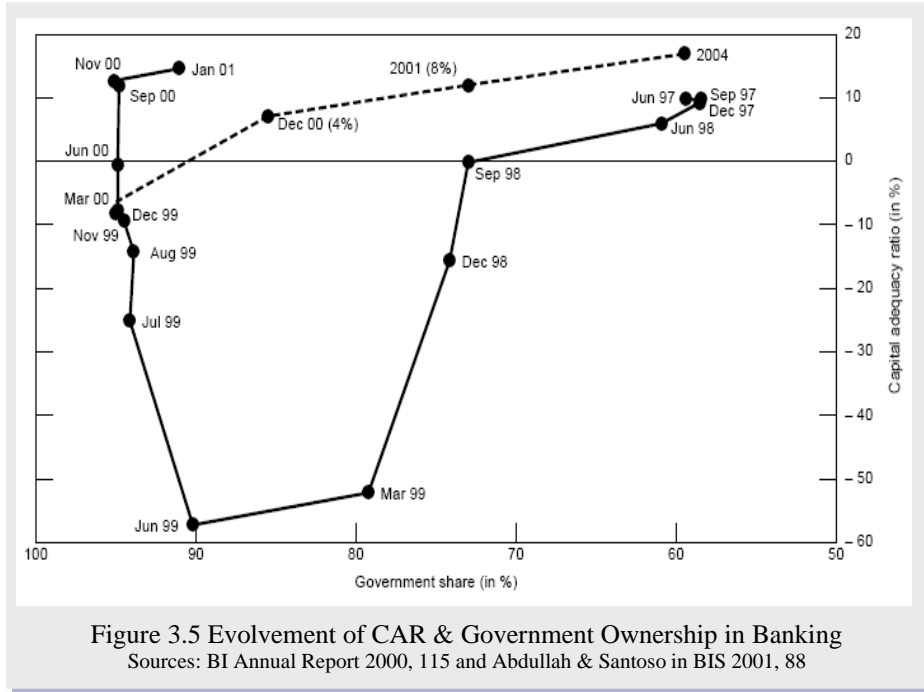
The recapitalization was conducted in four rounds by the government as follows:

1. The first round on April 29, 1999, involved the recapitalization of private banks. They were Bank Lippo Tbk; Bank International Indonesia; Bank Bukopin; Bank Universal; Bank Prima Ekspres; Bank Artamedia; and Bank Patriot.
2. The second round on May 29, 1999, covered the recapitalization of regional development banks. They were BPD DI Aceh; BPD Bengkulu; BPD Sumatera Utara; BPD Lampung; BPD DKI Jakarta; BPD Jawa Tengah; BPD Jawa Timur; BPD NTB; BPD NTT; BPD Kalimantan Barat; BPD Sulawesi Utara; and BPD Maluku.
3. The third round took place between March and July of 2000 and involved the recapitalization of state-owned banks. They were Bank Mandiri; Bank BNI; Bank BRI; and Bank BTN.
4. The fourth round in March 2000 covered the recapitalization of private banks when Bank Danamon was merged with 9 BTOs (Bank Duta; Bank Jaya International; Bank Nusa Nasional; Bank PDFCI; Bank Pos Nusantara; Bank Rama; Bank Risyad Salim International; Bank Tamara; and Bank Tiara Asia). In June 2000, the Bank Bali and Bank Niaga were also recapitalized.

In October 2000, the government of Indonesia and BI completed the restructuring of the banking system through the issuance of *government recapitalization bonds* that had begun in April 1999 (BI 2000, 115). As a consequence of the recapitalization, the ownership of banking equity by government by the end of December 2000, had increased to 95.1% of the total domestic banking system equity, while the CAR had also improved by 12.7%.



Figure 3.5 shows the graph of what happened: the degradation of CAR and the level of government equity ownership in the domestic banking system. Government ownership of bank equity on post-recapitalization was only an interim measure and gradually would be phased out through the divestiture of bank shares.



The amount of recapitalization bonds issued by government was in proportion to the amount of NPLs owed to the banks that were recapitalized. Meanwhile, the amount of recapitalization bonds given to each bank was equal to the amount of NPLs transferred to the IBRA plus the shortfall in capital. For the banking sector, higher NPLs imply economic insolvency, when the market value of their assets is lower than the market value of their liabilities. On the other hand, when the CAR of a bank becomes negative, it means accounting insolvency, when the accounting report of its net capital and reserves according to generally accepted accounting principles is negative (see Sheng 1996, 25).

Table 3.6 showed that the grand total cost of the banks recapitalization program was IDR430.4 trillions (for detail see on Table 3.7). This amount is equivalent to 33.35% of Indonesian GDP for the year 2000, which was IDR1,290.7 trillion (see BI Annual Report 2000). The overall fiscal cost of the banking crisis resolution in Indonesia reached 51.02% of the GDP realized in 2000.

Table 3.6 Indonesian Fiscal Cost of Banking Crisis Resolution (in IDR trillion)

Group of Banks	No. of Banks	BI Liquidity Support	Credit Program	Govt. Guarantee	Cost of Banks Recapitalization				Total
					Fixed Rate	Variable Rate	Hedge Bond	Sub Total	
Liquidated banks	16	11.89							11.89
Frozen banks (BBKU)	38	17.32							17.32
Frozen Banks-1 (BBO-1)	7	6.02							6.02
Frozen Banks-2 (BBO-2)	3	51.67							51.67
Bank taken-over (BTO)	6	57.64			33.9	75.4	-	109.3	166.94
State owned-banks	4			20.00	114.9	131.2	36.82	282.9	302.90
Regional Banks	12				0.4	0.8	-	1.2	1.20
Various Recapitalized private banks	7		9.97	53.78	-	-	-	-	63.75
					18.0	18.9	-	36.9	36.90
<b>Grand Total</b>		<b>144.54</b>	<b>9.97</b>	<b>73.78</b>	<b>167.2</b>	<b>226.3</b>	<b>36.80</b>	<b>430.4</b>	<b>658.59</b>

Source: IBRA Annual Report 2000 and BI Annual Report 2000, 107

Based on the focus of the earlier discussion as outlined above, the detailed objectives of bank recapitalization were: (i) to increase the capital ratios of the banks (ii) to increase the performance of banks (iii) to increase lending (iv) to decrease the NPLs assets and move the NPLs of banks to IBRA (v) to encourage the restructuring and revitalization of the Indonesian-banking sector and (vi) to achieve economic recovery from the crisis.

Table 3.7 List of Receivers of Banks' Recapitalization Program (IDR billion)

<b>A. State-owned Banks</b> (Based on PP No. 52/1999)		
1	PT Bank Mandiri (Persero)	178,000.00
2	PT Bank BNI (Persero)	61,788.00
3	PT Bank Rakyat Indonesia (Persero)	29,067.00
4	PT Bank Tabungan Negara (Persero)	14,067.00
	Sub Total	<u>282,922.00</u>
<b>B. Bank Taken Over/BTO</b> (Based on Decision of Head of IBRA No. SK-201/BPPN/0599).		
5	PT. Bank Bali, Tbk*	5,314.00
6	Bank Central Asia, Tbk	60,877.00
7	PT Bank Niaga, Tbk	9,462.00
8	PT Bank Danamon, Tbk	52,764.00
9	PT Bank Duta, Tbk	
10	PT Bank Jaya International	
11	PT Bank Nusa Nasional	
12	PT Bank PDFCI	
13	PT Bank Pos Nusantara	
14	PT Bank Rama Tbk.	
15	PT Bank Risyad Salim International	
16	PT Bank Tamara	
17	PT Bank Tiara Asia	
	} Merge to Bank Danamon	
	Sub Total	<u>128,417.00</u>
<b>C. B Category Banks</b> (Based on PP No. 34/1999)		
18	PT Bank Arta Media*	130.00
19	PT Bank Bukopin	370.00
20	PT Bank International Indonesia, Tbk	6,627.00
21	PT Bank Lippo, Tbk	6,055.00
22	PT Bank Patriot*	51.00
23	PT Bank Prima Express*	531.00
24	PT Bank Universal, Tbk*	4,097.00
		<u>17,861.00</u>
<b>D. Regional Banks Development</b> (Based on PP No. 35/1999)		
25	BPD Aceh	67.66
26	BPD Sumatera Utara	302.87
27	BPD Bengkulu	4.94
28	BPD Lampung	11.27
29	BPD DKI Jaya	172.70
30	BPD Jawa Tengah	389.42
31	BPD Jawa Timur	61.15
32	BPD Kalimantan Barat	47.40
33	BPD Sulawesi Utara	18.48
34	BPD Maluku	139.48
35	BPD Nusa Tenggara Barat	14.55
36	BPD Nusa Tenggara Timur	0.47
	Sub Total	<u>1,230.39</u>
	<b>Grand Total</b>	<b>430,430.39</b>
Merged with Bank Bali and changed its name to PT Bank Permata on 30/9/2002. The merger operation was finalized on 31/12/2002 (Suta and Musa 2004, 168).		
Sources: PP No. 52/1999, Decision of Head of IBRA No. SK-201/BPPN/0599, PP No. 34/1999, and PP No. 35/1999.		

The details of NPLs of the recapitalized banks that were taken over by the IBRA based on bank categories were as shown in Table 3.8.

Table 3.8 Loan Portfolio that Swiftly from Banks to IBRA in September 1999

Type of Bank	Amount of Account number	Debtor amount	Loan Outstanding in IDR trillion
38 Frozen Banks	121,149	101,110	28.5
10 BTO	63,618	29,963	33.5
	28,641	16,563	36.6
Secondly BTO	8,866	6,579	8.3
7 Recap Banks	7,803	5,729	16.2
7 State Owner Banks	33,497	14,745	111.0
Total	263,574	174,689	234.1

Source: IBRAs Strategic Planning 1999-2004 in Masyhud Ali (2004, 379)

The post banks' recapitalization period (around the year 2000) saw many banks grappling with big problems such as low repayment capacity, high recapitalization bonds interests and the struggle by recapitalized banks to help stem the cash flow situation of the state budget (i.e. government fiscal load). Hereinafter, the governmental policies had to be able to maintain a balanced state budget by doing reprofiling of recapitalization bonds. The purpose of this reprofiling was to lessen governmental fiscal load related to the heaps of recapitalization bonds whose due dates ranges from 2004 to 2009 and which amount to IDR411.3 trillion. The liabilities that government paid for recapitalization bond interest reached 30% (or equal to Rp63.09 trillion) of the routine disbursement of governmental funds in 2001 that amounted to IDR213.4 trillion (Kompas, 29 June 2001).

The next development, since government decided that the banks could commercialize their recapitalization bonds in the secondary market in year of 2000, was the shifting of the ownership of recapitalization bonds distribution. [The complete data is as shown Appendix 3]. The circulation of these recapitalization bonds indicates the transfer of ownership of recapitalization bonds from the recapitalized banks to the non-recapitalized banks. It means the commercialization of the recapitalization bonds did not bring positive effects to governmental liabilities and this situation made it more difficult to control the ownership of recapitalization bonds by the government.

### 3.4 Bank Performance

The policy of the Indonesian government was to save its national banking system from devastating collapse with direct trade-off for fiscal expenditure, monetary as well as for banking itself. On the fiscal side, the issuance of recap-bonds had consequences on expenditure in the state budget every year, in the form to interests and initial payments. On the monetary side, interests, or initial recap-bonds payments increased the money supply through the make-up account balances of the banks (M1).

For the banking system, the banks' intermediation function improved as indicated by the rising loans (financing) to the real sector as shown by the ratio of bank credits to GDP in Table 3.9.

Table 3.9 Ratio of Bank Credits to GDP (in % of GDP)

Items	1998	1999	2000	2001	2002	2003	2004	2005
GDP	995.8	1,110.0	1,290.7	1,684.3	1,863.3	2,045.9	2,303.0	2,729.7
Ratio of Bank Credits to GDP (%)	54.76	24.98	24.82	18.77	19.93	21.27	24.30	25.49
Ratio of Bank Credits to GDP by Economic Sector (%)								
Agriculture	3.50	2.35	1.54	1.26	1.22	1.19	1.44	1.36
Mining	0.79	0.49	0.41	0.18	0.21	0.25	0.34	0.30
Industry/Manufactur	19.66	8.82	8.50	7.05	6.59	5.98	6.29	6.26
Electricity	2.37	1.80	0.40	0.30	0.24	0.22	0.26	0.20
Construction	4.17	1.20	0.56	0.49	0.50	0.61	0.87	0.99
Trade	9.65	4.07	3.56	2.93	3.56	4.11	4.91	4.97
Transportation	1.77	1.12	0.57	0.45	0.68	0.80	0.77	0.73
Business Services	8.90	2.38	2.05	1.64	1.71	2.17	2.45	2.66
Social Services	0.83	0.30	0.22	0.21	0.25	0.53	0.35	0.37
Others	3.11	2.46	7.02	4.25	4.99	5.42	6.62	7.63

\*Investment and Working Capital Credits only, excluding consumption financing.  
Source: BI Annual Reports (various issues), calculated by author.

From Table 3.9, it could be seen that the ratio of financing (credits) to the national banking system was tending low. Since the year 2001 to 2005, the ratio of bank credits to GDP was only 25.49% for the real sector. This condition was very much influenced by the banks' performance after post-restructuring and recapitalizing. The national banking system's performance indicators could be seen in Table 3.10.

Table 3.10 Commercial Bank Performance Indicators

Indicators	1998	1999	2000	2001	2002	2003	2004	2005
Total Assets	895.5	1,006.7	1,039.9	1,099.7	1,112.2	1,213.5	1,272.1	1,469.8
Third Party Fund	625.3	617.6	699.1	797.4	835.8	888.6	963.1	1,127.9
Credits	545.5	277.3	320.4	358.6	410.3	477.2	595.1	730.2
LDR (%)	72.4	26.2	33.4	33.0	38.2	43.5	50.0	64.7
NPL – Gross (%)	48.6	32.8	18.8	12.1	8.1	8.2	5.8	8.3
NPL – Net (%)	34.7	7.3	5.8	3.6	2.1	3.0	1.7	4.8
Capital	(129.8)	(41.2)	47.4	83.7	103.6	112.4	130.2	144.5
CAR (%)	(15.7)	(8.1)	12.5	19.9	22.4	19.4	19.4	19.3
Profit (Loss) before Tax	(178.6)	(75.4)	10.5	13.1	22.0	26.4	41.1	
ROA (%)			1.6	1.5	2.0	2.6	3.5	2.55
Net Interest Income	(61.2)	(38.6)	22.8	37.8	42.9	49.5	65.8	

Source: BI Annual Report various issued and Indonesian Bank Statistic October 2006.  
) the period until October 2006

From Table 3.10, it could be clearly shown that although the level of CAR could reach above 12%, the percentage of financing (credits) to the real sector (LDR) was lower. It could only reach 50% in the year 2004. Regarding the time required for the economic recovery activities, Indonesia's was tardy when compared to other states like Korea, Thailand, and Malaysia. In fact, the lower LDR with lower net interest incomes (NII) did not really reflect that banks have good earning assets, because the earning assets were dominated by government bonds (i.e. recapitalization bonds).

The growth in credits was accompanied by improved credit quality, where the gross NPLs dropped from 8.2% at the end of 2003 to 5.8% at the end of 2004, while net NPLs improved from 3.0% to 1.7% during the same period.

### 3.5 Indonesia Banking Architecture

Granted that the architecture is an integral part of the bank-restructuring program and the post-IMF White Paper<sup>31</sup> on restructuring of the national banking system, Bank Indonesia commenced the implementation of the architecture in 2004. The Strategies to achieve this Indonesian Banking Architecture was launched on January 9, 2004. In the architecture, the policy direction for the future development of the banking industry is based on the vision of building a sound, strong, and efficient banking system to create financial system stability for the promotion of national economic growth (BI, 2004, [www.bi.go.id](http://www.bi.go.id)).

The Central Bank argued that the architecture represents an urgent need for the Indonesian banking system in order to strengthen the fundamentals of the banking industry. The 1997 economic crisis demonstrated that Indonesia's banking industry lacked the proper institutional basis, and therefore requires strengthening of the fundamentals to be able to withstand internal and external shocks.

Starting with the need for stronger banking fundamentals and to take the ongoing bank restructuring program to the next stage of progress, the changes envisaged in the architecture will be implemented in four stages, i.e. the Six Pillars of the Indonesian Banking Architecture, the Challenges Ahead, Action Plan, and Phases of Implementation. To bring the vision of the Architecture to fruition as described above, a number of objectives have been established by BI as given in Box 3.

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<sup>31</sup> The White Paper was Presidential Instruction Number 5/2003, issued on 15 September 2003 as Implementation of the Economic Policy Package Pre and Post IMF and part of National Economic Recovery Program.

### Box 3: The Six Pillars of the Indonesian Banking Architecture

1. Creation of robust structures for the domestic banking system, capable of meeting the needs of the public and promoting sustainable economic development.
2. Creation of an effective system for bank regulation and supervision in line with international standards.
3. Creation of a strong, highly competitive banking industry, resilient in the face of risks.
4. Building of good corporate governance for internal strengthening of the national banking industry.
5. Provision of a complete range of infrastructure to support the creation of a healthy banking industry
6. Empowerment and protection for consumers of banking services.

Source: Bank Indonesia, 2004

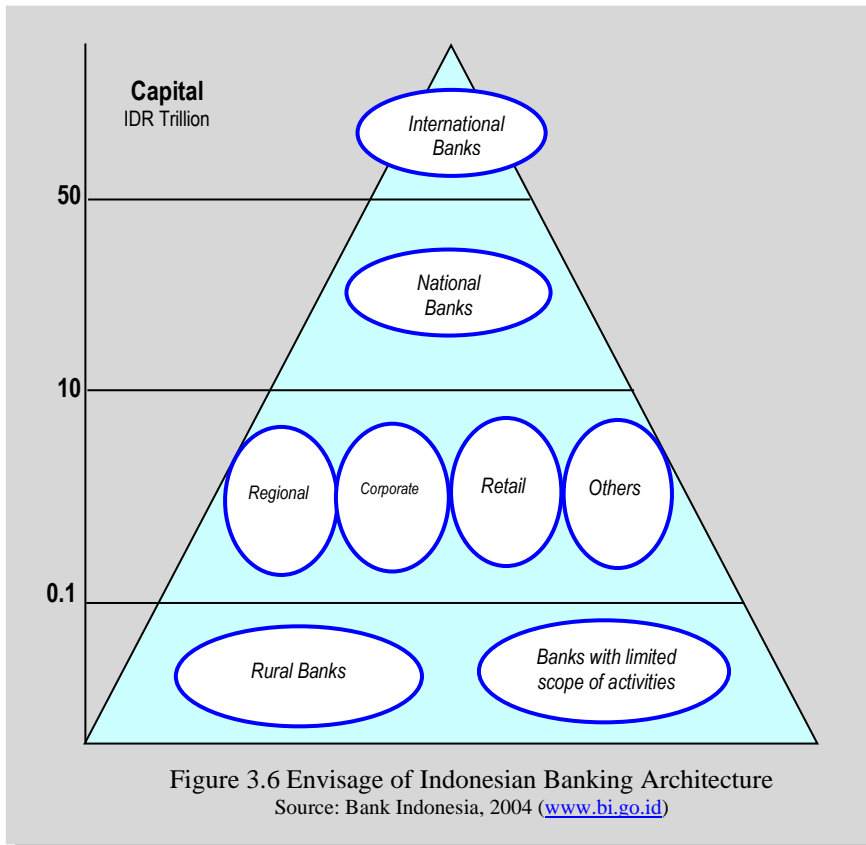
Especially for the central bank, improvement program will be implemented in stages. Measures for strengthening bank capital will be put into place through the preparation of business plans containing deadlines, methods, and stages of progress (Box 4).

### Box 4: Program for Reinforcing the Capital of Commercial Banks

Capital may be increased through the following means:		In the next 10 to 15 years the programs are expected to move the banking system towards a more optimum structure is envisaged as follows:	
1.	Addition of fresh capital, whether from existing shareholders or new investors;	1.	Two or three banks likely to emerge as international banks, possessing the capacity and ability to operate on an international scale and having total capital exceeding Rp50 trillion.
2.	Merger with another bank (or several banks) to meet the new minimum capital requirement;	2.	3 to 5 national banks, having a broad scope of business and operating nationwide with total capital between Rp10 trillion and Rp50 trillion.
3.	Conducting secondary offerings (issuance of new shares) on the capital market;	3.	30 to 50 banks operating as focused players, with operations focused on corporate, consumer, retail and others. These banks will have capital of Rp100 billion up to Rp10 trillion.
4.	Raising subordinated loans.	4.	Rural Banks and banks with limited scope of business, having capital of less than Rp100 billion.

Source: Summarized from Bank Indonesia (2004).

Figure 3.6 The Envisaged Structure of Indonesian Banking System in Indonesian Banking Architecture by Central Bank of Indonesia illustrated. Simatupang (2004) has been using the data of assets, capital, net income, ROA and ROE, since 1991 to 2002 of all commercial banks operating in Indonesia during the above period. His findings according to the Z-Score measurements show that the new map of Indonesian banking architecture will turn four banks into national scale, 51 banks have to focus scale, and 20 banks have to limit their scopes. This result is only possible when the monetary authority/government apply the Program for Reinforcing the Capital of Commercial Banks and enhancing Indonesian Banking Architecture.



### 3.6 Summary of Chapter

From the Indonesia banking evolution, it has been shown that in reality, financial liberalization preceded the happening of the currency crisis that led to an endless banking crisis.

The banking crisis that knocked over Indonesia generated larger ones to knock over the Indonesia economic system as a whole. To avoid deeper ruination of Indonesia economic system, the government decided to save the banking system by liquidity support and banking restructuring. Banking restructuring and resolution was a difficult option, but it was necessary.

BI as the Lender of the Last Resort (LOLR) had issued liquidity support<sup>32</sup> for banks reaching up to IDR144.5 trillion (or 17.67% GDP 2000). The fiscal cost of the banks' recapitalization program was IDR430.4 trillion (or 33.35% GDP 2000). The overall

<sup>32</sup> Liquidity support included blanket guarantee for all third party funds in the Indonesia banking system.



cost of the banking crisis resolution in Indonesia reached IDR658.59 trillion or 51.03% of the GDP realized in 2000.

The government efforts to rescue the Indonesia economy have involved huge amounts of money as the fiscal cost to government. The price paid by government in this recovery was very big and this became the Indonesian people's burden indirectly through the rising fiscal cost. This situation is in alignment with the empirical study by Claessens, Klingebiel, and Laeven (2001) who found that a package of specific resolution measures can help accelerate the recovery from crisis with significant fiscal costs (see also Enoch, Garcia, and Sundarajan 2001).

Government through the issuance of government obligations (or bonds) financed the banking recapitalization program. These were conversion obligations. The expense of obligation and its interest rate was charged upon the **state budget** (APBN, Anggaran Pendapatan Belanja Negara).

However, these are big problems that need investigation in order to understand how the recapitalization program can achieve its objectives, which are to increase the capital ratios, to increase the performance of banks, to increase lending, and to increase write-offs on NPLs assets.



## 4. Conceptual Framework and Research Methodology

### 4.1 Conceptual Framework

In line with the methodology of this research, the outcomes will be elaborated from the research questions in Chapter 1, such as what variables were involved in this study and where to find the data. Thereafter, the hypotheses developed from the model formulated will be put forward.

The formulation of the model follows the flow of the relationships between the receivers of banks recapitalization to the banks performance and the effect of the capital injections on the growth of the real sector lending, as shown below.

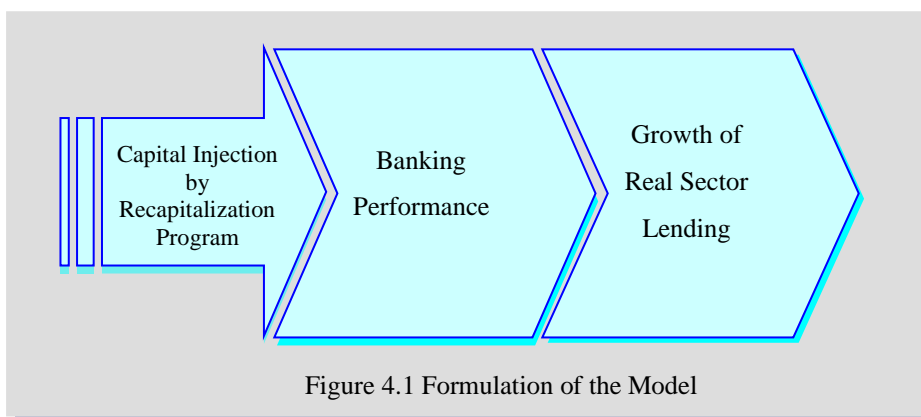


Figure 4.1 Formulation of the Model

#### 4.1.1 Banking Performance Measurement Concept

The variable of banks performance is based on the component factors from Bank of Indonesia (BI) circular letter No. 6/23/DPNP dated 31 May 2004. The component factors referred to CAMELS<sup>33</sup> (Capital, Assets Quality, Management, Earning, Liabilities, and Sensitivity to Market Risk). This is in line with the IMF's position (2003, 6) that deposit-taking institutions have a set of core Financial Soundness Indicators (FSI), which they termed "CAELS". Regrettably, this core set is without the Management component. However, the research conducted by Whalen Thomson (1988) found evidence of that financial ratio of CAMEL was accurate in compiling the bank rating. Thomson (1991) also found evidence of that ratio of CAMEL as a

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<sup>33</sup> A CAMEL as used by BI is a Composite Index that assesses the level of the health of banks since May 31, 2004. This CAMEL is an order adopted by BI from Bank International for Settlement (BIS) within the Basel Accord (1988) as amendment in 1996. CAMELS refer to the financial soundness indicators (FSIs), for further explains see Sundararajan, 2000. The sensitivity to market risk (S) has only been used since January 1, 1997 as a Uniform Financial Institutions Rating system (UFIR) by the Federal and State Regulators in USA (Koch & MacDonald, 2000, 139).

proxy variable in the conditions of bank finance and was a related factor to predicting the possibility of bank bankruptcy within the period of 4 years before a bank actually becomes bankrupt.

Based on this though idea, the author chose the bank performance variables from the acronym of ‘CAMELS’. On the other hand, the management variable as part of CAMELS uses qualitative perspective/approach to measure the performance of banking, so we can use net profit margin (NPM) or earnings before tax and provisions as a percentage of the bank’s total assets (EBTDA)<sup>34</sup>. The NPM variable is proxy for the management component in CAMELS, and have been used by Sumarta and Yogyanto (2000, 187) in their research to evaluate the performance between Indonesia and Thailand public banks before the crisis in 1997. Thus, the components of CAMELS as variables of banking performance measurement can be formulated and the sources of the data are as given in Table 4.1.

CAMELS Component	Banking Performance Variables	Source of the Data
Capital	1. CAR (capital adequacy ratio)	<ul style="list-style-type: none"> <li>• Bank Indonesia</li> <li>• Financial Statements from each receiver of bank recapitalization.</li> <li>• Annual Report from each the receiver of bank recapitalization</li> <li>• PT Ekofin Konsulindo</li> </ul>
Assets quality	2. NPL-net (non performing loans net)	
	3. P-NPL-exp. (Provision to NPL exposure)	
Management	4. EBTDA (earning before tax and provisions as a percentage of bank total assets)	
Earnings	5. ROA (return on assets)	
	6. ROE (return on equity)	
	7. NIM (net interest margin)	
	8. CIR (cost to income ratio)	
Liquidity	9. LDR (loan to deposits ratio)	
Sensitivity to the Market Risk	10. NOP (net open position)	

Source: Compiled by the author.

#### 4.1.2 Effectiveness of the Recapitalization Measurement Concept

On the real sector, the author will examine the effects of capital injection through the banks recapitalization program based on twelve dependent variables. The real sector consists of 10 sectors, based on the divisions and definitions by Bank Indonesia (BI). The examination focus is on the growth of credit at each sector that happened or not after the bank recapitalization period.

<sup>34</sup> For more explanations on EBTDA, see Davis and Zhu (2005, 7) and Claessens, Klingebiel and Laeven (2001, 15).

On the whole, these will be evaluated as to how big the growth of loans by the various bank groups, like the state-owned banks, private banks, and the regional development banks, have been. In addition, the investigation of the effect of the capital injections will be based on 11 dependent variables listed as follows:

1. Growth of credits in agriculture sector lending;
2. Growth of credits in mining sector lending;
3. Growth of credits in manufacturing sector lending;
4. Growth of credits in electricity, water and gas sector lending;
5. Growth of credits in construction sector lending;
6. Growth of credits in trade, hotel & restaurants sector lending;
7. Growth of credits in transportation sector lending;
8. Growth of credits in financial/business services sector lending;
9. Growth of credits in social services sector lending;
10. Growth of credits in others sector lending; and
11. Growth of credits in total sector lending.

The author will use empirical study approach to examine the data and use the pooled least square (PLS) method as a test tool. The PLS method helps to find the line of regression, or best adaptation line, with the least margin of error. That is, it minimizes the amount of the squares of mistakes in the estimation. The basic PLS regression<sup>35</sup> with lag t-1 (a one period of time lag) is considered the most appropriate method to use for solving the equation in order to avoid the endogeneity problem. An endogeneity problem occurs when an independent variable does not function purely as an independent variable. It means the change in value of an independent variable will influence the value of the dependent variable, but at the same time the dependent variable will also influence and change the value of the independent variable. The equation takes the form:

$$LOANS_{it} = \beta_0 + \beta_1 OPROFIT_{i,t-1} + \beta_2 GDPGRDP_{i,t-1} + \beta_3 INFLATION_{i,t-1} + \beta_4 INTEREST_{i,t-1} + \beta_5 EXCHANGE_{i,t-1} + \beta_6 CAPITAL + \varepsilon_{it} \quad (4.1)$$

or

$$Y_{it} = \beta_0 + \beta_1 X1_{i,t-1} + \beta_2 X2_{i,t-1} + \beta_3 X3_{i,t-1} + \beta_4 X4_{i,t-1} + \beta_5 X5_{i,t-1} + \beta_6 X6_{i,t-1} + \varepsilon_{it} \quad (4.2)$$

From equations (4.1) and (4.2), the dependent variables description is follow:

$LOANS_{i,t}$  or  $Y_{i,t}$  = *Represents the dependent variables in time t for group of banks i, as growth of credits on the total real lending and for each sector. The sources of data are the commercial banks monthly reports of Bank Indonesia's data base of May 8-12, 2006, periods of 1996S1 to 2005S2.*

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<sup>35</sup> The variables are based on the variables of Montgomery and Shimizutani's (2005) research. Their study examined the effectiveness of bank recapitalization policies in Japan. Nevertheless, the variables and parameters of the model will be modified according to data availability and in alignment with Indonesian banking conditions.

The independent variables description:

$OPROFIT_{i,t}$ or $X1_{i,t-1}$	=	<i>Percentage of operating profit to total assets in time t-1 for group of banks i. The sources of data are both the individual bank's semester financial statements and annual reports, for periods of 1996S1 to 2005S2.</i>
$GDPGRDP_{i,t}$ or $X2_{i,t-1}$	=	<i>GDP growth based on constant prices; except that the regional GDP growth is taken into account for the regional banks, in time t-1 for group of banks i. The sources of data are the Indonesia Central Bureau of Statistics' various issues for periods of 1996S1 to 2005S2. The data for the period from 1996S1 to 1999S2 uses the constant prices at the basic year 1993 and for period of 2000S1 to 2005S2, we use the constant prices based on the basic year of 2000.</i>
$INFLATION_{i,t-1}$ or $X3_{i,t-1}$	=	<i>Inflation growth, taken semi-annually, in time t-1 for group of banks i. The sources of data are the Indonesia Central Bureau of Statistics' various issues for period of 1996S1 to 2005S2.</i>
$INTEREST_{i,t-1}$ or $X4_{i,t-1}$	=	<i>Interest rate (nominal) in each group of banks, in time t-1 for group of banks i. The sources of data are the commercial banks semester reports of Bank Indonesia's data base of May 8-12, 2006, for period of 1996.S1 to 2005S2.</i>
$EXCHANGE_{i,t-1}$ or $X5_{i,t-1}$	=	<i>Exchange rate as mid rates from Bank Indonesia in time t-1 for group of banks i. The sources of data are the Bank Indonesia's various reports, for periods of 1996S1 to 2005S2.</i>
$CAPITAL_{i,t-1}$ or $X6_{i,t-1}$	=	<i>Capital position including the amount of capital injection, in time t-1 for group of banks i. The sources of data are both the individual bank's semester financial statements and annual reports, for the period of 1996S1 to 2005S2.</i>
$\varepsilon_{it}$	=	<i>Error in time t for group of banks i.</i>

The above method will be used to examine the effectiveness of the capital injected in enhancing the recapitalization program. To know the effect of capital injection, we make a comparison between the two-line pooled square regressions using the dummy variable approach. Furthermore, we also choose between the fixed effect and random effect by the Hausman Test with the Wallace-Hussain estimator that uses the OLS residual, because the intercept of each group of banks is not constant or has the possibility to change for each group and time.

## 4.2 Data, Methodology, and Research Hypotheses

### 4.2.1 Data and Data Collecting Technique

The population for this research consists of all the recapitalized banks; they were 36 banks. In the process, some of the recapitalized banks were merged to form the Bank

Mandiri (consisting of four banks), Bank Permata (consisting of five banks), and Bank Danamon (consisting of 10 banks). All the banks that were merged had their data before the mergers consolidated into the new banks' data after the mergers. Thus, the number of research objects (population) is reduced to 23 banks, which are divided into three groups of banks, namely, the state-owned bank group having four banks; the private banks group having seven banks; and the regional development banks group having twelve banks.

For the banks' performance data, the research time line is the annual data and the period is from 1995 up to 2005. The data as a mention on the Table 4.1 have sources from Bank Indonesia (BI), financial statements from each receiver of bank recapitalization, annual report from each the receiver of bank recapitalization, and PT. Ekofin Konsulindo as banking and financial consultants. The data would construct by individual bank then consolidated by group of bank. Especially for bank was merged, the sources of data from both member of ex-legacy bank has been merged comprises become consolidated data as a new bank merged. The consolidated data using the previously data before merged since 1995 until the bank was merged.

For the real lending sector, to assess the effectiveness of capital injected we will use semester data, and the starting time line is from semester 2 of 1995 up to semester 2 of 2005. Here, we conducted the same way to consolidated data from member of ex-legacy bank to a new bank merged. The data have sources from the commercial banks monthly report of Bank Indonesia's data-base on May 8-12, 2006 for outstanding credit to real sector; the GDP/RGDP and Inflation based on Indonesia Central Bureau of Statistics various issued; the interest rate, the operation profit and a capital based on the financial statement each receiver of bank recapitalization, Bank of Indonesia, and PT Ekofin Konsulindo; and for exchange rate based on Bank of Indonesia various issued. As note, the interest rate has counted based on the average of domestic rate and USD interest rate for both individual banks.

#### 4.2.2 Methodology

It has been explained in the research design that in conducting this research, various statistical methods will be applied. These will include the Wilcoxon's signed ranks test and the Manova test. These will be used to assess the overall differences in banks' performance before and after capital injection. The panel data method will be employed in assessing the effectiveness of capital injected on the growth of the real sector lending from the panel data collected.

##### 4.2.2.1 Bank Performance Measurement Methodology

Based on Table 4.1, the non-parametric statistics (NPar) to be used is the Wilcoxon's Signed Ranks Test and Manova Test. The Wilcoxon's Signed Ranks Test will be used to evaluate the two periods of perception, before and after the existence of capital injected through the banking recapitalization program. The methodology of parametric matched-sample analysis (the t test on paired differences) requires interval

data and the assumption that the population of differences between the pairs of the observations is normally distributed (Anderson, Sweeney, and Williams 2002, 797). However, if in fact the assumption of normally distributed differences has not matched, then the NPar Wilcoxon signed-rank test can be used. For more details, the decision process on NPar Wilcoxon signed-rank test is explained in Table 4.2.

Table 4.2 Decision Making Process on NPar Wilcoxon Sign-Rank Test	
Hypothesis: Using a level of significance of $\alpha = 0.05$	H <sub>0</sub> : The populations are identical H <sub>a</sub> : The populations are not identical
Basis of decision making	<p>By comparing number of z count with z table</p> <ul style="list-style-type: none"> <li>• If z count &lt; z table, then H<sub>0</sub> is accepted</li> <li>• If z count &gt; z table, then H<sub>0</sub> is rejected</li> </ul> <p>The value of the test statistic z is:</p> $z = \frac{T - \mu_T}{\sigma_T}$ <p>By using the probability value with the rule:</p> <ul style="list-style-type: none"> <li>• If probability &gt; 0.05 then H<sub>0</sub> is accepted</li> <li>• If probability &lt; 0.05 then H<sub>0</sub> is rejected</li> </ul>
Source: Summarized from George and Mallery (2006).	

To compare the banks' performance, the testing of the time interval hypotheses would be conducted fifteen times for the summary hypotheses and partial hypotheses as follows:

1. One year before and one year after capital injected;
2. One year before and two years after capital injected;
3. One year before and three years after capital injected;
4. One year before and four years after capital injected;
5. One year before and five years after capital injected;
6. Two years before and one year after capital injected;
7. Two years before and two years after capital injected;
8. Two years before and three years after capital injected;
9. Two years before and four years after capital injected;
10. Two years before and five years after capital injected;
11. Three years before and one year after capital injected;
12. Three years before and two years after capital injected;
13. Three years before and three years after capital injected;
14. Three years before and four years after capital injected; and
15. Three years before and five years after capital injected

The hypotheses on the group of banks as well as banks' recapitalized would all be tested. It means the results of the hypotheses tested would explain the performance of



banks before and after the capital injection in the state-owned banks, private banks, regional development banks and all the individual recapitalized banks’.

The defined five years’ lead-time of capital injection used for the hypothesis testing is based on the IBRA criteria for banking restructuring in Indonesia. The defined three years time lag of the capital injection used in the hypothesis is based on the assumption that the banks’ performance during this period was good.

On the other hand, the Manova test will be used for the variance analysis of a few of the group of variables. The Manova test will be used to test the hypotheses summary as to whether the partial hypotheses results are consistent with the entire banks’ performance variables. See the procedure in Appendix 4.

For the partial measurement of banks’ performance using CAMEL components, the variables measurement will be described with each variables definition as shown in Table 4.3.

Table 4.3 CAMEL Components, Variables Measurement, and Variables Definition			
No	CAMEL	Variables Measurement	Variables Definition
1	CAR	Total capital of credit risk / risk weighted assets credit risk	Capital adequacy ratio represents the capacity of bank capital to cover problem assets.
2	P-NPL-exp to Loan % Total Assets	Provision for non-performing loan exposure as a percentage of bank total assets	Provision to non-performing loan exposure as represented of to cover an assets quality.
3	EBTDA % assets	Earning before tax and provision as a percentage of bank total assets	Earning before tax and provision is proxy of the management capability to make profit.
4	ROA	Annual profit before taxes/ average assets	Return on assets is earning aspect of the capability of a bank to manage its assets efficiently.
5	ROE	Profit (Losses) /capital	Return on equity is earning aspect of the capability of a bank to leverage its profit with the limited capital.
6	NIM	Net interest income (NII) / average earning assets	Net interest margin is earning aspect of the capability of a bank to create the pure interest income as an intermediary institution.
7	CIR	Operation expense / operation income for the same period	Cost income ratio is earning aspect as capability of bank to efficiency their expense to income.
8	LDR	Credit / third party funds	Loan to deposits ratio is the liquidity aspect of the capability of a bank to create credit for third parties.

Source: Summarized by author

#### 4.2.2.2 Effectiveness Measurement Methodology of Capital Injected

The regression equation by the Pooled Least Squares (PLS) method on the eleven dependent variables will be statistically tested. This will be conducted to find the any regression line having different or not in any one period of regression line that using R

Square (variance), F-Test, and the t-test. The significance of the dependent variables and variable dependency will be reported for each group of banks. The groups of banks are the **state-owned banks**, **private banks**, and the **regional development banks**.

Based on equation (4.1) or (4.2) the pooled least square regression model in the two periods can be written as follows. The pooled regression period before capital was injected is:

$$Y_{it} = \beta_0 + \beta_1 X1_{i,t-1} + \beta_2 X2_{i,t-1} + \beta_3 X3_{i,t-1} + \beta_4 X4_{i,t-1} + \beta_5 X5_{i,t-1} + \beta_6 X6_{i,t-1} + \varepsilon_{it} \quad (4.3)$$

and the pooled regression period after capital injection is:

$$Y_{it} = \lambda_0 + \lambda_1 X1_{i,t-1} + \lambda_2 X2_{i,t-1} + \lambda_3 X3_{i,t-1} + \lambda_4 X4_{i,t-1} + \lambda_5 X5_{i,t-1} + \lambda_6 X6_{i,t-1} + \varepsilon_{it} \quad (4.4)$$

This model, known as the Chow Model and formulated by Gregory C. Chow (1960), divides the line of regression into two periods. To know that the line of regression is different or not in any one period, we apply the dummy variable technique. We can write the equation as:

$$Y_{it} = \beta_0 + \beta_1 D99 + \beta_2 X1_{i,t-1} + \beta_3 X2_{i,t-1} + \beta_4 X3_{i,t-1} + \beta_5 X4_{i,t-1} + \beta_6 X5_{i,t-1} + \beta_7 X6_{i,t-1} + \beta_8 (D99 * X1_{i,t-1}) + \beta_9 (D99 * X2_{i,t-1}) + \beta_{10} (D99 * X3_{i,t-1}) + \beta_{11} (D99 * X4_{i,t-1}) + \beta_{12} (D99 * X5_{i,t-1}) + \beta_{13} (D99 * X6_{i,t-1}) + \varepsilon_{it} \quad (4.5)$$

Where:

- $Y_{it}$  = Loans sectors 1 to 10, and total loans for group banks i in time t.
- $X1_{i,t-1} \dots X6_{i,t-1}$  = Dependent variables, according to the descriptions in equation (4.2).
- $\beta_0$  = Intercept
- $\beta_1$  = Distinguishing intercept
- $\beta_2 \dots \beta_7$  = Slope
- $\beta_8 \dots \beta_{13}$  = Dummy variables
- $D99$  = 0, is time period before capital was injected <99S2 (where S2 means the end of second semester).
- = 1, is time of capital injection and after capital injection  $\geq 99S2$  (where S2 means the end of second semester).

Based on the t-test, the intercept variable difference is  $D99$ , while the slope variable differences are  $D99 * X1_{i,t-1}$  to  $D99 * X6_{i,t-1}$ . If the estimation of  $D99$  is positive and significant it mean there is more lending after capital injected. However, if there is between  $D99 * X1_{i,t-1}$  to  $D99 * X6_{i,t-1}$  which not significant it means then the capital injected has no significant effect to effluence the slope difference, just it having effect on the intercept only. This means there is no significant difference in the line of regression after capital injection or in the other word the capital injection ineffective.

After knowing that the capital injection is effective or ineffective to influence the outstanding credits, hence to analyze the behavior of sector and total loans by groups of banks, the estimate of loan behavior using the fixed effect method and the random effect method will be applied to the pooled least squares.

The fixed effect method is the technical estimate of a panel data that uses dummy variables to capture the difference of intercept. To estimate equation (4.1) or (4.2) depends on our assumption about the intercept, slope coefficient and the residual (see Hsiao 1995). Logically, there is a difference of intercept for each group of banks, causing the application of the dummy variable technique to be used to explain the difference of intercept with the intended effect. This estimation model is recognized as the least squares dummy variable (LSDV) technique. Thus, the equation of fixed effect method would be written as follows:

$$Y_{it} = \beta_0 + \beta_1 X1_{i,t-1} + \beta_2 X2_{i,t-1} + \beta_3 X3_{i,t-1} + \beta_4 X4_{i,t-1} + \beta_5 X5_{i,t-1} + \beta_6 X6_{i,t-1} + \beta_7 D99 + \beta_8 D_{1i} + \beta_9 D_{2i} + \varepsilon_{it} \quad (4.6)$$

Where:

- $D_{1i}$  = 1 for Private Bank,  
= 0 for other group
- $D_{2i}$  = 1 for Regional Bank,  
= 0 for other group

In this model, the state-owned bank group is used as the control group with which we compare the other groups of banks. Thus, we do not need the dummy variable for it. Hence,  $\beta_0$  shows the intercept for state-owned banks,  $\beta_8$  and  $\beta_9$  are the comparing intercept used to explain how big the differences are as regards the private bank group and the regional bank group with the intercept of the state-owned bank group.

In order to find whether the regression of panel data with fixed effect is more proper than the panel data without the dummy variable, we will look at the residual sum of squares (RSS). The statistical test using the F-test is as follows:

$$F = \frac{(RSS_1 - RSS_2) / m}{(RSS_2) / (n - k)} \quad (4.7)$$

Where:

- $RSS_1$  = residual sum of squares without dummy variable
- $RSS_2$  = fixed effect technique with dummy variable
- $m$  = degree of freedom for the numerator
- $k$  = number of parameters in fixed effect model
- $n-k$  = degree of freedom for the denominator

The null hypothesis ( $H_0$ ) is accepted if the intercepts are equal and the alternative hypothesis ( $H_a$ ) is accepted if the intercepts are not equal. F-value statistics will follow

the F-statistics distribution with the degree of freedom ( $df$ ) denoted as  $m$  for the numerator and  $n-k$  for the denominator. Here,  $m$  is the number of restrictions or delimitations in the model without the dummy variable.

The random effect method is the estimate of the panel data using the residual variable. This method is used to overcome uncertainty in the model that has been used in the fixed effect method. In this model, we would choose the panel data estimate where the residual has relationship possibilities between time variants and between groups of banks. To explain the random effect method in enhancing the behavior of the real sector, we assume that the intercept is random or stochastic and all the groups of banks have differences in intercept. The equation will be written again is:

$$Y_{it} = \beta_o + \beta_1 X1_{i,t-1} + \beta_{2i,t-1} X2_{i,t-1} + \beta_{3i,t-1} X3_{i,t-1} + \beta_{4i,t-1} X4_{i,t-1} + \beta_{5i,t-1} X5_{i,t-1} + \beta_{6i,t-1} X6_{i,t-1} + \beta_7 D99 + \varepsilon_{it} \quad (4.8)$$

Here,  $\beta_o$  is not constant anymore (non-stochastic), but having a random character. This can be expressed in equation as follows:

$$\beta_{oi} = \bar{\beta}_o + \mu_i \quad (4.9)$$

Where  $i = 1, 2, \dots, n$

The  $\beta_o$  is an unknown parameter that shows the average of the population intercept and  $\mu$  is the residual having the random character. There are different characters for each group of banks.

Here too, the  $\mu_i$  residual has characteristics as follows:

$$E(\mu_i) = 0 \quad \text{and} \quad \text{var}(\mu_i) = \sigma_\mu^2 \quad (4.10)$$

Then

$$E(\beta_{oi}) = \bar{\beta}_o \quad \text{and} \quad E(\beta_{oi}) = \bar{\beta}_o \cdot \text{var}(\beta_{oi}) = \sigma_\mu^2 \quad (4.11)$$

We substitute the equation (4.9) in equation (4.8) and get:

$$Y_{it} = (\bar{\beta}_o + \mu_i) + \beta_1 X1_{i,t-1} + \beta_{2i,t-1} X2_{i,t-1} + \beta_{3i,t-1} X3_{i,t-1} + \beta_{4i,t-1} X4_{i,t-1} + \beta_{5i,t-1} X5_{i,t-1} + \beta_{6i,t-1} X6_{i,t-1} + \beta_7 D99 + \varepsilon_{it} \quad (4.12)$$

And

$$Y_{it} = \bar{\beta}_o + \beta_1 X1_{i,t-1} + \beta_{2i,t-1} X2_{i,t-1} + \beta_{3i,t-1} X3_{i,t-1} + \beta_{4i,t-1} X4_{i,t-1} + \beta_{5i,t-1} X5_{i,t-1} + \beta_{6i,t-1} X6_{i,t-1} + \beta_7 D99 + (\varepsilon_{it} + \mu_i)$$

$$\text{When } v_{it} = e_{it} + \mu_i \quad (4.13)$$

Then, we get the equation as follows:

$$Y_{it} = \bar{\beta}_0 + \beta_1 X1_{i,t-1} + \beta_{2i,t-1} X2_{i,t-1} + \beta_{3i,t-1} X3_{i,t-1} + \beta_{4i,t-1} X4_{i,t-1} + \beta_{5i,t-1} X5_{i,t-1} + \beta_{6i,t-1} X6_{i,t-1} + \beta_7 D99 + v_{i,t} \quad (4.14)$$

Equation of (4.13) uses the random effect method. We can say that the  $v_{it}$  residual consists of two components; they are  $\varepsilon_{it}$  as comprehensive residual (a combination of time series and cross section) and the  $\mu_i$  as the individual residual. The  $\mu_i$  is the difference between the groups of banks, but constant between time variants. Here, the assumption which has a bearing on the  $v_{it}$  residual is:

$$\text{The zero residual expected value } E(v_{it}) = 0 \quad (4.15)$$

$$\text{The variant of homoskedasticity residual } \text{var}(v_{it}) = \sigma_{\mu}^2 + \sigma_e^2 \quad (4.16)$$

The residual from the equivalent groups of banks in different periods have correlation with each other:

$$\text{Cov}(v_{it}, v_{is}) = \sigma_{\mu}^2 \quad \text{Where } (t \neq s) \quad (4.17)$$

Furthermore, there is the residual from the different group of banks that are not correlated:

$$\text{Cov}(v_{it}, v_{js}) = 0 \quad \text{Where } (i \neq j) \quad (4.18)$$

Most importantly, the random effect specification assumes that the effect is uncorrelated with the idiosyncratic residual  $\varepsilon_{it}$  (QMS 2005). In equation (4.14), if there is correlation between residuals, then the proper method to estimate the random effect is the generalized least squares (GLS). This method is based on the quantitative Microsoft software i.e. Eviews 5.1 version.

In this research, we chose the Wallace-Hussain random effect using feasible GLS techniques by the Hausman approach. The Wallace-Hussain estimator uses only OLS residuals. [For more details about random effects, see Badi H. Baltagi (2003)].

The Hausman (1978) test has developed the method of choice as to whether one should use the fixed effect method or random effect method. The Hausman test based on the LSDV in the fixed effect method and GLS are efficient while the OLS is not efficient. That is why when the null hypothesis results for both are not different, then

the Hausman test can apply based on estimation difference. The important component of Hausman test is the matrix covariant from the vector difference  $[\hat{\beta} - \hat{\beta}_{GLS}]$ :

$$Var[\hat{\beta} - \hat{\beta}_{GLS}] = Var[\hat{\beta}] + Var[\hat{\beta}_{GLS}] - Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Cov[\hat{\beta}, \hat{\beta}_{GLS}]' \quad (4.19)$$

In the Hausman method, the sum of covariant differences from efficient estimator and the not efficient estimator is zero. Then:

$$\begin{aligned} Cov[(\beta - \hat{\beta}_{GLS}), \hat{\beta}_{GLS}] &= Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Var[\hat{\beta}_{GLS}] = 0 \\ Var[\hat{\beta} - \hat{\beta}_{GLS}] &= Var[\hat{\beta}] + Var[\hat{\beta}_{GLS}] - Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Cov[\hat{\beta}, \hat{\beta}_{GLS}]' \\ Cov[(\beta - \hat{\beta}_{GLS}), \hat{\beta}_{GLS}] &= Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Var[\hat{\beta}_{GLS}] = 0 \end{aligned} \quad (4.20)$$

When we insert the equation (4.20) into equation (4.19), we get:

$$Cov[(\beta - \hat{\beta}_{GLS}), \hat{\beta}_{GLS}] = Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Var[\hat{\beta}_{GLS}] = 0$$

Furthermore, the Hausman test follows the Wald criterion that gives the chi-squares distribution as  $m = \hat{q}' Var(\hat{q})^{-1} \hat{q}$  (4.21)

Where

$$\begin{aligned} Cov[(\beta - \hat{\beta}_{GLS}), \hat{\beta}_{GLS}] &= Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Var[\hat{\beta}_{GLS}] = 0 \quad \text{and} \\ Cov[(\beta - \hat{\beta}_{GLS}), \hat{\beta}_{GLS}] &= Cov[\hat{\beta}, \hat{\beta}_{GLS}] - Var[\hat{\beta}_{GLS}] = 0 \end{aligned}$$

If the Hausman statistics is greater than its critical value, then the proper method is the fixed effect approach. On the contrary, if the Hausman statistics is less than its critical value, then the proper method is the random effect approach.

In addition, based on the focus of the outline above, the measurement methodology could be summarized as follows:

1. To examine the effectiveness and behavior of capital injection impact on real sector lending using the Pooled Least Squares Regression;
2. To examine the effectiveness the capital injection using D99 (as dummy) and the fixed effect method (FEM) as to whether capital injection had any impact on real sector lending or not. The process uses equation 4.5 to look at the effectiveness based on the shift dummies; and
3. To examine the behavior of the groups of banks after capital injection for each sector using the D99 (as dummy). The process uses equation 4.6 to look at the behavior of the group of banks based on the slope dummies and fixed effect method (FEM) or random effect method (REM).

To facilitate the understanding of the panel data technique that applied in this research, we present the panel data matrix that covers the assumption, equation reference applied and objectives of each panel data technique as shown in Table 4. 4.

**Table 4.4 Matrix of Panel Data Usage**

Estimate Technique of Panel Data Regression	Assumption	Equation uses	Objectives
OLS (Ordinary Least Square) with Dummy's Method	<ol style="list-style-type: none"> <li>1. Intercept difference between groups, but it has same time variants; and</li> <li>2. The slope is fixed between groups and time variants.</li> </ol>	Manually, using estimates in Eviews software menu, based on equations (4.5) and (4.6)	To estimates the regression line without concerning the individual and time dimension.
Fixed Effect Method (FEM)	<ol style="list-style-type: none"> <li>1. Intercept difference between groups, but it has same time variants; and</li> <li>2. The slope is fixed between groups and time variants.</li> </ol>	Through Eviews software menu, based on equations (4.5) and (4.6)	To estimates panel data by using variable dummy to catch existence of difference intercept and slope.
Random Effect Method (REM)	<ol style="list-style-type: none"> <li>1. Both groups have intercept difference;</li> <li>2. Intercept is random variable (stochastic); and</li> <li>3. Residual <math>\mu_i</math> is difference between groups and fixed time variants.</li> </ol>	Through Eviews software menu, based on equation (4.14)	To estimate panel data based on the residual.

Source: Summarized by author from various sources.

### 4.2.3 Research Hypotheses

From the model in Figure 4.1, there are two research focuses to be examined. These are the banking performance before and after getting capital injection through the recapitalization program, and the examination of the effectiveness of the policy of the bank recapitalization program for every group of banks that was recapitalized.

#### 4.2.3.1 Bank Performance Hypotheses

As has been submitted before, this research will present the differences in bank performances before and after the receipt of the capital injection through the banking recapitalization program. The set of analysis to be used involves the components of CAMEL (without the S= sensitivity to market risk component), as mentioned in Table 4.1. The alternative hypotheses,  $H_a$ , can be expressed as follows:

**Ha:** There is a difference in measured bank performance according to CAMEL ratio for the period before and after the banks accepted capital injection through banking recapitalization program.

The test for each ratio of CAMEL will be done to express the significant differences between the period of time before and after the banks received the capital injection through the recapitalization bonds, hereinafter can be formulated the alternative hypothesis by partial.

For the group of banks which received new injected capital through banking recapitalization program:

**Ha1:** Bank performance level as measured by CAR after recapitalization is different from what it was before recapitalization.

**Ha2:** Bank performance level as measured by P-NPL-exp to Loan of Assets percentage (Percentage of Provision to NPL Exposure to Assets) after recapitalization is different from what it was before recapitalization.

**Ha3:** Bank performance level as measured by EBTDA (earning before tax and provisions as a percentage of bank total assets) after recapitalization is different from what it was before recapitalization.

**Ha4:** Bank performance level as measured by ROA (return on assets) after recapitalization is different from what it was before recapitalization.

**Ha5:** Bank performance level as measured by ROE (return on equity) after recapitalization is different from what it was before recapitalization.

**Ha6:** Bank performance level as measured by NIM (net interest margin) after recapitalization is different from what it was before recapitalization.

**Ha7:** Bank performance level as measured by CIR (cost to income ratio) after recapitalization is different from what it was before recapitalization.

**Ha8:** Bank performance level as measured by LDR (loan to deposits ratio) after recapitalization is different from what it was before recapitalization.

Because of the dearth of data, not all the CAMELS component using in calculated. The only eight components should be process according to the hypotheses above.

#### 4.2.3.2 Effectiveness of Capital Injected to the Real Sector Hypotheses



Based on the results of the regression equation by the PLS (Pooled Least Squares) method on the eleven dependent variables, alternative hypotheses can be formulated as follows:

**Ha9-19:** the slope in the regression lines having difference significant for total real lending and each real sector as outcomes of the new capital injected through the banks' recapitalization program.

### 4.3 Summary of Chapter

From the research framework above, the model-formulation has shown that there exists a strong relationship between bank performance and real sector lending. It means that if banking performance deteriorates, it would greatly affect the level of credit as a whole. Thus, the policy of government has been to restructure the Indonesia banking system as the catalyst to the recovery of the Indonesian economy as a whole.

The problem is how to assess the effectiveness of the bank restructuring program, and especially, to evaluate the banks' recapitalization program to determine the extent to which it has improved banks performance and whether truly the Indonesian economic recovery was enhanced by the contributions of real sector lending.

The population of this research is all the recapitalized banks, which numbered 36 banks at the onset. Some of the banks were merged and their data consolidated into that of the surviving bank after the mergers. That brought the number of research objects (population) to 23 banks, and sub-divided into three groups of banks, which are the state-owned banks, private banks, and regional development banks.

To evaluate the performance of banks, we would use non-parametric statistics based on financial statements. Measuring of banks' performance would be based on the CAMEL components consisting of eight variables. The CAMEL components would be tested using the NPar Wilcoxon Sign-Rank Test. Hereinafter, based on the partial components of CAMEL; the Manova test will be used to test whether the hypotheses summary is consistent with the entire bank performance variables.

To examine the effectiveness of the banks' recapitalization to the real sector lending, we would use the panel data on group of banks based on pooled square regression and fixed effect method or random effect method or dummy variables technique. To know the behavior of real sector lending we would use the panel data with fixed and random effect method.



## **5. Research Findings**

The findings obtained from the evolution of the Indonesia banking system as narrated in the literature review affirm the importance of this research agenda. Hereinafter, the findings of the research are provided with respect to the performance of banks and real sector lending.

### **5.1 Research Findings based on the Evolution of the Indonesian Banking System and Linked to the Literature Review**

The summary of findings, which are elaborated below, covers the reasons why the crisis happened until the decision of the government to undertake a national banking restructuring through the bailout of the debts of national private banks and banks recapitalization.

1. The crises that happened in East Asia were brought about by the twin problems of the occurrence of a currency crisis in big percentages of devaluation that progressively deepened the banking crisis (Kaminsky & Reinhart 1999). Especially for Indonesia and Korea, the crises could be grouped into the third generation model of crisis (3GMC), according to Irwin & Vines (1999), which focused on how the banking sector might cause a currency crisis. The problem began with the financial intermediaries where the institutions whose liabilities were perceived as having an implicit government guarantee, ran into moral hazard problems, according to Krugman (1998). The moral hazard happened before the crisis burst, which was in the form of risky credit lending. This has resulted in the occurrence of financial bubbles even after the crisis. This condition was worsened by the existence of capital flights, which adversely affected the capital-account crisis and combined with the internal credit contraction (Yoshitomi & Ohno 1999, 26). On the other side, many researchers held the opinion that the morale hazard problems occurred through the deployment of liquidity support (BLBI) and the handling of NPLs assets, which were transferred under the banks' recapitalization program to IBRA supervision.
2. The genesis of the crisis that knocked Indonesia over was triggered by the contagion-effect. It started with the downfall of the Thai Bath on the 2<sup>nd</sup> July of 1997. That caused Indonesia to fall into a deep crisis, when the period of monetary crisis led to a series of crises, namely, an economic crisis, banking crisis, and even confidence crisis. The lack of confidence in the banking system led to the withdrawal of foreign funds and capital flight. The other effects dried up liquidity in the money market. This matter showed fantastic increases in the inter-bank over-night rates from over 100% to about 300%.
3. Parallel to the dried up liquidity in the money market was the accumulation of overseas debt amounts (by both the government and the private sector) that were denominated in the US dollar. These debts, which were not hedged, resulted in liability dollarization. This led to the brittleness of the corporate world in Indonesia, which stayed under the threat of bankruptcy because they were unable to pay their liabilities. Furthermore, the financial and corporate sector weaknesses

combined with the macroeconomic vulnerabilities to spark off the crisis (Lindgren et al 1999).

4. The basic weaknesses of the banking system are the problems of liquidity and solvency. To make matters worse, the loss of society's confidence in the banking system resulted in negative balances in the settlement accounts of the banks with the central bank. However, the effect of the high cost of funds brought in its wake negative interest margins. To overcome this, the banks performed to boost up the level of interest rates, but this generated the fall of asset quality (making them become NPLs). In addition, the capital adequacy ratio (CAR) of individual banks and nationally declined drastically, or even negatively. As a result, for the first time in Indonesian history, government revoked the operational licenses of banks in big numbers (i.e. 16 banks) in conformity with IMF directives. This liquidation caused the decline of confidence in national banking, not only from customers but also from overseas parties, because the government just bailouts the limited of bank liabilities have been liquidated.
5. In response to the dried up liquidity and public loss of confidence, the central bank of Indonesia was forced to function as the lender of the last resort (LOLR) and gave liquidity support (BLBI) and deposit guarantees to banks to stabilize the economy and to recover the society's confidence in the national banking system. Though the government had earlier taken actions to stabilize the banking sector, they still suffered from the crisis.
6. To prevent the destruction of the national banking system, the government decided to undertake banking restructuring under the direction of the IMF, which meant forming the IBRA. The government used the IBRA for national banking restructuring by executing the banks' recapitalization program and banking resolution. It also formed the Assets Management Unit to handle the transfer of NPLs from the recapitalized banks.
7. The significant actions taken by government in restructuring the banking system were to give liquidity assistance of up to IDR 144.54 trillion for banking resolution and the injection of government bonds to some banks totaling up to IDR 430.4 trillion for banks' recapitalization. This was considered as "too big or too important to fail." Especially for banks' recapitalization, the ownership of banking equity by government by the end of December 2000 had increased to 95.1% of total domestic banks (IDR44.59 trillion). If government did not save the domestic banks, the domination of national banking would be mastered by foreign banks and the Indonesian economy would become vulnerable. The number of banks that had asset quality falling towards NPLs would become more prone to bankruptcy and those whose current assets include debtors would face serious illiquidity. When the debtor banks become bankrupt, GDP will go down drastically and economic growth will stop with all the social consequences that are uncertain. For example, in 1997 the real GDP growth was 4.70%. In 1998, this went down to -13.10%; in 1999, it was only 0.80%, and in 2000, it became 4.9%.
8. In the Indonesia economic system, there is a real tight relationship between economic growth and banking credit supply. This is because the contribution of the banking system as a source of funds in Indonesia is as high as average 73.59% (calculated from total of national banks assets, foreign direct investment, domestic investment and JSX (Jakarta Stock Exchange) Market capitalization during 1997-

2004) and if the LDR (loan to deposit ratio) of banks come down, it means the GDP too will be lower.

## **5.2 Research Findings Based on the Case**

### **5.2.1 Performance of Banks**

Based on the individual performance of recapitalized banks, some banks were merged and their data were consolidated into the data of the anchor banks (i.e. the new banks that emerged as a result of the mergers). Hence, the banks' performance data would be calculated for the groups of banks. There are three groups, i.e. state-owned banks, private banks, and regional development banks. The banks' performance data for the group would be divided into two inter-period time lines to cover the banks before getting capital injected and after getting capital injected.

The capital injected is determined from the year 1999 to 2000. The complete summary of the data based on the group of banks is as shown in Table 5.1. The Banks' recapitalization policy started in mid-1999 and ended in 2000. To facilitate the banks' performance analysis, the time line from 1995 to 1998 described as 'pre-capital injection period', and from 2000 to 2005 described as 'post-capital injection period' would apply.

The NPar Wilcoxon Signed-Rank Test is used to test the calculations of banks' performance based on the new individual banks' data before and after capital injection. The results from this testing are presented in the matrix table in Appendices 5 to 8 respectively. Appendix 5 shows the results of the Wilcoxon Signed-Rank Test for All Recapitalized Banks, before and after capital injection. Appendix 6 shows the results of Wilcoxon Signed-Rank Test for the Recapitalized State-Owned Banks, before and after capital injection. Appendix 7 presents the result of the Wilcoxon Signed-Rank Test for the Recapitalized Private Banks, before and after capital injection, and Appendix 8 gives the results of the Wilcoxon Signed-Rank Test for the Recapitalized Regional Development Banks, before and after capital injection.

In line with the hypotheses, the findings are divided to cover the three groups of banks with additional findings for performance of all banks recapitalized.

#### **5.2.1.1 Recapitalized State-Owned Banks**

There are fifteen various findings based on the hypotheses tested. The significant level that we used is the value of Asym sig. of 0.1 or 90% confidence level. For all other conditions, the results are as follows:

Table 5.1 Summary Performance of Banks by Group Based on CAMEL Components

Group of Banks	CAMEL Component	BEFORE CAPITAL INJECTED				Capital Injected	AFTER CAPITAL INJECTED					
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
State Owned Bank	CAR	11.52%	11.99%	5.86%	-66.01%	-28.13%	20.70%	18.99%	18.17%	22.73%	21.05%	19.36%
	P-NPL-exp to Loan	2.51%	3.32%	3.13%	53.15%	39.77%	18.87%	9.28%	8.54%	7.56%	6.45%	7.24%
	EBTDA	0.88%	0.97%	-1.05%	-104.36%	-11.94%	0.26%	1.39%	2.06%	2.37%	3.24%	1.70%
	ROA	1.01%	0.32%	-1.63%	-74.21%	-72.36%	-59.53%	1.23%	2.07%	2.38%	3.45%	1.83%
	ROE	9.36%	13.43%	54.74%	-44.19%	370.26%	5.59%	28.50%	32.59%	24.15%	31.42%	15.43%
	NIM	3.18%	2.72%	2.33%	-4.68%	-10.46%	2.63%	3.52%	3.95%	4.77%	6.35%	6.05%
	CIR	101.58%	83.28%	110.43%	282.63%	1793.82%	93.26%	100.97%	102.46%	99.73%	93.38%	95.30%
LDR	91.24%	91.92%	95.89%	101.48%	35.22%	29.27%	33.38%	40.83%	47.25%	58.70%	58.63%	
Private Bank	CAR	7.29%	7.29%	6.67%	-55.95%	-28.54%	19.95%	12.81%	23.80%	21.85%	20.57%	19.76%
	P-NPL-exp to Loan	1.56%	1.24%	2.11%	37.61%	20.75%	9.56%	11.71%	6.52%	7.48%	3.58%	2.40%
	EBTDA	1.44%	1.41%	1.00%	-58.37%	-8.44%	0.09%	0.03%	1.32%	1.85%	3.23%	2.79%
	ROA	2.44%	2.24%	1.74%	-49.38%	-47.97%	-26.72%	0.30%	1.27%	2.00%	3.17%	2.65%
	ROE	13.71%	13.85%	7.82%	120.81%	80.80%	3.80%	274.54%	8.72%	26.57%	38.05%	25.06%
	NIM	3.59%	3.52%	3.55%	-16.63%	-9.38%	2.12%	3.38%	4.17%	4.65%	5.65%	5.86%
	CIR	99.11%	90.53%	96.46%	318.29%	165.06%	99.29%	109.35%	110.59%	107.75%	99.28%	88.82%
LDR	83.09%	81.87%	100.27%	170.15%	23.59%	26.28%	26.36%	32.29%	38.78%	47.03%	57.81%	
Regional Development Bank	CAR	7.99%	7.58%	6.16%	18.01%	20.37%	18.32%	19.69%	19.21%	19.60%	19.11%	18.19%
	P-NPL-exp to Loan	2.13%	1.91%	1.70%	2.97%	7.49%	7.58%	3.30%	2.39%	1.81%	2.05%	2.14%
	EBTDA	1.64%	1.45%	1.02%	-1.24%	-0.32%	1.50%	2.74%	3.26%	3.09%	3.54%	3.55%
	ROA	1.78%	2.32%	1.40%	-0.50%	-9.84%	-5.86%	3.22%	3.24%	3.12%	3.70%	3.40%
	ROE	12.30%	13.31%	13.52%	-35.03%	3.99%	19.24%	37.10%	36.36%	28.86%	28.94%	27.00%
	NIM	4.62%	4.06%	3.03%	3.41%	2.68%	7.01%	8.64%	9.44%	9.86%	10.72%	9.73%
	CIR	87.29%	86.72%	93.85%	110.04%	163.84%	73.26%	65.48%	78.43%	82.35%	78.31%	81.04%
LDR	68.44%	84.41%	140.01%	168.97%	42.24%	25.21%	34.59%	41.34%	49.44%	57.66%	50.84%	

Source: Calculated by Author

1. One year before and one year after capital was injected (1998 versus 2000). Two of the CAMEL variables are rejected, i.e. Ha4, and Ha5 (or ROA, and ROE respectfully), since they have values of Asym sig. of more than 0.10 respectively. However, at the Asym sig. of 0.1 (see Appendix 6), hypotheses Ha1, Ha2, Ha3, Ha6, Ha7, and Ha8 are accepted. In other words, the state-owned banks improved their performance based on CAR, PNPL, EBTDA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of one year after capital injection.
2. One year before and two years after capital was injected (1998 versus 2001). Only one of the CAMEL variables is rejected, that is Ha5, with the Asym sig. of more than 0.1, and that is 0.465 (see Appendix 6). On the other hand, there are seven CAMEL variables, which have values of Asym sig. of less than 0.1 (see Appendix 6), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. In other words, the state-owned banks improved their performance based on CAR, PNPL, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of two years after capital injection.
3. One year before and three years after capital was injected (1998 versus 2002). Only one of the CAMEL variables is rejected, that is Ha5, with the Asym sig. of more than 0.1, and that is 0.465 (see Appendix 6). On the other hand, there are seven CAMEL variables, which have values of Asym sig. of less than 0.1 (see Appendix 6), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. In other words, the state-owned banks improved their performance based on CAR, PNPL, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of three years after capital injection.
4. One year before and four years after capital was injected (1998 versus 2003). Only one of the CAMEL variables is rejected, that is Ha5, with the Asym sig. of more than 0.1, and that is 0.465 (see Appendix 6). On the other hand, there are seven CAMEL variables, which have values of Asym sig. of less than 0.10 (see Appendix 6), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. In other words, the state-owned banks improved their performance based on CAR, PNPL, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of four years after capital injection.
5. One year before and five years after capital was injected (1998 versus 2004). Only one of the CAMEL variables is rejected, that is Ha5, with the Asym sig. of more than 0.1, and that is 0.465 (see Appendix 6). On the other hand, there are seven CAMEL variables, which have values of Asym sig. of less than 0.1 (see Appendix 6), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. In other words, the state-owned banks improved their performance based on CAR, PNPL, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of five years after capital injection.
6. Two years before and one year after capital was injected (1997 versus 2000). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.346, 0.648, 0.224, and 0.362 (see Appendix 6). On the other

hand, hypotheses Ha1, Ha2, Ha4, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. ROA, PNPL, and NIM except that the value of LDR significantly went down two years before capital was injected and one year after capital injection. On the whole, the state-owned banks cannot be said to have improved their performance two years before capital was injected until the end of one year after capital injection based on CAR, PNPL, and NIM.

7. Two years before and two years after capital was injected (1997 versus 2001). There are five of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.273, 0.715, 0.715, 0.465 and 0.715 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR and PNPL except that the value of LDR significantly went down two years before capital was injected and two years after capital injection. On the whole, the state-owned banks cannot be said to have improved their performance two years before capital was injected until the end of two years after capital injection based on CAR and PNPL.
8. Two years before and three years after capital was injected (1997 versus 2002). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.715, 0.273, and 0.715 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, Ha3, Ha4, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA and ROA except that the value of LDR significantly went down two years before capital was injected and three years after capital injection. On the whole, the state-owned banks cannot be said to have improved their performance two years before capital was injected until the end of three years after capital injection based on CAR, PNPL, EBTDA, and ROA.
9. Two years before and four years after capital was injected (1997 versus 2003). There are five of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.465, 0.144, 0.715, 0.144, and 0.465 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR and PNPL except that the value of LDR significantly went down two years before capital was injected and four years after capital injection. On the whole, the state-owned banks cannot be said to have improved their performance two years before capital was injected until the end of four years after capital injection based on CAR and PNPL.
10. Two years before and five years after capital was injected (1997 versus 2004). There are two of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha5 and Ha7 are rejected. The values of Asym sig. respectively are 0.715 and 0.273 (see Appendix 6). On the other hand, hypotheses Ha1 until Ha4, Ha6 and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROA, and NIM except that the value of LDR significantly went down two years before capital was injected and five years after capital injection. In other words, the state-owned banks significantly improved their performance two years before capital was injected



until the end of five years after capital injection based on CAR, PNPL, EBTDA, ROA, and NIM.

11. Three years before and one year after capital was injected (1996 versus 2000). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.144, 0.465, 0.273, and 0.465 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, Ha4, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, and ROA except that the value of LDR significantly went down three years before capital was injected and one year after capital injection. On the whole, the state-owned banks cannot be said to have been able to improve their performance three years before capital was injected until the end of one year after capital injection based on CAR, PNPL, and ROA.
12. Three years before and two years after capital was injected (1996 versus 2001). There are three of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, and Ha6 are rejected. The values of Asym sig. respectively are 0.715, 0.715, and 0.715 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, Ha5, Ha7, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, ROE, and CIR except that the value of LDR significantly went down three years before capital was injected and two years after capital injection. On the whole, the state-owned banks cannot be said to have been able to improve their performance three years before capital was injected until the end of two years after capital injection based on CAR, PNPL, ROE, and CIR.
13. Three years before and three years after capital was injected (1997 versus 2002). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.144, 0.144, 0.465, and 0.144 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, Ha5, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, and ROE, except that the value of LDR significantly went down three years before capital was injected and three years after capital injection. On the whole, the state-owned banks cannot be said to have been able to improve their performance three years before capital was injected until the end of three years after capital injection based on CAR, PNPL, and ROE, and NIM.
14. Three years before and three years after capital was injected (1996 versus 2003). There are five of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.465, 0.465, 0.141, 0.144, and 0.144 (see Appendix 6). On the other hand, hypotheses Ha1, Ha2, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR and PNPL, except that the value of LDR significantly went down three years before capital was injected and four years after capital injection. On the whole, the state-owned banks cannot be said to have been able to improve their performance three years before capital was injected until the end of four years after capital injection based on CAR and PNPL.
15. Three years before and five years after capital was injected (1996 versus 2004). There are two of the CAMEL variables with values of Asym sig. of less than 0.1,

so hypotheses Ha4 and Ha7 are rejected. The values of Asym sig. respectively are 0.144 and 0.465 (see Appendix 6). It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROE, and NIM except that the value of LDR significantly went down three years before capital was injected and five years after capital injection. In other words, the state-owned banks significantly improved their performance three years before capital was injected until the end of five years after capital injection based on CAR, PNPL, EBTDA, ROE, and NIM although the LDR was lower than before capital was injected.

#### 5.2.1.2 Recapitalized Private Banks

Here too, there are fifteen findings based on the hypotheses tested. These are:

1. One year before and one year after capital was injected (1998 versus 2000). Only two of the CAMEL variables are rejected, i.e. Ha4 and Ha8 with Asym sig. values of 0.499 and 0.237 (see Appendix 7). The other CAMEL variables have values of Asym sig. of less than 0.1 so hypotheses Ha1, Ha2, Ha3, Ha5, Ha6, and Ha7 are accepted. In other words, the private banks significantly improved their performance based on CAR, PNPL, EBTDA, ROA, ROE, and CIR one year before capital was injected until the end of one year after capital injection.
2. One year before and two years after capital was injected (1998 versus 2001). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 7), so the seven hypotheses from Ha1 to Ha7 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until two years after capital injection. In other words, the private banks improved their performance until the end of two years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. Although the LDR was not significantly different, the consolidated value of LDR in private banks in 1998 reached 170.15%.
3. One year before and three years after capital was injected (1998 versus 2002). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 7), so the seven hypotheses from Ha1 to Ha7 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until three years after capital injection. In other words, the private banks improved their performance until the end of three years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. Although the LDR was not significantly different, the consolidated value of LDR in private banks in 1998 reached 170.15%.
4. One year before and four years after capital was injected (1998 versus 2003). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 7), so the seven hypotheses from Ha1 to Ha7 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until four years after capital injection. In other words, the private banks improved their performance until the end of four years after capital injection based on CAR,

PNPL, EBTDA, ROA, ROE, NIM, and CIR. Although the LDR was not significantly different, the consolidated value of LDR in private banks in 1998 reached 170.15%.

5. One year before and five years after capital was injected (1998 versus 2004). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 7), so the seven hypotheses from Ha1 to Ha7 are accepted. It means there are significant differences among the components of CAMEL two years before capital was injected until five years after capital injection. In other words, the private banks improved their performance until the end of five years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. Although the LDR was not significantly different, the consolidated value of LDR in private banks in 1998 reached 170.15%.
6. Two years before and one year after capital was injected (1997 versus 2000). There are three variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 1.000, 0.176, and 0.612 (see Appendix 7). It means the CAR, PNPL, EBTDA, ROA, and CIR show significant differences among the components of CAMEL two years before capital was injected and one year after capital injection. On the whole, the private banks cannot be said to have been able to improve their performance two years before capital was injected until the end of one year after capital injection based on PNPL, EBTDA, ROA, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1997 reached 100.27%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
7. Two years before and two years after capital was injected (1997 versus 2001). There are five variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha1, Ha3, Ha4, Ha5, and Ha6 are rejected. The values of Asym sig. respectively are 0.398, 0.310, 0.176, 0.866, and 0.612 (see Appendix 7). It means the CAR, EBTDA, ROA, ROE, and NIM have no significant differences among the components of CAMEL two years before capital was injected and two years after capital injection. On the whole, the private banks cannot be said to have improved their performance two years before capital was injected until the end of two years after capital injection based on CAR, EBTDA, ROA, ROE, and NIM. The LDR and CIR showed a significant difference, and the consolidated value of LDR in private banks in 1997 reached 100.27%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
8. Two years before and three years after capital was injected (1997 versus 2002). There are four variables of CAMEL with values of Asym sig. of more than 0.1, so the hypotheses Ha3, Ha4, Ha5, and Ha6 are rejected. The values of Asym sig. respectively are 0.310, 0.237, 0.499, and 0.612 (see Appendix 7). It means the EBTDA, ROA, ROE, and NIM have no significant differences among the components of CAMEL two years before capital was injected and three years after capital injection. On the whole, the private banks cannot be said to have improved their performance two years before capital was injected until the end of three years after capital injection based on CAR, EBTDA, ROA, ROE, and NIM. The LDR and CIR showed a significant difference, and the consolidated value of LDR in private banks in 1997 reached 100.27%. The value has been fluctuating from the

beginning: it went down after the capital injection but have since shown signs of growth.

9. Two years before and four years after capital was injected (1997 versus 2003). There are five variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, and Ha6 are rejected. The values of Asym sig. respectively are 1.000, 1.000, 0.176, 0.499, and 0.091 (see Appendix 7). It means the EBTDA, ROA, ROE, and NIM have no significant differences among the components of CAMEL two years before capital was injected and four years after capital injection. On the whole, the private banks cannot be said to have improved their performance two years before capital was injected until the end of four years after capital injection based on CAR, EBTDA, ROA, ROE, and NIM. The LDR and showed a significant difference, and the consolidated value of LDR in private banks in 1997 reached 100.27%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
10. Two years before and five years after capital was injected (1997 versus 2004). There are three variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.237, 0.237, and 0.398 (see Appendix 7). It means the EBTDA, NIM and CIR have no significant differences among the components of CAMEL two years before capital was injected and five years after capital injection. On the whole, the private banks cannot be said to have improved their performance two years before capital was injected until the end of five years after capital injection based on CAR, PNPL, ROA, and ROE. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1997 reached 100.27%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
11. Three years before and one year after capital was injected (1996 versus 2000). There are three variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.237, 0.310, and 0.310 (see Appendix 7). It means the ROA, NIM and CIR have no significant differences among the components of CAMEL three years before capital was injected and one year after capital injection. On the whole, the private banks cannot be said to have improved their performance three years before capital was injected until the end of one year after capital injection based on CAR, PNPL, EBTDA, and ROA. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1996 reached 81.87%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
12. Three years before and two years after capital was injected (1996 versus 2001). There are four variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha1, Ha3, Ha4, Ha5, and Ha6 are rejected. The values of Asym sig. respectively are 0.398, 0.310, 0.128, 0.866, and 0.866 (see Appendix 7). It means the CAR, EBTDA, ROA, ROE, and NIM have no significant differences among the components of CAMEL three years before capital was injected and two years after capital injection. On the whole, the private banks cannot be said to have improved their performance from three years before capital was injected until the end of two years after capital injection based on PNPL and CIR. The LDR showed

a significant difference, and the consolidated value of LDR in private banks in 1996 reached 81.87%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

13. Three years before and three years after capital was injected (1996 versus 2002). There are five variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, Ha6, and Ha8 are rejected. The values of Asym sig. respectively are 0.310, 0.236, 0.398, 0.735, and 0.280 (see Appendix 7). It means the EBTDA, ROA, ROE, NIM, and CIR have no significant differences among the components of CAMEL three years before capital was injected and three years after capital injection. On the whole, the private banks cannot be said to have improved their performance three years before capital was injected until the end of three years after capital injection based on CAR and PNPL. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1996 reached 81.87%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
14. Three years before and four years after capital was injected (1996 versus 2003). There are four variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, and Ha6 are rejected. The values of Asym sig. respectively are 0.612, 0.237, 0.310, and 0.612 (see Appendix 7). It means the EBTDA, ROA, ROE, and NIM have no significant differences among the components of CAMEL three years before capital was injected and four years after capital injection. On the whole, the private banks cannot be said to have improved their performance three years before capital was injected until the end of four years after capital injection based on CAR and PNPL. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1996 reached 81.87%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
15. Three years before and five years after capital was injected (1996 versus 2004). There are three variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha4, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.398, 0.310, 0.128, 0.866, and 0.866 (see Appendix 7). It means the ROA, NIM and CIR have no significant differences among the components of CAMEL three years before capital was injected and five years after capital injection. On the whole, the private banks cannot be said to have improved their performance three years before capital was injected until the end of five years after capital injection based on ROA, NIM, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in private banks in 1996 reached 81.87%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

### 5.2.1.3 Recapitalized Regional Development Banks

Here too, there are fifteen findings based on the hypotheses tested. These are:

1. One year before and one year after capital was injected (1998 versus 2000). Four of the CAMEL variables are rejected. They are hypotheses Ha2, Ha4, Ha5 and Ha8 with Asym sig. values of 1.000, 0.272, 0.875, and 0.182 respectively (see Appendix 8). The other CAMEL variables have values of Asym sig. of less than

0.1, so hypotheses Ha1, Ha3, Ha6, and Ha7 are accepted. On the whole, the regional development banks cannot be said to have improved their performance based on CAR, EBTDA, NIM and CIR one year before capital was injected until the end of one year after capital injection. Although the LDR was not significantly different, the value of LDR in the regional development banks in 1998 reached 168.97%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

2. One year before and two years after capital was injected (1998 versus 2001). There is only one of the CAMEL variables with a value of Asym sig. of more than 0.1, that is 0.182 (see Appendix 8). The other seven hypotheses of Ha1 and Ha3 to Ha8 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until two years after capital injection. In other words, the regional development banks improved their performance until the end of two years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1998 reached 168.97%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
3. One year before and three years after capital was injected (1998 versus 2002). All the CAMEL variables have values of Asym sig. of less than 0.1 (see Appendix 8), so the eight hypotheses from Ha1 to Ha8 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until three years after capital injection. In other words, the development banks improved their performance until the end of three years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in regional development banks in 1998 reached 168.97%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
4. One year before and four years after capital was injected (1998 versus 2003). All the CAMEL variables have values of Asym sig. of less than 0.1 (see Appendix 8), so the eight hypotheses from Ha1 to Ha8 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR one year before capital was injected until four years after capital injection. In other words, the development banks improved their performance until the end of four years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1998 reached 168.97%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
5. One year before and five years after capital was injected (1998 versus 2000). There are two of the CAMEL variables with values of Asym sig. of more than 0.1. The values are respectively 0.100 and 0.812 (see Appendix 8). Thus, the other six hypotheses of Ha1, Ha3 to Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, and LDR one year before capital was injected until five years

after capital injection. In other words, the regional development banks improved their performance until the end of five years after capital injection based on CAR, EBTDA, ROA, ROE, NIM, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1998 reached 168.97%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

6. Two years before and one year after capital was injected (1997 versus 2000). There are four variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2, Ha3, Ha5, and Ha7 are rejected. The values of Asym sig. respectively are 0.158, 0.583, 0.433, and 0.638 (see Appendix 8). It means the PNPL, EBTDA, ROE, and CIR have no significant differences among the components of CAMEL two years before capital was injected and one year after capital injection. On the whole, the regional development banks cannot be said to have improved their performance two years before capital was injected until the end of one year after capital injection based on CAR, ROA, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1997 reached 140.01%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
7. Two years before and two years after capital was injected (1997 versus 2001). There are two variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2 is rejected. The values of Asym sig. is 0.666 (see Appendix 8). It means the PNPL have no significant differences among the components of CAMEL two years before capital was injected and two years after capital injection. On the other hand, Ha1, Ha3, Ha4, Ha5, Ha6, Ha7 until Ha8 were accepted. On the whole, the regional development banks cannot be said to have improved their performance two years before capital was injected until the end of two years after capital injection based on CAR, EBTDA, ROA, ROE, NIM and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1997 reached 140.01%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
8. Two years before and three years after capital was injected (1997 versus 2002). Only one variable of CAMEL has a value of Asym sig. of more than 0.1, so hypothesis Ha2 is rejected with its value of Asym sig. of 0.275 (see Appendix 8). It means the PNPL has no significant differences among the components of CAMEL two years before capital was injected and three years after capital injection. On the other hand, seven variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR are accepted. On the whole, the regional development banks improved their performance two years before capital was injected until the end of three years after capital injection based on CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1997 reached 140.01%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
9. Two years before and four years after capital was injected (1997 versus 2003). Only one variable of CAMEL has a value of Asym sig. of more than 0.1, so hypotheses Ha2 is rejected with its value of Asym sig. of 0.239 (see Appendix 8).

It means there are PNPL has no significant differences among the components of CAMEL two years before capital was injected and four years after capital injection. On the other hand, seven variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR are accepted. On the whole, the regional development banks improved their performance two years before capital was injected until the end of four years after capital injection based on CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1997 reached 140.01%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

10. Two years before and five years after capital was injected (1997 versus 2004). There are two variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2 and Ha7 are rejected. The values of Asym sig. respectively are 0.272 and 0.272 (see Appendix 8). It means the PNPL and CIR have no significant differences among the components of CAMEL two years before capital was injected and five years after capital injection. On the other hand, six variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, and LDR are accepted. On the whole, the regional development banks improved their performance two years before capital was injected until the end of five years after capital injection based on CAR, EBTDA, ROA, ROE, and NIM. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1997 reached 140.01%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
11. Three years before and one year after capital was injected (1996 versus 2000). There are five variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2, Ha3, Ha4, Ha5, and Ha7 are rejected. The values of Asym sig. respectively are 0.117, 0.814, 0.230, 0.638, and 0.695 (see Appendix 8). It means the PNPL, EBTDA, ROA, ROE, and CIR have no significant differences among the components of CAMEL three years before capital was injected until one year after capital injection. On the whole, the regional development banks cannot be said to have improved their performance three years before capital was injected until the end of one year after capital injection based on PNPL, EBTDA, ROA, ROE, and CIR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1996 reached 84.41%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
12. Three years before and two years after capital was injected (1996 versus 2001). Only one variable of CAMEL has a value of Asym sig. of more than 0.1, so hypotheses Ha2 is rejected with its value of Asym sig. of 0.275 (see Appendix 8). It means the PNPL have no significant differences among the components of CAMEL three years before capital was injected and two years after capital injection. On the other hand, seven variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR are accepted. On the whole, the regional development banks improved their performance two years before capital was injected until the end of two years after capital injection based on CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1996 reached 84.41%. The value has been



fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

13. Three years before and three years after capital was injected (1996 versus 2002). There are two variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2 and Ha7 are rejected. The values of Asym sig. are 0.480 and 0.239 respectively (see Appendix 8). It means the PNPL and CIR have no significant differences among the components of CAMEL three years before capital was injected and three years after capital injection. On the other hand, six variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, and LDR are accepted. On the whole, the regional development banks improved their performance three years before capital was injected until the end of three years after capital injection based on CAR, EBTDA, ROA, ROE, and NIM. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1996 reached 84.41%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
14. Three years before and four years after capital was injected (1996 versus 2003). There are three variables of CAMEL with values of Asym sig. of more than 0.1, so hypotheses Ha2, Ha4, and Ha7 are rejected. The values of Asym sig. respectively are 0.272, 0.190, and 0.433 (see Appendix 8). It means the PNPL, ROA, and CIR has no significant differences among the components of CAMEL three years before capital was injected and four years after capital injection. On the other hand, five variables of CAMEL i.e. CAR, EBTDA, ROE, NIM, and LDR are accepted. On the whole, the regional development banks significantly improved their performance three years before capital was injected until the end of four years after capital injection based on CAR, EBTDA, ROE, and NIM. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1996 reached 84.41%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.
15. Three years before and five years after capital was injected (1996 versus 2004). Only one variable of CAMEL has a value of Asym sig. of more than 0.1, so hypotheses Ha2 is rejected with its value of Asym sig. of 0.583 (see Appendix 8). It means the PNPL has no significant differences among the components of CAMEL three years before capital was injected and five years after capital injection. On the other hand, seven variables of CAMEL i.e. CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR are accepted. On the whole, the regional development banks improved their performance three years before capital was injected until the end of five years after capital injection based on CAR, EBTDA, ROA, ROE, NIM, CIR, and LDR. The LDR showed a significant difference, and the consolidated value of LDR in development banks in 1996 reached 84.41%. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

#### 5.2.1.4 Recapitalized all Banks

There are fifteen various findings based on the hypotheses tested. Interestingly, hypothesis Ha8 with regard to LDR is accepted since the lower values of LDR are

significantly different. They went down after the capital injection but have since shown signs of growth. For all other conditions, the findings are:

1. One year before and one year after capital was injected (1998 versus 2000). Three of the CAMEL variables are rejected, i.e. Ha2, Ha4, and Ha5 (or PNPL, ROA, and ROE). They have values of Asym sig. of more than 0.1, i.e. 0.240, 1.00, and 0.378 respectively (see Appendix 5). On the other hand, there are five CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 6), so hypotheses Ha1, Ha3, Ha6, Ha7, and Ha8 are accepted. In other words, all the recapitalized banks improved their performance based on CAR, EBTDA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of one year after capital injection.
2. One year before and two years after capital was injected (1998 versus 2001). All of the CAMEL variables have values of Asym sig. of less than 0.1 (see Appendix 5), so all the hypotheses from Ha1 to Ha8 are accepted. It means there are significant differences among the components of CAMEL one year before capital was injected and two years after capital injection. In other words, the all recapitalized banks improved their performance, except that the value of LDR significantly went down one year before capital was injected until the end of two years after capital injection.
3. One year before and three years after capital was injected (1998 versus 2002). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 5), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. Only hypothesis Ha5 is rejected because it has an Asym sig. value of more than 0.05 that is 0.903. In other words, the all recapitalized banks improved their performance based on ROA, PNP, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of three years after capital injection.
4. One year before and four years after capital was injected (1998 versus 2003). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1, so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. Only hypothesis Ha5 is rejected because it has an Asym sig. value of more than 0.05, that is 0.927 (see Appendix 5). In other words, the all recapitalized banks improved their performance based on ROA, PNP, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of four years after capital injection.
5. One year before and five years after capital was injected (1998 versus 2004). There are seven of the CAMEL variables with values of Asym sig. of less than 0.1 (see Appendix 5), so hypotheses Ha1, Ha2, Ha3, Ha4, Ha6, Ha7, and Ha8 are accepted. Only hypothesis Ha5 is rejected because it has an Asym sig. value of more than 0.05 that is 1.000. In other words, the all recapitalized banks improved their performance based on ROA, PNP, EBTDA, ROA, NIM, and CIR, except that the value of LDR significantly went down one year before capital was injected until the end of five years after capital injection.
6. Two years before and one year after capital was injected (1997 versus 2000). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.346, 0.648, 0.224, and 0.362 (see Appendix 5). On the other hand, Ha1, Ha2, Ha4, and Ha8 are accepted. It means there are significant

differences among the components of CAMEL, i.e. ROA, PNPL, and NIM, except that the value of LDR significantly went down from two years before capital was injected until one year after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance two years before capital was injected until the end of one year after capital injection based on CAR, PNPL, and NIM.

7. Two years before and two years after capital was injected (1997 versus 2001). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha4 and Ha7 are rejected. The values of Asym sig. respectively are 0.316 and 0.605 (see Appendix 5). On the other hand, Ha1, Ha2, H3, H5, Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROE, and NIM except that the value of LDR significantly went down two years before capital was injected until two years after capital injection. On the whole, all recapitalized banks cannot be said to have been able to improve their performance two years before capital was injected until the end of two years after capital injection based on CAR, PNPL, EBTDA, ROA, and NIM.
8. Two years before and three years after capital was injected (1997 versus 2002). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, Ha5, and Ha7 are rejected. The values of Asym sig. respectively are 0.290, 0.590, 0.101, and 0.903 (see Appendix 5). On the other hand, Ha1, Ha2, Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, and NIM except that the value of LDR significantly went down two years before capital was injected until three years after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance two years before capital was injected until the end of three years after capital injection based on CAR, PNPL, and NIM.
9. Two years before and four years after capital was injected (1997 versus 2003). Only one of the CAMEL variables has a value of Asym sig. of more than 0.1, so hypotheses Ha7 is rejected. The value of Asym sig. is 0.574 (see Appendix 5). On the other hand, hypotheses Ha1 to Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROA, ROE, and NIM except that the value of LDR significantly went down two years before capital was injected and four years after capital injection. In other words, the all recapitalized banks significantly improved their performance two years before capital was injected until the end of four years after capital injection based on CAMEL, i.e. CAR, PNPL, EBTDA, ROA, ROE, and NIM.
10. Two years before and five years after capital was injected (1997 versus 2004). There are two of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha2 and Ha7 are rejected. The values of Asym sig. respectively are 0.121 and 0.394 (see Appendix 5). On the other hand, Ha1, Ha3 to Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, EBTDA, ROA, ROE, and NIM except that the value of LDR significantly went down two years before capital was injected and five years after capital injection. In other words, the all recapitalized banks significantly improved their performance two years before capital was capital

- injected until the end of five years after capital injection based on CAMEL, i.e. CAR, EBTDA, ROA, ROE, and NIM.
11. Three years before and one year after capital was injected (1997 versus 2000). There are four of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha5, Ha6, and Ha7 are rejected. The values of Asym sig. respectively are 0.136, 0.465, 0.260, and 0.503 (see Appendix 5). On the other hand, Ha1, Ha2, Ha4, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, and ROA except that the value of LDR significantly went down three years before capital was injected until one year after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance three years before capital was injected until the end of one year after capital injection based on CAR, PNPL, and ROA.
  12. Three years before and two years after capital was injected (1997 versus 2001). There are three of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha3, Ha4, and Ha7 are rejected. The values of Asym sig. respectively are 0.162, 0.543, and 0.465 (see Appendix 5). On the other hand, Ha1, Ha2, Ha5, Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, ROE, and NIM except that the value of LDR significantly went down from three years before capital was injected until two years after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance three years before capital was injected until the end of two years after capital injection based on CAR, PNPL, ROE, and NIM.
  13. Three years before and three years after capital was injected (1997 versus 2002). There are two of the CAMEL variables with values of Asym sig. of more than 0.1, so hypotheses Ha4 and Ha7 are rejected. The values of Asym sig. respectively are 0.107 and 0.212 (see Appendix 5). On the other hand, Ha1, Ha2, Ha3, Ha5, Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROE, and NIM except that the value of LDR significantly went down three years before capital was injected until three years after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance three years before capital was injected until the end of three years after capital injection based on CAR, PNPL, EBTDA, ROE, and NIM.
  14. Three years before and four years after capital was injected (1997 versus 2003). There are three of the CAMEL variables with values of Asym sig. of more than 0.1 (see Appendix 5), so hypotheses Ha4, Ha5, and Ha7 are rejected. On the other hand, Ha1, Ha2, Ha3, Ha6, and Ha8 are accepted. It means there are significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, and NIM except that the value of LDR significantly went down three years before capital was injected until four years after capital injection. On the whole, the all recapitalized banks cannot be said to have been able to improve their performance three years before capital was injected until the end of four years after capital injection based on CAR, PNPL, EBTDA, and NIM.
  15. Three years before and five years after capital was injected (1997 versus 2004). All the CAMEL variables have values of Asym sig. of less than 0.1 (see Appendix 5), so hypotheses Ha1 to Ha8 are accepted. It means there are

significant differences among the components of CAMEL, i.e. CAR, PNPL, EBTDA, ROA, ROE, NIM and CIR except that the value of LDR significantly went down three years before capital was injected until five years after capital injection. In other words, the all recapitalized banks significantly improved their performance three years before capital was injected until the end of five years after capital injection based on CAR, PNPL, EBTDA, ROA, ROE, NIM and CIR. Even the LDR is still lower than before capital was injected.

#### 5.2.1.5 Findings of Manova Tested for Recapitalized All Banks

In line with the research methodology, the MANOVA tests are applied to test the individual variables of CAMEL to ascertain their consistency with the CAMEL variables as a whole. However, because the number of individual banks in each group is very limited, the MANOVA tests are done at the same time for all the recapitalized banks. Thus, the main question in the main hypothesis can be answered. In addition to the other results of MANOVA test, we also perform the Levene's test for the individual CAMEL variables as shown in Table 5.2.

Table 5.2. Summary of MANOVA Tests

Nr.	Before & After Capital Injected	sig. value of Box's Test	sig. value of Levine's Tested							
			CAR Ha1	PNPL Ha2	EBTDA Ha3	ROA Ha4	ROE Ha5	NIM Ha6	CIR Ha7	LDR Ha8
1	1998 vs. 2000	0.000	0.000	0.000	0.000	0.262	0.138	0.010	0.000	0.009
2	1998 vs. 2001	0.000	0.001	0.000	0.000	0.000	0.119	0.000	0.000	0.004
3	1998 vs. 2002	0.000	0.000	0.000	0.000	0.000	0.005	0.003	0.000	0.005
4	1998 vs. 2003	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.006
5	1998 vs. 2004	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.006
6	1997 vs. 2000	0.000	0.000	0.000	0.104	0.000	0.010	0.018	0.590	0.222
7	1997 vs. 2001	0.000	0.013	0.007	0.210	0.180	0.027	0.054	0.002	0.550
8	1997 vs. 2002	0.000	0.000	0.000	0.286	0.230	0.238	0.013	0.003	0.060
9	1997 vs. 2003	0.000	0.000	0.000	0.448	0.444	0.921	0.001	0.035	0.099
10	1997 vs. 2004	0.000	0.000	0.003	0.652	0.687	0.588	0.004	0.234	0.114
11	1996 vs. 2000	0.000	0.000	0.000	0.024	0.000	0.002	0.160	0.097	0.529
12	1996 vs. 2001	0.000	0.017	0.005	0.040	0.080	0.024	0.048	0.004	0.294
13	1996 vs. 2002	0.000	0.000	0.000	0.005	0.059	0.008	0.012	0.009	0.345
14	1996 vs. 2003	0.000	0.001	0.000	0.006	0.096	0.003	0.001	0.086	0.730
15	1996 vs. 2004	0.000	0.002	0.001	0.015	0.174	0.039	0.004	0.397	0.887

Source: Summarized from SPSS out put on Appendix 9

Note: The shape in area is means that alternative hypotheses are accepted

From Table 5.2, there are fifteen findings based on the hypotheses tested. Using the significant values of Box's M, we find that all the alternative hypotheses are accepted. It means there are significant differences among the components of CAMEL before capital was injected and after capital injection. In the other words, we can expressly state that the performance of banks improved for all the relevant years, both before and after capital injection. Looking at the results of the MANOVA tests based on the significant values of the Levine's tests of individual banks, we find that some of the CAMEL variables have no significant differences after capital injection (see the shaded area in Table 5.2).

Two years before capital was injected (1997) and for all the relevant years after capital injection, there are no significant differences to show that the banks cannot improve their performance, i.e. based on EBTDA, ROA, and ROE. The ratio of LDR is not significant anymore to maximize their function as an intermediary measure.

Three years before capital was injected (1996) and for all the relevant years after capital injection, there are no significant differences to show that the banks cannot improve their performance, i.e. based on ROA, and CIR. The ratio of LDR is still not significant anymore to maximize their function as intermediary measure.

If we compare with the results of the Wilcolson Signed-Rank Test for all the recapitalized banks, we find that the LDR is significantly different for some years and not significantly different for other years. The value has been fluctuating from the beginning: it went down after the capital injection but have since shown signs of growth.

### 5.2.2 Research Findings on the Effectiveness of Banks' Recapitalization to Real Sector Lending

There are two main findings in this part. Firstly, we outline our findings on the behavior of real sector lending in total and by sectors based on equation 4.6. Secondly, we state our findings on the effectiveness of banks' recapitalization on total real sector lending and for each sector based on equation 4.5. In general, the results of equation 4.6 will be discussed first before that of equation 4.5. In equation 4.6, the dummy D99 (when the capital injection has been done) has not brought higher loan growth except in a few sectors where the regional banks played the key role but showed a low R-squared (coefficient of determination). As a consequence, we investigated the change in bank behavior in more detail and this was done using the slope dummies of equation 4.5.

#### 5.2.2.1 Reserch Findings on the Behavior of Real Sector Lending

In line with the research questions, we also explain the behavior of real sector lending as to whether the capital injection brought in more loans or not. The findings on the behavior of real sector lending were made through the analysis based on the fixed effect method. Besides that, we also processed the data based on the random effect method. Here, we used the fixed effect method to analyze the behavior of the real sector lending, because when the Hausman statistics is set to zero and the probabilities equal to 1.0, then the fixed effect method is the best approach.

Based on our exercise, the low R-squared (the coefficient of determination) in Appendix 10 may indicate that there has not been a stable loan market over time. The behavior also has changed since 1999 when the market and banks were stabilized with the capital injection. The coefficient of determination, R-squared, is a measure of the goodness of the fit of the estimated model that has been built from the data. The possibility problem came from some variables like non-performing loans that have not been available. Another problem came from the behavior of banks that changed after

1999 and the series of data for GDP based on two bases for calculating data, i.e. the period of June 1995 to December 1999 (based on 1993 constant prices) and the period of June 2000 to December 2005 based on 2000 constant prices.

Usually, with regards to the handling of this problem, the model needed additional data. However, due to the dearth of data, this effort cannot be realized. This condition came about because the relationships among the economic variables were the random relationship. In the time series data, the R-squared mostly showed higher values. On the contrary, the cross section data mostly had the lower values of R-squared which were caused by the big variations among research variables at the same time line. Another effort has been applied, which cut-out one variable, such as interest rates, from the model. Unfortunately, the R-squared still showed a decline. There were indications that all the independent variables had adequate possibility consisting of trend elements. It means that we cannot apply the omitted variable and leave the model in lower R-squared values.

The analyses of the behavior of real sector lending are based on equation 4.6 through the Eviews 5.1 output (see Appendix 11) with  $\alpha=5\%$ . Our findings are as follows:

1. *The Total Growth of the Real Sector Lending.* The capital injected brought D99 to a negative coefficient (-0.076272) with the probability of 18.893%. All the groups of banks had different coefficients. The growth of lending in all real sectors is significantly influenced by the growth of GDP or regional GDP on significance level at 95.06%. The lending growth of each group of banks showed positive influence by GDP or regional GDP, even when the GDP or regional GDP showed negative coefficient. The variance, R-squared, had a value of 0.508193 or 50.8193%. This represents the variability of the variables that can explain the model by 50.8193%.
2. *The Growth of the Agriculture Sector Lending.* The capital injected brought the D99 to a negative coefficient (0.6161) with the probability of 61.61%. All the groups of banks had different coefficients. The growth of lending in the agriculture sector is significantly influenced by the growth of GDP, regional GDP decreases and interest rate decreases at significance level of 97.94% and 95.47% respectively. The lending growth of each group of banks showed positive influence by GDP or regional GDP, even when the GDP or regional GDP showed negative coefficient. The variance, R-squared, had a value of 0.349991 or 34.9991%. This represents the variability of the variables that are significant to explain the model by 34.9991%.
3. *The Mining Sector Lending.* The capital injected brought the D99 to a negative coefficient (1.303112) with the probability of 52.12%. All the groups of banks had different coefficients. The growth of lending in the mining sectors is significantly influenced by growth of the inflation decreases at significance level of 99.59%. The lending growth of each group of banks showed positive influence by GDP or regional GDP, even when the GDP or regional GDP showed negative coefficient. The variance, R-squared, had a value of 0.283609 or 28.3609%. This represents the variability of the variables that are significant to explain the model by 28.360%. In general, the negative growth of inflation influences the negative lending growth for each group of banks.

4. *The Manufacturing Sector Lending.* The capital injected brought the D99 to a positive coefficient (0.220034) with the probability of 41.81%. It means the dummy D99 had a positive influence on loans, even if the growth is lower and not significant. No independent variables had any significant influences on the growth of lending in the manufacturing sector. The variance, R-squared, had a value of 0.401452 or 40.1452%. This represents the variability of the variables that are significant to explain the model by 40.1452%.
5. *The Electricity, Water, and Gas Sector Lending.* The capital injected brought the D99 to a negative coefficient (-618.7115) with the probability of 77.75%. It means the dummy D99 had a negative influence on the growth of loans, even if it is not significant. We found that only operating profits had influence on the growth of loans at the significant level of 93.39%. The variance, R-squared, had a value of 0.144872 or 14.4872%. This represents the variability of variables that are significant to explain the model by 14.4872%. Unfortunately, in this sector the lending growth of regional banks showed negative growth, which was indicated by the negative coefficient. .
6. *The Construction Sector Lending.* The capital injected brought the D99 to a positive coefficient (0.006806) with the probability of 1.53%. It means that the dummy D99 had a positive influence on the growth of loans, even if not significant. We found that the GDP and regional GDP (0.0087) and capital (0.0151) had significant influences on the growth of loans to this sector. This was a positive coefficient for each group of banks. The variance, R-squared, had a value of 0.66698 or 66.698%. This represents the variability of variables that can explain the model by 66.698%.
7. *The Trade, Hotel, and Restaurant Sector Lending.* The capital injected brought the D99 to a negative coefficient (-011683) with the probability of 4.77%. It means the dummy D99 had a negative influence on the growth of loans. We found that inflation (0.006) and capital (0.033) had significant influences on the growth of loans to this sector. This was a positive coefficient for each group of banks. The variance, R-squared, had a value of 0.671567 or 67.1567%. This represents the variability of variables that can explain the model by 67.1567%.
8. *The Transportation Sector Lending.* The capital injected brought the D99 to a positive coefficient (0.219843) with the probability of 39.94%. It means that the dummy D99 had a positive influence on the growth of loans, even if the growth is lower and not significant. We found that only GDP and regional GDP had influence on the growth of loans at the significant level of 99.32%. The variance, R-squared, had a value of 0.388829 or 38.8829%. This represents the variability of variables that can explain the model by 38.8829%.
9. *The Financial/Business Services Sector Lending.* The capital injected brought the D99 to a positive coefficient (1.029508) with the probability of 90.82%. It means that the dummy D99 had a positive influence on the growth of loans, even if not significant. We found that only the GDP and RGDP (0.0077) had a significant influence on the growth of loans to this sector, with a positive coefficient. The variance, R-squared, had a value of 0.517972 or 51.7972%. This represents the variability of variables that can explain the model by 51.7972%.
10. *The Social Services Sector Lending.* The capital injected brought the D99 to a positive coefficient (0.419988) with the probability of 69.08%. It means that the dummy D99 had a positive influence of loans, even if the growth was lower and



not significant. Interestingly, we found that no component had any significant influence on lending to the social services sector. The variance, R-squared, had a value of 0.337958 or 33.7958%. This represents the variability of variables that can explain the model by 33.7958%.

11. *The Other Sectors Lending.* The capital injected brought the D99 to a positive coefficient (0.152190) with the probability of 98%. It means the dummy D99 had a positive influence on loans at the significant level of 98%. We found that the interest rate decreases (0.0045) had a significant influence on the growth of loans in this sector for each group of banks. The variance, R-squared, had a value of 0.686591 or 68.6591%. This represents the variability of variables that can explain the model by 68.6591%.

Based on our findings as above, we can empirically explain that for the growth of loans in real sector lending, the behavior of the growth of loans was strongly influenced by the GDP/RGDP for each group of banks.

Considering the individual sectors, the empirical evidence indicates that four sectors showed stagnant or negative growth. These are the agriculture sector; mining sector; electricity, water, and gas sector; and trade, hotel, and restaurant sector. On the other hand, the impact of the capital injection policy also led to stagnant growth in the agriculture sector; mining sector; electricity, water, and gas sector; and trade, hotel, and restaurant sector.

The sectoral model had a maximum variance, R-squared, of up to 68.6591% for other sectors lending. The trade, hotel, and restaurants sector had a variance, R-squared, of less than 67.1567% (i.e. the R-squares of the total of the real sector lending). In line with statistical principles, we can accept the variance, R-squared, of less than 50% based on the explanation before. Here, we find that the agriculture sector, mining sector, manufacturing sector, electricity, water and gas sector, transportation sector, and social services sector had a variance, R-squared, of less than 50%.

Based on the fact that the R-squared showed lower values from the analysis of equation 4.6, a thorough analysis of equation 4.5 followed. However, the analysis of equation 4.6 showed that the behavior of banks may have changed over time in such a way that the reaction to fundamental loan determinants also changed, i.e. there are eventually changes in the slope of the regression line as analyzed in equation 4.6 which is presented in section 5.2.2.2.

#### 5.2.2.2 Research Findings on the Effectiveness of Banks' Recapitalization

These research findings on the effectiveness of capital injection are based on estimating equation 4.5 using the Eviews 5.1 soft-ware. Based on the panel data analysis in Appendix 11, and for the purpose of achieving a good estimate, the most appropriate approach employed was the random effect method rather than the fixed effect method, because the Hausman statistics value had less than its critical value

with the degree of freedom (df) 25 at  $\alpha=5\%$ , i.e. 38.8852 (from the Chi-Square Table).

There are eleven hypotheses that were tested, and our findings are as follows:

1. *The Total of Real Sector Lending.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.1937) at  $\alpha=5\%$  and has negative coefficient. After capital injection, loans from the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant at level of 98.05%. The growth of loans is seen pulling-up through increase in inflation in each area of the regional banks (significant level at 80%). In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained static, even with capital injection, except the growth of loans in the regional banks. Inflation had pushed-up the growth of loans when the interest rate of credit had decreased, hence the profits of the regional banks also jacked up.
2. *The Agriculture Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.4629) at  $\alpha=5\%$  and has negative coefficient. The growth of loans was influenced by interest rate decreases, even as the exchange rates tended to increase. In general, the interest rates tended to decrease, and the regression lines seem to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even with capital injection. The growth of loans still showed lower growth even after the interest rates had decreased. The growth of loans also endured the highest of exchange rates
3. *The Mining Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.5317) at  $\alpha=5\%$  but has a positive coefficient. The growth of loans had been significantly influenced by the higher exchange rates and the inflation decreases. Even the capital of all groups of banks in general had increased, but the profits tended to decrease. The capital injection led to the growth of loans in the state-owned banks, caused by the capital increases. While the interest rate and the exchange rate were still high, fortunately the growths of loans in the regional banks were showing positive growth. In general, the regression lines seem to show that the behavior of banks with respect to changes in economic fundamentals was not affected by the capital injection.
4. *The Manufacturing Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.3408) at  $\alpha=5\%$  and has a negative coefficient. The growth of loans is seen pulling-up through increase in inflation in the manufacturing sector of regional banks (at a significant level of 100%). The inflation pushed-up the growth of loans when the GDP tended to increase (at a significant level of 94.65%). The loans from the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant at level of 98.37%. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even with capital injection. The growth of loans in the regional banks that was pushed-

up by inflation was linked to the regional GDP increases, which also increased the profits of the individual regional banks.

5. *The Electricity, Water, and Gas Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.4715) at  $\alpha=5\%$  and has a negative coefficient. The growth of loans is seen pulling-up through increases in inflation in the electricity, water and gas sector of the regional banks (at a significant of 99.99%). The inflation pushed-up the growth of loans when the GDP tended to increase, and the growth of loans increased the profits of the regional banks. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even with capital injection. The growth of loans in the regional banks that was pushed-up by inflation and the positive growth of the regional GDP, loans from the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant at level of 99.99%.
6. *The Construction Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.1253) at  $\alpha=5\%$  and has a negative coefficient. The interest rates had decreased but, unfortunately, there was no significant influence on all the groups of banks. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even after capital injection.
7. *The Trade, Hotel, and Restaurant Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has a significant coefficient 0.1921 at  $\alpha=5\%$  and has a negative coefficient. The inflation pushed-up the growth of loans of the private banks only. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even with capital injection and having the interest rates decreased.
8. *The Transportation Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.1124) at  $\alpha=5\%$  and has a negative coefficient. The growth in lending in this sector happened only in the regional banks even when the exchange rates were still high. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even after capital injection.
9. *The Financial/Business Services Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.0902) at  $\alpha=5\%$  and has negative coefficient. The growth in lending in this sector happened only in the regional banks even when the exchange rates were still high. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even after capital injection.
10. *The Social Services Sector.* We have seen from the t-Statistics that the difference variable  $D99$  has not a significant coefficient (0.2281) at  $\alpha=5\%$  and has a negative coefficient. The growth in lending in this sector happened only in the regional banks even when the exchange rates were still high. In general, the slope dummies are often not significant. On this basis, the regression line seems to show

that the behavior of banks with respect to changes in economic fundamentals remained the same, even after capital injection.

11. *The Other Sectors.* We have seen from the t-Statistics that the difference variable *D99* has not a significant coefficient (0.3952) at  $\alpha=5\%$  and has a negative coefficient. The growth lending in this sector happened only in the private banks under the condition of negative inflation growth. Fortunately loans from the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant at level of 98.83%, when the interest rates decreased. In general, the slope dummies are often not significant. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained the same, even after capital injection.

From all the research findings on the effectiveness of the banks' recapitalization program, we can summarize our hypotheses as in Table 5.3.

Table 5.3 Summarized of Hypotheses after Capital Injection

Dependent Variables	Group of Banks	Real Sector Lending										All Sector Lending Ha19	
		1 Ha 9	2 Ha 10	3 Ha 11	4 Ha 12	5 Ha 13	6 Ha 14	7 Ha 15	8 Ha 16	9 Ha 17	10 Ha 18		
Operating profit	State-owned												
	Private											⊕	
	Regional	⊕		⊕	⊕								⊕
GDP/RGDP	State-owned												
	Private												
	Regional			⊕									
Inflation	State-owned												
	Private						⊖					⊖	
	Regional			⊕	⊕								⊕
Interest	State-owned												
	Private												
	Regional		⊕		⊕								
Exchange rate	State-owned												
	Private												
	Regional		⊖		⊖			⊕	⊕				
Capital	State-owned		⊕										
	Private												
	Regional				⊕								

Source : Appendix 11, computed by the author.

Note : ⊖ These Hypotheses were accepted with the value of the slope being negative

⊕ These Hypotheses were accepted with the value of the slope being positive

From Table 5.3' we find that after capital injection, only the regional banks had any significant growth in lending along with inflation growth: the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant as a result of the increases in the loans granted.

### 5.2.3 Links Between Performance of Banks and Real Sector Lending After Recapitalization

Theoretically, it is undeniable that the link between the performance of banks and the real sector lending was very close. On the supply side, when the performance of a bank declines, it directly affects the ability of the bank to implement its function as an intermediary institution. Based on our findings, even when all the recapitalized banks improved their performance significantly until five and six years after capital injection (similar to the findings of Dziobek & Pazarbaşıoğlu, 1998), the LDR significantly did not improve and also could not recover its ratios as they were before the crisis.

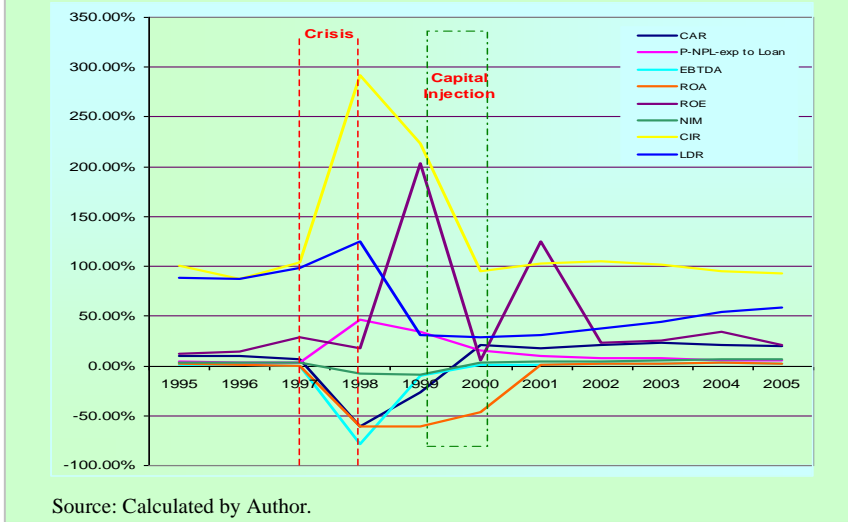
From the statistical tests applied, it was empirically found that the capital injection as part of the package for bank resolution of the crisis just improved the performance of banks, but did not accelerate the recovery from the crisis with its significant fiscal cost. The results of this research sharply express the view that capital injection can only improve performance of recapitalized banks in general. Empirically, it is not able reverse of the findings of the research done by Claessens, Klingebiel, and Laeven (2001) that a package of specific resolution measures can help accelerate the recovery from crisis with significant fiscal cost.

The consolidation of CAMEL components for all the recapitalized banks before and after capital injection is shown in Figure 5.1 simply according to the testing of hypotheses that has been done.

We find that the LDR as a CAMEL ratio that directly relates to the real sector only reached 53.48% after five years of capital injection. Six year after capital injection, the LDR reached only 57.91%. The percentage of LDR is really far from the level attained before the crisis, which was equal to 86.80% in 1996, 98.46% in 1997, and 124.49% in 1998.

When we look at the assets structure of all the recapitalized banks, we find that the recapitalization bonds (i.e. tools of capital injection) were considered as papers. It means the banks still received their interest income on the recapitalization bonds from the government (i.e. fiscal cost). Generally, the recapitalized banks had their dominant assets as recapitalization bonds. This condition meant that the banks could not enlarge the amounts of lending to any significant level. This condition finally made the performance of banks seem to be better, but in fact, from the macro-economic point of view, the good performance was an illusion.

Figure 5.1 Consolidation of CAMEL Variables for All Recapitalized Banks



### 5.3 Implication of the Research Findings

Based on our findings from this research, the bank recapitalization program has improved the performance of individual banks and that of the groups. Even though the performances of banks have improved, unfortunately, the good performances of banks are not accompanied by adequate loans performance. The lower loans performance brought much deeper implications to the other problems. These implications have two points of view i.e. from the side of internal banks and from the side of external banks.

#### 5.3.1 Implication from Internal Bank

From the internal banking point of view, at least, there are three implications. These are: 1) the income composition of banks which was dominated by interests from the recapitalization bonds; 2) the assets composition with the recapitalization bonds made as bumper to maintain the CAR because this portfolio does not have risks; and 3) with the composition of assets dominated by recapitalization bonds, the opportunities for banks to lend credit were very limited. (This is because this portfolio was regarded merely as papers). This is in line with Stiglitz and Greenwald (2003, 87); and the banks could not function as intermediaries anymore because their LDRs were very low (57.91%<sup>36</sup> in 2005).

<sup>36</sup> This ratio took account of banks' recapitalization only as consolidated from all recapitalized banks. For the national banks' portfolio, the LDR ratio was 64.37% in 2005 (see Table 3.10).

### 5.3.2 Implication from External Bank

From the external banking point of view, at least, there are two implications. First, the cost of the recapitalization program as government fiscal cost reached 30% (or equal to Rp63.09 trillion) of the routine disbursements of government funds in 2001<sup>37</sup>. The total amount of government disbursements then was IDR213.4 trillion. Second, the recapitalized banks were unwilling to release their loans (indicated as un-disbursed loans) which amounted to IDR127.6 trillion in June 2004. The distributed property of recapitalization bonds could be sold in the secondary market, but very few recapitalized banks were willing to sell their recapitalization bonds.

## 5.4 Summary of Chapter

This summary of the chapter addresses the questions of the research, and provides answers to them as follows:

1. The impact of the recapitalization program on banks' performance, empirically, has been relatively successful for individual banks and for the groups of banks. However, it has not been very successful in boosting up the LDR to its pre-crisis levels until five years after capital injection.
2. The effectiveness of capital injection in general was seen in the improved growth of lending in only the regional banks where inflation was positively significant. The increase in loans by the regional banks was accompanied by increases in their operational profits. At the sectoral level, the growth of loans in the agriculture sector was contributed by the regional banks. In mining sector, the growth of loans was influenced by the high interest rates and the decrease in exchange rates of the regional banks. In the manufacturing sector, the growth of loans was significantly influenced by operating profit and inflation increases in responses to increases in the regional GDP. In the electricity, water, and gas sector, the growth of loans was influenced by the operating profit, inflation, interest-rates, and capital increases with exchange rate decreases in the regional banks. In the trade, hotel and restaurant sector, the growth of loans was influenced by inflation decreases in the private banks. In the transportation and financial sectors, the growth of loans was influenced by exchange rates increases in the regional banks. In the others sector, the growth of loans was influenced by operating profit increases and inflation decreases in the private banks.
3. The relationship between the performance of banks and the real sector lending is such that the performance of banks is vital for banks to function as intermediary institution. Empirically, Agung et al. (2001) reported that credit supply in Indonesia during the period June 1993 to December, 2000 was influenced by the capital adequacy ratio to assets. Before capital was injected, the credit crunch happened as result of the existence of capital crunch (see Bernanke and Lown, 1991). After capital injection, the performance of banks improved based on their CAR. The performance of bank has not been based entirely on how to maintain

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<sup>37</sup> In 2004, the routine disbursements of governmental funds for recapitalization bonds reached IDR68.36 trillion. (This was seen as interest income for the recapitalized banks from their own recapitalization bonds).

the CAR only. There are other criteria or ratios to be considered such as increases in ROA, ROE, EBTDA, NIM, and LDR. In addition, other criteria also need to decrease, such as NPL-Net and CIR. Bernanke and Lown (1991) also reported that the higher the NPLs owned by a bank, the lesser the credit that can be supplied. This makes banks to provide for allowances for earning asset losses. In fact, for banks without good performances, it is very difficult to discharge their function as intermediary institutions. Even though their performances improved, empirically, our findings show that the banks could not increase their LDRs to their pre-crisis levels.

4. Four scenarios can explain the implications of banks' performance after capital injection. **Firstly**, the performance of banks after capital injection could improve, but at the same time it carried the obligation for government to pay the interest on the recapitalization bonds to each recapitalized bank or receiver. This payment became a load on the state budget and from the macro point of view, this encumbered the capacity of government for development. For example, the portion of payment for interest and minimum initial debt repayment reached 30% of the annual state budget since the beginning of 2002. **Secondly**, the other implication came from the capacity of the banks to supply loans to the real sector. The main problem during the banking crisis was occasioned by the weakening of credit supply or the lowering of credit lending capacity. The lending capacity of banks depends on the total bank liabilities (plus net worth) minus required reserves and liquidity requirements minus cash in vault minus capital belonging to them (see Ghosh & Ghosh 1999). This had implications for the composition of banks' assets since there had been a shift in the portfolio of assets from credit assets to recapitalization bonds (or government bonds) and Bank Indonesia Certificates (SBIs). **Thirdly**, from the demand side, the business climate in Indonesia was still one of high risks. This indication had been explained before as it concerned the undisbursed loans. On the other hand, based on the demand side, the loans demanded were determined by the interest rates, exchange rates, inflation, and by internal factors, such as how weak or strong the balance sheet of the corporate body is, and the business prospects. **Fourthly**, based on our findings, the impact of banking performance on the economic recovery after capital injection did not have the expected significant influence. This is contrary to previous research by Claessens, Klingebiel, and Laeven (2001). They found empirically that the package of specific resolution like bank recapitalization could help accelerate the recovery from crisis with significant fiscal costs. In the Indonesian case, the recapitalization program did not bring economic recovery directly, but it just helped to improve the performance of the banks. In other words, the program brought a fiscal load to government routine disbursements without significant economic recovery, even the Indonesian government has realized the significant fiscal cost involved in the program.



## **6. Conclusions, Recommendations, and Suggestions for Further Research**

This final chapter is for the conclusions and recommendations, an epilogue for all the series of research analysis and deductions contained in chapter 2 to chapter 5. In this chapter, we would deliberate the main conclusions from the series of analysis of the research. The main findings concern the performance of the various groups of banks, effectiveness of capital injection to the real sector, the link between bank's performance and real sector lending with the potential for Indonesian economic recovery. We would also provide a number of policy implications, which might be considered useful guidelines for decision makers in the banking sector, the central bank, the government of Indonesia, and other stakeholders. In addition, this researcher will make a number of recommendations and the outline possibilities for future research.

### **6.1 Summaries of Research Conclusions**

The summary of conclusions is to highlight the answers and findings from the research as well as explain in detail the link between the performance of banks and real sector lending as well as their contributions to economic recovery, according to the expected objectives. The conclusions include the following:

1. The genesis of the crisis that knocked Indonesia over was triggered by the contagion-effect. It started with the downfall of the Thai Bath on 2 July of 1997. The crisis was quickly spread about by the twin problems of a currency crisis and a banking crisis. This is in line with previous research by Kaminsky & Reinhart (1999). Other research centered on the relationship between the two kinds of crises described as the crises transmission mechanism by Ishihara (2005). The crises in Indonesia could be grouped into the third generation model of crisis (3GMC) which focused on how the banking sector might cause a currency crisis (Irwin & Vines (1999) with their associated problems such as the implicit government guarantees which invariably run into moral hazard problems (Krugman 1998).
2. Since Indonesia fell into deep crisis, the period of monetary crisis led to a series of crises: an economic crisis, a banking crisis and a confidence crisis respectively. The lack of confidence in the banking system led to the withdrawal of foreign funds and capital flight. Parallel to the dried up liquidity was the accumulation of overseas debt amounts, which were denominated in the US dollar and were not hedged. In addition, the corporate and banking world in Indonesia dramatically entered into the trap of liability dollarization. Furthermore, the banking sector and corporate sector weaknesses combined with the macroeconomic vulnerabilities to spark off the crisis. (This situation is in line with findings by Lindgren et al., 1999). In addition, the condition was worsened by the existence of capital flights, which adversely affected the capital account crisis as they combined with the internal credit contraction (in line with Yoshitomi & Ohno 1999).

3. The effect of the high cost of funds brought in its wake negative interest margins in the banking system. To curtail the capital flight, the banks performed to boost up the level of interest rates, but this generated a fall in the quality of assets and caught up with drastic decline the CAR of individual banks. As a result, government revoked the operational licenses of 16 banks in conformity with IMF directives. This liquidation caused the decline of confidence in national banking and from overseas parties. This thing happened because the government just bailed out a little bit the obligations of banks that had been liquidated and at that time, the banking system was also losing trust from the public. Unavoidably, there happened to be a currency rush in number banks, like Bank BCA.
4. To stabilize the economy and recover the society's confidence, the government had earlier taken actions to stabilize the banking system. The government decided to undertake banking restructuring under the direction of the IMF. The action of banking restructuring was formalized under the IBRA, which executed the bank recapitalization and banking resolution program. This is contrary to the findings of Diamond (2001) that a subsidized recapitalization of banks with relationship-based loans can be a good policy. So formalized was the IBRA that there was no warranty that the banks' recapitalization program would be able to run successfully. The banking resolution program was run by giving liquidity assistance of up to IDR144.5 trillion. (This decision is in line with Claessens, Klingebiel, and Laeven (2001) that empirically a package of specific resolution measures can help accelerate the recovery from crisis with significant fiscal costs). The bank recapitalization was by the injection of government bonds to 36 banks totaling up to IDR430.4 trillion. This was considered as "too big or too important to fail." The ownership of banking equity by the government after the recapitalization program by the end 2000 had increased to 95.1% of total equity of domestic banks.
5. The allocated amounts of the recapitalization bonds had different composition for different banks. The bonds were allocated according to the amount of NPLs that were to move to the IBRA, plus additional bonds to reach a minimum CAR requirement. The allocated bonds received by the state-owned banks reached IDR282.922 trillion (or 65.73%), that of private banks reached IDR146.278 trillion (or 33.98%), and that of the regional banks came to IDR1.230 trillion (or 0.29%). The resolution program consisted of BI liquidity support of IDR 144.54 trillion (or 63.31%), a credit program of IDR9.97 trillion (or 4.37%), and for government guarantee IDR73.78 trillion (or 32.32%). In total, the fiscal cost of the banking restructuring reached IDR 658.72 trillion, or the same as 51.03% of the Indonesian GDP realized in 2000.
6. Empirically, the performance of all recapitalized banks after the capital injection in 1999 and 2000, based on the results of Manova test shows that generally the performance of banks have significantly improved. Starting from one year, through to five years post-recapitalization, except for the significance of CIR and LDR, the analysis can be interpreted that recapitalization have no impact in lowering the PNPL & CIR and growth of the LDR. This condition finally made the performance of banks seem to be better, but in fact, from the macro-economic point of view, the good performance was an illusion that caused the recapitalized banks to have their dominant assets as recapitalization bonds and

- SBI. This means they could not enlarge the amount of lending to any significant level.
7. The performance of each group of banks is outlined as follows:
    - a) For state-owned banks, one year after capital injection, they showed no significant improvement in ROA and ROE until the end of five years. The ROE still did not improve, even the LDR still remains lower than before capital was injected. When we compare with the two and three years before capital was injected, we find that the components of EBTDA, ROA, ROE, NIM, and CIR simply increased significantly. This indicates that the performance of state-owned banks has not reached their performance level before the crisis happened. Interestingly, the component of CAR shows a greater level than before capital was injected. This is in accordance with the aim of the recapitalization program. In addition, for the components of the PNPL and CIR, even the hypotheses accepted their values to be lower than before capital was injected.
    - b) For the private banks, one year after capital injection, only the ROE showed any significant improvement, and by the end of five years, all the components of performance had improved. Even all the hypotheses are accepted that the PNPL, CIR, and LDR are still lower than before capital was injected. When we compare with the two and three years before capital was injected, we find that the components of CAR, EBTDA, ROA, ROE, NIM, and CIR simply increased significantly. This expressly shows that the performance of state-owned banks has not reached their performance levels before the crisis happened. In addition, for the components of the PNPL and CIR, even the hypotheses accepted their values to be lower than before capital was injected.
    - c) For the regional banks, one year after capital injection, there was no significant improvement of ROA & ROE. Nevertheless, for the PNPL and the LDR, the hypotheses were rejected until two years after capital was injected. It means they can push down the PNPL values and pull up the LDR values. By the end of five years, all the components of performance of banks had improved. All the hypotheses are accepted but the PNPL, CIR and LDR still remained lower than before capital was injected. When we compare with the two and three years before capital was injected, we find that the components of PNPL and CIR simply increased significantly. This expressly shows that the performance of regional banks can reach their performance levels before the crisis happened.
  8. The effectiveness of banks' recapitalization to real sector lending was seen in the downward trend in the growth of loans that was influenced by capital increases in the state-owned banks; operating profit increases and inflation decreases in the private banks; and the operating profit increases, the inflation increases, the capital increases, exchange rate decreases, and supported by the regional GDP increases in the regional banks. Specifically, the state-owned banks and the private banks on the whole could not improve the growth of loans as GDP contribution was greater than before capital was injected. In our findings, the fiscal cost of the recapitalization program could not directly help in accelerating the economic recovery from the crisis. This is contrary to the research findings of Claessens, Klingebiel, and Laeven (2001) who found that a package of

specific resolution measures can help accelerate the recovery from such crisis with significant fiscal costs. All different groups of recapitalized banks made contributions to GDP/RGDP as follows: (a) For state-owned bank contributed 18.49% in 2000, 14.03% in 2001, 14.66% in 2002, 16.11 in 2003, 17.97% in 2004 and 17.73% in 2005, (b) For private bank contributed 10.77% in 2000, 12.57% in 2001, 14.32% in 2002, 19.35% in 2003, 25.08% in 2004, and 33.68% in 2005, and (c) The regional bank contributed 0.67% in 2000, 0.69% in 2001, 0.91% in 2002, 1.15% in 2003, 1.32% in 2004, and 1.38% in 2005.

9. The LDR as a part of the CAMEL ratio that directly relates to the real sector only reached 53.48% after five years of capital injection. After six years, the LDR reached only 57.91%. This is really far from the level attained before the crisis, which was equal to 86.80% in 1996, 98.46% in 1997, and 124.49% in 1998. This condition was occasioned by the dominant influence of the recapitalization bonds in the asset structure of the recapitalized banks. The recapitalization bonds were considered as mere papers and, in addition, the banks' liquid portfolio shifted from credits to SBI (Bank Indonesia Certificates), which made the banks hide behind the argument that they needed to maintain their CAR not below the BASEL II requirement of 12%. These conditions finally made the performance of banks seem to be better, but from the macro point of view, the good performance was an illusion for the real sector. In addition, the banks recapitalization program through the capital injection was aimed at improving the performance of banks generally. But, unfortunately, the recapitalization program could not directly recover the economy from the crisis of 1997-1998 and could not perform their function as good intermediary institutions.
10. The behavior of the growth of loans is seen pulling-up through increase in inflation in each area of the regional banks. On this basis, the regression line seems to show that the behavior of banks with respect to changes in economic fundamentals remained static, even with capital injection, except the growth of loans in the regional banks. After capital injection, loans from the regional banks reacted much strongly to profit increases than before, i.e. the slope of the dummy is positive and significant. Based on the individual sectors, four sectors showed stagnant or negative growth. They are the agriculture sector, mining sector, electricity, water & gas sector, and trade, hotel & restaurant sector.

## **6.2 Implications, Recommendations, and Further Research**

This summary of recommendations consists of three parts. They are the implications of the findings of the research, recommendations, and suggestions for future research.

### **6.2.1 Implications of the Findings of the Research**

The implications from the point of view of internal banking consist of the composition of banks' income from recapitalization bonds interests, shift in the liquidity portfolio from credit to SBI, and the banks preferring to hold their recapitalization bonds even when they can sell the bonds in the secondary market. Of course, as long as the

recapitalization bonds gave higher gains than those from the other portfolio of the banks, the banks preferred to hold and maintain the bonds as a source of interest income that has no risk and which hides behind the argument of maintaining their CAR. Compared to the sale of their recapitalization bonds and the lending of credit to the real sector, the latter is seen as being full of risks that are covered by business risks as well as rigorous rules and regulations.

The implications from the point of view of external banking consist of the fact that the recapitalization bonds added a new obligation on government's routine fiscal costs, and that the economic recovery did not just depend on the supply side of credit but also on the demand side of credit as well. The costs of the recapitalization program sharply raised the amount that should be paid to the banks during the crisis in an effort to enhance the economic recovery from the crises. However, the routine fiscal costs still remained a load on the annual state budget. At the same time, this payload also became a big constraint in economic development as a whole. At least 30% of the annual state budget was allocated to paying the interest rates to the recapitalized banks. This excluded the payments on other liabilities of government (e.g. foreign loans and state debt obligations). In addition, from the side of credit availability, the banks also had serious problems with what to do with the loads of undisbursed loans. That means the banks were very limited in realizing their credit targets for new debtors (i.e. the demand for credit lending as a result of the low investment prospects) and also for existing debtors. Specifically, the banks disintermediation reduced the effectiveness of monetary policies during the crisis and in the post crisis period in Indonesia. This is in line with the findings of Alamsyah et al. (2005).

### 6.2.2 Recommendations

Based on the findings and implications that have been elaborated above, we would make the following recommendations:

1. To optimize the benefits from the recapitalization bonds, we recommend that the recapitalized banks as receivers should include the bonds in their portfolio of assets as usual but they should be encouraged to off-load them to other institutions at the right time. It is understood that the banks' recapitalization program involved a big fiscal expense since the interest on the recapitalization bonds became part of the national debt.
2. We wish to recommend that the periphery of the real sector be expanded to make the banks the engines of growth. We strongly recommend that the central bank (BI) should institute sanctions against banks, which keep large amounts of undisbursed loans. Such banks should be encouraged in the first place to link these funds to the investment prospects in the economy in order to increase the role of the recapitalized banks in the economic recovery process.
3. In order to encourage and accelerate lending the development of the various sectors such as agriculture sector, mining sector, electricity, water & gas sector, and trade, hotel & restaurant sector, we recommend that the government and the

central bank should periodically announce general guidance and lending targets for the different sectors.

4. To accelerate growth in importance sectors, the government should give guarantees for selected borrowers.

### 6.2.3 Suggestions for Further Research

In the light of the findings and conclusions arrived at in this research. We would suggest that a potential future research should arrange to find new methods to incorporate the scenarios and implementation guidelines on how to shift the recapitalization bonds to become productive assets in the balance sheets of banks without depressing the ability of banks to maintain their CAR. The study should find how to pull up the banking system to become the engine of growth in Indonesia according to the new operation requirements of BASEL II. The research should also find how to handle the payload of fiscal costs without creating new problems in the macro-economic atmosphere of Indonesia.

## Bibliography

- Agénor, Pierre-Richard and Joshua Aizenman, "The Credit Crunch in East Asia: What can Bank Excess Liquid Assets Tell us?" *The World Bank*, Washington DC 20433; Department of Economics, University of California at Santa Cruz, CA 95064, and NBR (2002).
- Agung, Juda, Bambang Kusmiarso, Bambang Pramono, Erwin G. Hutapea, Andry Prasmuko, and Nugroho Joko Prastowo. "Credit Crunch in Indonesia in the Aftermath of the Crisis: Facts, causes and policy implications," (Directorate of Economic Research and Monetary Policy, Bank Indonesia, 2001).
- Alamsyah, Halim, Doddy Zulverdi, Imam Gunadi, Rendra Z. Idris, and Bambang Pramono, "Banking Disintermediation and Its Implication for Monetary Policy: The Case of Indonesia," *Buletin Ekonomi Moneter dan Perbankan*, Vol. 8, Nr. 1 (March 2005), 409-521.
- Ali, Masyhud, *Asset Liability Management*, (PT Elex Media Komputindo, Jakarta, Indonesia. 2004).
- Allen, Franklin, "Financial Structure and Financial Crisis," *ADB Institute Working Paper 10*, ADB Institute Tokyo (2000).
- Allen, Mark, Christoph Rosenberg, Cristian Keller, Brad Setser, and Nouriel Roubini, "The Balance Sheet Approach to Financial Crisis," *IMF Working Paper*, WP/02/210 (2002).
- Anderson, David R., Dennis J. Sweeney, and Thomas A. Williams. *Statistics for Business and Economics*, 8e. (Thomson Learning, 2002).
- Andrews, A. Michael, "State-Owned Banks, Stability, Privatization, and Growth: Practical Policy Decisions in a World without Empirical Proof," *IMF Working Paper*. WP/05/10 (2005).
- Andrews, Michael and Mats Josefson, "What Happens After Supervisory Intervention? Considering Bank Closure Options," *IMF Working Paper*, WP/03/17 (2003a).
- Andrews, Michael, "Issuing Government Bonds to Finance Bank Recapitalization and Restructuring: Design Factors that Affect Banks' Financial Performance," *IMF Policy Discussion Paper*, PDP/03/4 (2003b).
- Athukorala, Prema-Chandra, *Crisis and Recovery in Malaysia: The Role of Capital Controls*, (Edward Elgar, Cheltenham, UK- Northampton, MA, USA, 2001).
- Baig, Taimur and Ilan Jonathan D. Ostry, "Financial Market Contagion in the Asian Crisis," *IMF Working Paper*, WP/98/155, JEL Classification Numbers: F30, F40, G15 (1998).
- Baltagi, Badi H., *Econometric Analysis of Panel Data*, Third Edition (John Wiley & Sons, Ltd, 2005).
- Bank of Indonesia, "Executive Summary: Progress on Post-IMF (White Paper) Bank Indonesia Action Plans," *Bank Indonesia*, Period: April-June (2004).
- Bank of Indonesia, "Monthly Review on Economy, Monetary and Banking," *Monthly Review*, (May 2004).
- Bank of Indonesia, "The Indonesian Banking Architecture," (2004), [www.bi.go.id](http://www.bi.go.id).
- Bank of Indonesia, *Annual Report*, (2000, 2001, and 2003).
- Bank of Indonesia, *Annual Report*, (91/92, 93/94, 94/95, 96/97, and 98/99).

- Barth, James R.; Gerard Jr Caprio; and Ross Levine, "Banking Systems around the Globe: Do Regulation and Ownership Affect Performance and Stability?" *Finance Department, Auburn University and Capital Studies Division, Milken Institute* (2000).
- Basel Committee on Banking Supervision (BCBS), "Bank Failures Mature Economies," *BIS Working Paper* No.13 (2004).
- Basu, Kaushik, "Globalization and Politics of International Finance: The Stiglitz Verdict," *Journal of Economic Literature*, Vol. XLI (2003), 886-899.
- Batunanggar, Sukarela, *Indonesia's Banking Crisis Resolution: Lessons and The Way Forward*, Research project at the Centre for Central banking Studies (CCBS), (Bank of England and presented at the Banking Crisis Resolution Conference, CCBS, bank of England, London, December 9, 2002).
- Beck, Thorsten and Ross Levine, "Industry Growth and Capital Allocation: Does Having a Market or Bank Based System Matter?" *World Bank Paper*, JEL Classification: G0; K2; O4 (2001).
- Beck, Thorsten, Ross Levine, and Norman Loayza, "Finance and Sources of Growth," *Journal of Financial Economics*, No. 58 (1-2), (2000), 261-300.
- Beck, Thorsten; Asli Demirguc-Kunt; Luc Laeven; and Ross Levine. Finance, "Firm Size, and Growth," *The World Bank Paper*, JEL Classification: G2, L11, L25, 01 (2004).
- Bernanke B. and Blider A., "Credit, Money, and Aggregate Demand," *AEA Papers and Proceedings* 78 (1988), 435-39.
- Bernanke B. and Gertler M., "Financial Fragility and Economic Performance," *Quarterly Journal of Economic Review* 79 (1990), 87-114.
- Bernanke Ben S. and Mark Gertler, "Inside the Black Box: the Credit Channel of Monetary Policy Transmission," *Journal of Economic Perspectives*, Volume 9, Number 4 fall (1995), 27-48.
- Blaug, Mark, *The Methodology of Economics or How Economists Explain*, Second Edition (Cambridge University Press," New York, USA. 1997)
- Bonin, John P. and Bozerta Leaven, "Can Banks Promote Enterprise Restructuring? Evidence From a Polish Bank's Experience," *Working Paper Number 294* (2000).
- Bossoni, Biagio, *What Makes Banks Special? A Study on Banking, Finance, and Economic Development*, (the World Bank, Washington D.C., 2000).
- Bresnahan, T.F., *Empirical Studies of Industries with Market Power*, in R. Schenxlenza and R.D. Wilig (eds.), (Handbook of Industrial Organization, North Holland Amsterdam, 1989).
- Burton, Maureen and Ray Lombra, *The Financial System & Economy: Principles of Money & Banking*, 3<sup>Rd</sup> Edition (Thomson South-Western, 5191 Natortp Boulevard, Mason, Ohio 45040. 2003)
- Calvo, Guillermo A. and Frederic S. Mishkin, "The Mirage of Exchange Rate Regimes for Emerging market Countries," *Journal of Economic Perspectives*, Volume 17, Number 4 (2003), 99-118.
- Caprio, Gerald Jr. and Daniela Klingebiel, "Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?" *The World Bank Conference o Development Economics*. (1996).
- Caprio, Gerald Jr., "Banking on Crises: Expensive Lessons from Recent Financial Crises. *Development Research Group*," *The World Bank* (1998).



- Caprio, Gerald; Patrick Honohan; and Joseph E. Stiglitz, *Financial Liberalization: How Far, How Fast?* (Cambridge University Press, 2001).
- Carey, Mark, Stephen Prowse, John Rea, and Gregory Udell, "The Economics of the Private Placement Market: a new look," *Financial Market Institutions and Instruments* 2:3, Blackwell (1993).
- Center of Statistical Bureau of Republic of Indonesia (BPS), various issued.
- Cerra, Valerie and Sweta Chaman Saxena, "Growth Dynamics: The Myth of Economic Recovery," *IMF Working Paper*, WP/05/147 (2005).
- Cetorelli, Nicola, "Competitive Analysis in Banking: Appraisal of the Methodologies," *Economic Perspective*, Federal Reserve Bank of Chicago (1999).
- Choi, Woon Gyu and David Cook. "Liability Dollarization and the Bank Balance Sheet Channel," *IMF Working Paper*, WP/02/141 (2002)
- Chow, Gregory C., "Test of Equality between Sets of Coefficients in Two Linear Regressions," *Econometrica*, Vol. 28, No. 3 (1960). 591-605.
- Claessens, Stijn and Luc Laeven, "What Drives Bank Competition? Some International Evidence," *Policy Research Working Paper*, No. 3113, the World Bank, Financial Sector Operations and Policy Department (2003).
- Claessens, Stijn and Thomas Glaessner, "Are Financial Sector Weaknesses Undermining the East Asian Miracle?" *The World Bank*, Washington, D.C. (1997)
- Claessens, Stijn, Daniela Klingebiel, and Luc Laeven, "Financial Restructuring in Banking and Corporate Sector Crises: What Policies to Pursue?" *NBER Working Paper* 8386 (2001).
- Clark et al., "Exchange Rate Economics Fundamental: A Framework of Analysis," *IMF Occasional Paper*, No. 115. (1994)
- Corsetti, Giancarlo; Paolo Presenti; and Nouriel Roubini, "What Caused the Asian Currency and Financial Crisis? Part I: A Macroeconomic Overview," *Presented on the CEPR-World Bank Conference on Financial Crisis: Contagion and Market Volatility*, the University of Washington (May 1998). <http://www.nbwe.org/papers/w6833>.
- Daniel, James A., "Fiscal Aspects of Bank Restructuring," *IMF Working Paper*, WP/97/52 (1997).
- Davis, E. Philip and Haibin Zhu, "Commercial Property Prices and Bank Performance," BIS Working Papers No. 175. BIS, Press & Communications, CH-4002 Basel, Switzerland (2005).
- Dell'Ariccia, Giovanni, Enrica Detragiache, and Raghuram Rajan, "The Real Effect of Banking Crises," *Paper IMF Staff* (2004).
- Demirgüç-Kunt, Asli and Enrica Detragiache, "The Determinants of banking Crises: Evidence from Developed and Developing Countries," *Finance and Private Sector Development Division*, The World Bank, and research Department IMF (1997).
- Demirgüç-Kunt, Asli and Enrica Detragiache, "The Determinants of Banking Crises: Evidence from Industrial and Developing Countries," *JEL Classification: E44, G21, Finance and Private Sector Development Division*, The World Bank, and Research Department, IMF (1997).

- Demirgüç-Kunt, Asli Enrica Detragiache, Poonam Gupta, "Inside the Crisis: An Empirical Analysis of banking System in Distress," *World Bank Policy Research Working Paper, No. 2431* (August 2000).
- Desai, Meghnad and Yahia Said as edited, *Global Governance and Financial Crisis*, (Routledge, Taylor & Francis Group, London and New York, 2004).
- Diamond, D. and P. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity," *Journal of Political Economy*, 91 (1983), 401-419.
- Diamond, D. and R. G. Rajan, "Bank Bailouts and Aggregate Liquidity," *Paper prepared for the 2002 meetings of American Economics Association, NBER* (2002).
- Diamond, D. and R. G. Rajan, "Liquidity Risk, Liquidity Creation and Financial Fragility: A Theory of Banking," *Journal of Political Economy*, No. 109(2) (2001), 287-327.
- Diamond, Douglas W., "Should Banks Be Recapitalized?" *Federal Reserve Bank of Richmond Economic Quarterly*, Volume 87/4 Fall (2001).
- Disyatat, Piti, "Currency Crises and the Real Economy: The Role of Banks," *IMF Working Paper*, WP/01/49 (2001).
- Dooley, M.P. "A Model of Crisis in Emerging Markets," (University of California Santa Cruz, 1997, forthcoming (1999a).
- Dooley, M.P., "Are Recent Capital Inflows to Developing Countries a Vote for or Against Economy Policy Reforms?" *Working Paper* 295, University of California (1999b).
- Dornbusch, Rudiger, Stanley Fischer, and Richard Startz, *Macroeconomics, Eighth Edition* (McGraw-Hill Company Inc. Irwin, 2001).
- Dziobek, Claudia and Ceyla Pazarbaşıoğlu, "Lesson from Systemic Bank Restructuring: A Survey of 24 Countries," *IMF Working Paper*, WP/97/161 (1997).
- Dziobek, Claudia, "Market Based Policy Instruments for Systemic Bank Restructuring," *IMF Working Paper*, WP/98/113 (1998).
- Enoch, Charles, "Interventions in Banks During Banking Crises: The Experience of Indonesia," *IMF Policy Discussion Paper*, PDP/00/2 (2000).
- Enoch, Charles, Barbara Baldwin, Oliver Frécaut, and Arto Kovanen, "Indonesia: Anatomy of a Banking Crisis: Two Years of Living Dangerously 1997-99," *IMF Working Paper*, WP/01/52 (2001).
- Enoch, Charles, Gillian Garcia, and V. Sundarajan, "Recapitalizing Banks with Public Funds," *IMF Staff Papers* Vo. 48, No. 1 (2001).
- Esquivel, Gerardo and Felipe Larraín B., "Explaining Currency Crises," *JEL Classification: F3, F33*, Harvard Institute for International Development (1998).
- Eun, Cheol S. and Bruce G., Resnick. *International Financial Management*, Third Edition (McGraw-Hill, Companies Inc., 1221 Avenue of Americas, New York, NY 10020, 2004).
- Fischer, Stanley, "Distinguished Lecture on Economics in Government, Exchange Rate Regimes: Is the Bipolar View Correct? *Journal of Economic Perspective*, Volume 15, Number 2 (2001), 3-24.
- Fischer, Stanley, *Globalization and Its Challenges*, (AEA Papers and Proceeding, Vol. 93, No. 2. 2003).
- Flood, Robert and Peter Garber, "Gold Monetization and Gold Discipline," *Journal of Political Economy* 92 (1) (1984), 1-13.

- Flood, Robert P and Nancy Marion, "A Model of Joint Distribution of Banking and Exchange-Rate Crises," *IMF Working Paper*, WP/01/213 (2001).
- Flood, Robert P. and Nancy Marion, "Perspectives on the Recent Currency Crisis Literature," *NBR Working Paper Series* 6380 (1998).
- Flowers, Edward B. and Francis A. Lees, *The Euro, Capital Markets, and Dollarization*, (Rowman & Littlefield Publishers, Inc. 2002).
- Gärtner, Manfred, *Macro Economics*, (Prentice Hall, Edinburgh Gate, Harlow, Essex CM20 2JE, United Kingdom, 2003).
- Gelos, R. Gaston and Jorge Roldós, "Consolidation and Market Structure in Emerging Market Banking Systems," *IMF Working Paper*. WP/02/186 (2002).
- Gersbach, Hans and Harald Uhlig, *Financial Institutions and Business Cycles*, (Alfred-Weber-Institut, University of Heidelberg, Germany, 1999).
- Ghosh, Swati R. and Atish R. Ghosh, "East Asia in the Aftermath: Was there a Crunch?" *IMF Working Paper*, No.38 (1999).
- Goldfajn, Ilan and Rodrigo O Valdés, "Capital Flows and the Twin Crises: The Role of Liquidity," *IMF Working Paper*, WP/97/87 (1997).
- Goodhart, C.A.E., "The Organizational Structure of Banking Supervision," *FSI Occasional Papers*, Financial Stability Institute, Bank for International Settlements, Basel, Switzerland No. 1 (2000).
- Greenspan, Alan, "Examines the Crisis in Asia, Consider the Existence and Provision of Safety Nets, and Ponders Possible Policy Responses to Problems in the International Financial System," *Remarks by Chairman of the Federal Reserve System, before the 34<sup>th</sup> Annual Conference on Bank Structure and Competition of the Federal Reserve Bank of Chicago*. 7/5/98 (1998).
- Grenville, Stephen, "The Asian Crisis, Capital Flows, and the International Financial Architecture," *Talk by the Deputy Governor of the Reserve Bank of Australia, to Monash University Law School Foundation in Melbourne* (21/5/1998).
- Guillermo A. Calvo and Frederic S. Mishkin, "The Mirage of Exchange Rate Regimes for Emerging market Countries," *Journal of Economic Perspectives*, Volume 17, Number 4 (2003), 99-118.
- Gurajati, Damodar N., *Basic Econometrics*, Fourth Edition (McGraw Hill Companies, USA, 2003).
- Hadori, HLB and Rekan, *Studi Keuangan: Bantuan Likuiditas Bank Indonesia (Financial Study: Bank Indonesia Liquidity Support)*, (Result of Joint Research between Bank Indoensia, HLB and Rekan, Law Office Soehandjono & Associates-Indonesia, IDMAG Canada, and Grant Thoronto Indonesia, 2002).
- Hardy, Daniel C. and Ceyla Pazarbaşıoğlu, "Determinants and Leading Indicators of Banking Crises: Further Evidence," *IMF Staff Papers*, Vol. 46, No. 3 (September/December 1999).
- Hardy, Daniel C. and Ceyla Pazarbaşıoğlu, "Lending Indicators of Banking Crises: Was Asia Different?" *IMF Working Paper*, WP/98/91 (1998).
- Hausman, J. A., "Specification Test in Econometrics," *Econometrica*, Vol. 46, (1978), 1251-1271.
- Hawkins, John and Philip Turner, "Bank Restructuring in Practice: An Overview," *Bank International for Settlement Paper* (1998).
- Heid, Frank "Is Regulatory capital Pro-Cyclical? A Macroeconomic Assessment of Basel II," *Deutsche Bundesbank* (2003).

- Hermet, Francois, "Currency Crisis and Balance Sheet Channel Effect: The Korean Experience," *Economics Bulletin*, Vol. 6, No. 12 (2003), 1-12.
- Hill, Hal, *The Indonesia's Industrial Transformation*, (Institute of Southeast Asian Studies, Singapore, 1997).
- Hirtle, Beverly, "The Impact of Network Size on Bank Branch Performance," *Staff Reports*, Federal Reserve Bank of New York, No. 211 (2005).
- Hoggarth, Reis and Saporta, "Costs of Banking System Instability: Some Empirical Evidence," *Working Paper Series*, Bank of England (2001).
- Holmstrom, Bengt & Jean Tirole, "Financial Intermediation, Loanable Funds, and the Real Sector," *The Quarterly Journal of Economics*, Vol. CXII, Issue 3 (1997), 663-91.
- Honohan, Patrick and Daniela Klingebiel, "Controlling the Fiscal Costs of Banking Crises," in "Managing the Real and Fiscal Effects of Banking Crises," *Edited by Daniela Klingebiel and Luc Laeven, World Bank Discussion Paper No. 428*, (2002), 15-29.
- Honohan, Patrick and Daniela Klingebiel, *Controlling Fiscal Costs of Banking Crises*. (The World Bank, 1818 H Street NW, Washington, DC 20433, 2000).
- Honohan, Patrick, *Recapitalizing Banking System: Implications for Incentives and Fiscal and Monetary Policy*, (The World Bank, 2001).
- Hsiao, Cheng, *Analysis of Panel Data*, (Cambridge: Cambridge University Press, 1995).
- Huang, Haizhou, Dalia Marin, and Chenggang Xu, "Financial Crisis, Economic Recovery, and Banking Development in Russia, Ukraine, and Other FSU Countries," *International Monetary Fund Working Paper*, WP/04/105 (2004).
- Hutchison, Michael M., "A Cure Worse Than the Disease? Currency Crises and the Output Costs of IMF-Supported Stabilization Programs," *NBER Working Paper 8305* (May 2001).
- IMF (International Monetary Fund), "Financial Soundness Indicators," *Prepared by the Staff of the Monetary and Financial Systems and Statistic Department* (2003).
- Independent Evaluation Office (IEO)-IMF, *The IMF and Recent Capital Account Crises: Indonesia, Korea, Brazil. Evaluation Report*, (International Monetary Fund, 2003).
- Indonesian Restructuring Agency (IBRA), *Annual Report*, (2000).
- Ingves, Stevan and Goran Lind, "Loan Loss Recoveries and Debt Resolution Agencies: The Swedish Experience. In Banking Soundness and Monetary Policy: Issues and Experiences in the Global Economy," Editors by Charles Enoch and John H. Green (*IMF Institute and Monetary and Exchanges Affairs Department*, IMF, Washington, 1997).
- Irvin, Gregor and David Vines, "A Krugman-Dooley-Sachs Third Generation Model of the Asian Financial Crisis," *CEPR Discussion Paper*, No. 2149, (Goswell Rd, London EC1V 7RR (1999), 90-98.
- Irving, Fisher, *The Theory of Interest Rate*, (New York: Macmillan, 1930),
- Ishihara, Yoichiro, "Quantitative Analysis of Crisis: Crisis Identification and Causality," *World Bank Policy Research Working Paper 3598*, The World Bank (2005).

- Jayarathne, Jith and Philip E. Strahan, "The Financial Growth Nexus: Evidence from Bank Branch Deregulation," *Quarterly Journal of Economics* No. 111 (1996), 637-70.
- Kaminsky, Graciela L. and Carmen M. Reinhart, "The Twin Crises: The Causes of banking and Balance-of-Payments Problems," *The American Economic Review* (June 1999), 473-500.
- Kaminsky, Graciela L., "Currency and Banking Crises: The Early Warnings of Distress," *IMF Working Paper*, JEL Classification Numbers: F300; F410; F470 (1999).
- Kaminsky, Graciela L., Carmen M. Reinhart, and Carlos A. Vegh, "The Unholy Trinity of Financial Contagion," *Journal of Economic Perspectives*, Volume 17, Number 4 (2003), 51-74.
- Kaufman, George G., "Banking and Currency Crises and Systemic Risk: Lesson from Recent Events," *Financial Markets Institution, and Instruments*, Vol. 9, No. 2 (May 2000).
- Keynes, John Maynard, *The General Theory of Employment, Interest, and Money*. (New York, Harcourt Brace Jovanovich, 1964).
- Khan, Shahrukh Rafi, *Do World Bank and IMF Policies Work?* (Published Palgrave, Houndmills, Basingstoke, Hampshire RG21 6X and 175 Fifth Avenue, New York, N.Y. 10010, 1999).
- Kidwell, David S., Richard L. Peterson, and David W. Blackwell, *Financial Institutions, Markets, and Money*, sixth Edition (the Dryden Press, 1997).
- Kim, Hyun E., "Was Credit Channel a Key Monetary Transmission Mechanism Following the Recent Financial Crisis in the Republic of Korea?" *Policy Research Working Paper 3003*, IMF (1998).
- Kleinbaum, David G., Lawrence L. Kupper, Keith E. Muller, and Azhar Nizam, *Applied Regression Analysis and Other Multivariable Methods*, (An Alexander Kugushev Book, Duxbury Press, 1998).
- Kobayashi, Keiichiro, "Debt Deflation and Bank Recapitalization," *RIET Discussion Paper Series*, 03-E-607 (2003).
- Koch, Timothy W. and S. Scott MacDonald, *Bank Management*. Fourth Edition (The Dryden Press, USA, 2000).
- Koch, Timothy W., *Bank Management*. 3<sup>rd</sup> Edition (The Dryden Press, USA, 1995).
- Kompas Morning Daily, June 29 2001, Jakarta, Indonesia.
- Krainer, John and Jose A. Lopez, "Forecasting Bank Supervisory Ratings Using Securities Market Information," *Federal Reserve Bank of San Francisco*, Economic Research Department, San Francisco (2003).
- Krugman, Paul and Maurice Obstfeld, *International Economics: Theory and Policy*, Sixth Edition (Pearson Education International, Boston, USA, 2003).
- Krugman, Paul, "Are Currency Crises Self-Fulfilling?" In Bernanke, -Ben-S.; Rotemberg, -Julio-J., eds. *NBER Macroeconomics Annual* (Cambridge and London: MIT Press, 1996), 345-378.
- Krugman, Paul, "Baby-Sitting the Economy: The baby-sitting co-op that when bust teaches us some thing that could save the world," *Slate the Dismal Science*. (1998).
- Krugman, Paul, "The Myth of Asia's Miracle," *Foreign Affairs*, Volume 73, No. 6. (1994).

- Krugman, Paul, "Balance Sheets, the Transfer Problem, and Financial Crises," *Preliminary Essay in honor Robert Flood* (1999), <http://web.mit.edu/krugman/www/FLOOD.pdf>.
- Krugman, Paul, "Whatever Happened to Asia? Prepared for Conference in Japan." (<http://web.mit.edu/krugman/www/DISINTER.html>, 1998).
- Laeven, Luc, Daniela Klingebiel, and Randy Kroszner, "Financial Crises, Financial Dependence, and Industry Growth," *World Bank Policy Research Working Paper* 2855, The World Bank (2002).
- Lasserre, Philippe and Sam Garg, *Bank Mandiri: Cases in Corporate Transformation*, (INSEAD, Singapore, 2003).
- Levich, Richard, *Emerging Market Capital Flows*, (Stern School of Business New York University, Kluwer Academic Publishers, 1998).
- Levine, Ross and Sara Zervos, "What Have We Learned about Policy and Growth from Cross Country Regressions?" *American Economic Reviews* 83 (May 1993), 426-30.
- Levine, Ross, Norman Loayza and Thorsten Beck, "Financial Intermediation and Growth: Causality and Causes," *JEL Classification: O16; O40; G28*, The World Bank (1999).
- Lindgren, Carl-Johan, Gillian Garcia, and Matthew I. Saal, *Bank Soundness and Macroeconomic Policy*, Renouf Publisher Cp Ltd. (1996).
- Lindgren, Carl-Johan, Tomás J.T. Baliño, Charles Enoch, Anne-Marie Gulde, Marc Quintyn, and Leslio Teo, "Financial Sector Crisis and Restructuring Lessons from Asia," *Occasional Paper* 188, International Fund, Washington DC (1999).
- Lindquist, Kjersti-Gro, *Banks' Buffer Capital: How Important in Risk*, (Norges Bank, Oslo, Norway, 2003).
- Lown, Cara S.; Carol L. Osler; Philip E. Strahan; and Amir Sufi, "The Changing Landscape of the Financial Services Industry: What Lies Ahead?" *FRBNY Economic Policy Review*. New York, USA (2000).
- MacConnell, Campbell R. & Stanley L. Brue, *Economics: Principles, Problems, and Policies*, Fifteenth Edition. (McGraw-Hill. Irwin, 2002).
- Madura, Jeff, *Financial Markets and Institutions*, 6<sup>th</sup> Edition (Thomson South-Western, Ohio, 2003).
- Mandala G.S. *Introduction to Econometrics*, Third Edition (John Wiley & Sons, LTD, New York, USA, 2001).
- McGuigan, James R., R. Charles Moyer, Frederick H. deB. Harris, *Managerial Economics: Applications, Strategy, and Tactics*. 10<sup>th</sup> Edition (International Student Edition, Thomson, Southwestern, USA, 2004).
- McLeod, Ross H., *Indonesia's Crisis and Future Prospects, In Asian Contagion: The Causes and Consequences of a Financial Crisis. Edited by Jackson, Karl D.* (Westview Press, Colorado, 1999).
- MFSS-IMF," Financial Soundness Indicators, "Monetary and Financial Systems and Statistics Departments (May 14 2003).
- Miller Roger LeRoy and David D. VanHoose. *Money, Banking and Financial Markets*. Second Edition (Thomson South-Western, USA, 2004).
- Miller, Roger LeRoy and David D. van Hoose, *Money, Banking and Financial Markets*, Second Edition (Thomson South-Western, USA, 2004).
- Mishkin, Frederic S., "Global Financial Instability: Framework, Events, Issues," *Journal of Economic Perspectives*, Volume 13, Number 4 (1999), 3-20.

- Mishkin, Frederic S., "Symposium on The Monetary Transmission Mechanism," *Journal of Economic Perspectives*, Volume 19, Number 4 (1995), 3-10.
- Mishkin, Frederic S., *Financial Markets and Institution*. Third Edition (Addison Wesley, Longman, Inc., 2000).
- Mishkin, Frederic S., *The Economics of Money, Banking, and Financial Markets*. Fourth Edition (Addison Wesley, Longman, Inc., 1995).
- Mishkin, Frederic S., *The Economics of Money, Banking, and Financial Markets*. Seventh Edition Update (Pearson Addition Wesley, 2006).
- Montgomery, Heather and Satoshi Shimizutani, "The Effectiveness of Bank Recapitalization in Japan," *Working Paper, Asian Development Bank Institute* (2005).
- Montgomery, John, "The Indonesian Financial System: It's Contribution to Economic Performance, and Key Policy Issues," *IMF Working Paper*, WP/97/45, JEL Classification Numbers: E44, G14, G20, G21, G28 (1997).
- Nasution, Anwar, "The Indonesian Economic Recovery From the Crisis in 1997-98," *A paper presented at Joint Session of the American Economic Association* (Georgia, January 4-6, 2002).
- Nicoló, Gianni De, Patrick Honohan, and Alain Ize, "Dollarization of the Banking System: Good or Bad?" *IMF Working Paper*, WP/03/146 (2003).
- Norris, Era Dabla and Andrew Feltenstein, "An analysis of the Underground Economy and Its Macroeconomic Consequences," *International Monetary Fund Working Paper*. WP/03/23 (2003).
- Obstfeld, Maurice, "Rational and Self-Fulfilling Balance-of-Payments Crises," *American Economic Review*, 76 (March 1986), 72-81.
- Obstfeld, Maurice, "The Logic of Currency Crises," *Banque de France, Cahiers économiques et monétaires*, No. 43 (1994).
- Oka, Chikako, "Anticipating Arrears to IMF: Early Warning System," *IMF Working Paper*, WP/03/18 (2003).
- Olson, Mark W., "The Importance of Market Structure," *Remarks on The Annual Conference of the Central Bank of Chile Santiago*. Chile (13/12/2003).
- Oxford, *Dictionary of Finance and Banking*, Third Edition (Oxford University Press, 2005).
- Pangestu, Mari and Manggi Habir, "The Boom, Bust, and Restructuring of Indonesian Banks," *IMF Working Paper Regional Office for Asia and Pacific*, JEL Classification Numbers: E5, E6, F3 (2002).
- Panzar, John C. and James N. Rosse, "Testing for 'Monopoly' Equilibrium," *Journal of Industrial Economics* 35 (1987), 443-456.
- Payamta and Machfoedz, "Evaluasi Kinerja Perusahaan Perbankan Sebelum dan Sesudah Menjadi Perusahaan Publik di Bursa Efek Jakarta," *Performance Evaluation of the Banking Firms, Before and After Becoming the Public Company in Jakarta Stock Exchange*, *Kelola Business Review*, No. 20/VIII, Gadjah Mada University Yogyakarta, Indonesia (1999), 54-69.
- Peria, Maria Soledad Martinez, "The Impact of Banking Crises on Money Demand and Price Stability," *Paper World bank Staff*, 1818 H Street NW, Washington, DC 20433 (19..).
- Peter, Clark B., Leonardo Bartolini, Tamin Bayoumi, and Steven A. Symansky, "Exchange Rates and Economic Fundamentals: A Framework for Analysis," *IMF Occasional Paper*, No. 115 (1994).

- Peura, Samu and Jussi Keppo, "Optimal Bank Capital with Costly Recapitalization," *JEL classification: G3, G35* (2004).
- Philip, E. Davis and Haibin Zhu, "Commercial Property Prices and Bank Performance," *BIS Working Papers* No. 175, BIS, Press & Communications, CH-4002 Basel, Switzerland (2005).
- Pierre-Richard, Agénor and Joshua Aizenman, "The Credit Crunch in East Asia: What can Bank Excess Liquid Assets Tell us?" *The World Bank*, Washington DC 20433; Department of Economics, University of California at Santa Cruz, CA 95064, and NBR (2002).
- Prasetyantono, A. Tony, Marcello Theodore, A. Prasetyantoko, Liberty Simanjuntak, Arief Ramelan Karseno, and L. Widarto, *Bank Indonesia Liquidity Support: An expensive lesson for the monetary authority and the banking sector*, (Penerbit PT Elex Media Komputindo, Kelompok Gramedia, Jakarta, 2000).
- Quantitative Micro Software (QMS), *EViews 5.1 User's Guide*, (4521 Campus Drive, #336, Irvine CA 92612-2621, March 17, 2005)
- Radelet, S. and J.D. Sachs, "The East Asian Financial Crises: Diagnosis Remedies, Prospects," *Brooking Papers on Economic Activity*, 1 (1998).
- Radelet, S. and J.D. Sachs, *The Onset of the East Asian Crisis*, Mimeo (Harvard University, 1998).
- Ramirez, Carlos D. and Philip A. Shively, "Do Bank Failures Affect Real Economic Activity? State Level Evidence from the Pre-Depression Era," *FDIC Center for Financial Working Paper* No. 2005-06 (2005).
- Rose, Peter S., *Money and Capital Markets: Financial Institution and Instruments in a Global Marketplace*, Eight Edition (McGraw-Hill. Companies Inc., 1221 Avenue of Americas, New York, NY 10020, 2003).
- Roubini, Nouriel, *An Introduction to Open Economy Macroeconomics, Currency Crises and the Asian Crises*, (Stern School of Business, New York University, 1998).
- Sabirin, Syahril, "Monetary Policy to Support Economic Recovery," *Paper of Governor of Bank Indonesia*, Central Bank of Indonesia, Jakarta (2001).
- Sachs, J., "Alternative Approaches to Financial Crises in Emerging Markets," *Revista-de-Economia-Politica*, Vol. 16, No. 2 (1996), 40-52.
- Sachs, J., "Do we need a Lender of Last Resort?" *Frank D. Graham Lecture*, (Princeton University, 1995).
- Salant, S. and D. Henderson, "Market anticipation of government policy and the price of gold," *Journal of Political Economy* 86 (1978), 627-648.
- Samuelson, Paul A. & William D. Nordhaus, *Economics*, Twelfth Edition (McGraw-Hill, 1985).
- Sander, Harald and Stefanie Kleimeier, "Contagion and Causality: An Empirical Investigation of Four Asian Crisis Episodes," (University of Applied Sciences Cologne, Faculty of Economics and Business Administration, Claudiusstri, 50678 Köln, Germany, 2000).
- Sander, Harald, "Currency Crises in the Tropics: A Short introduction to the Policy Implications of Original Sin," (University of Applied Sciences Cologne, Faculty of Economics and Business Administration, Claudiusstri, 50678 Köln, Germany, 2004).
- Sander, Harald, "International Debt Management and Autonomy of Debtor Nations," *in: Economics*, Vol.43 (1988), 40-78.



- Santos, João A C., "Bank Capital Regulation in Contemporary Banking Theory: A Review of the Literature," *BIS Working Papers*, No. 90, BIS Monetary and Economic Department, Basel, Switzerland (2000).
- Santoso, Wimboh, "Indonesia's Financial and Corporate Sector Reform," (Banking Bank Research and Regulations Directorate, Bank Indonesia, Jakarta, 2000).
- Santoso, Wimboh, *Value at Risk: An Approach to Calculating Market Risk*, (Banking Bank Research and Regulations Directorate, Bank Indonesia Jakarta, 2000).
- Saunders, Anthony and Marcia Millon Cornett, *Financial Institutions Management: A Risk Management Approach*, Fifth Edition (McGraw-Hill. Companies Inc., 1221 Avenue of Americas, New York, NY 10020, 2005).
- Schneider, Martin, Aaron Tornell, "Boom Bust Cycles and the Balance Sheet Effect," Mimeo (2001).
- Schneider, Martin and Aaron Tornell. "Balance Sheet Effects, Bailout Guarantees, and Financial Crises". *Review of Economic Studies* (2004) 71 (2004), 883-913..
- Sheng, Andrew, *Bank Restructuring, Lesson from the 1980's*, (The World Bank, Washington, 1996).
- Simatupang, Batare M., "The Indonesian Banking Architecture in Emerging Markets: Historical Lesson and Future Prospects," (Working Paper DBA Program Maastricht School of Management, Unpublished, Maastricht School of Management, the Netherlands, 2004).
- Simorangkir, Iskandar, "Financial Deregulation and Demand for Money in Indonesia," (Vanderbilt University, Nashville, USA, 2002).
- Stiglitz, Joseph E. and Bruce Greenwald, *Towards a New Paradigm in Monetary Economics*, (Cambridge University Press, 2003).
- Stiglitz, Joseph E., "*Globalization and Its Discontents*, (W.W. Norton & Co. New York, 2002).
- Stiglitz, Joseph E., "Lesson from East Asia," *Journal Policy Modeling*. 21(3) (1999), 313-330.
- Stiglitz, Joseph E., *Economics*, Second edition (W.W. Norton & Company, Inc. USA, 1997).
- Sumarta, Nurmadi H. and Yogianto HM, "Evaluasi Kinerja Perusahaan Perbankan yang Terdaftar di Bursa Efek Indonesia dan Thailand (*Evaluation Performance of Company of Banking which Enlist on the Stock Exchange in Indonesia and Thailand*)," *Buletin Ekonomi Moneter dan Perbankan*, Bank Indonesia, Jakarta (2000).
- Suta, I Putu Gede Ary and Soebowo Musa, *BPPN the End (IBRD the End)*, (Penerbit Yayasan SAD SATRIA BHAKTI Jakarta, Indonesia, 2004).
- Suta, I Putu Gede Ary and Soebowo Musa, *Membedah Krisis Perbankan: Anatomi Krisis dan Penyehatan Perbankan (Operating on Banking Crisis: Anatomy of Crisis and Healthy of Banking)*, (Penerbit Yayasan SAD SATRIA BHAKTI Jakarta, Indonesia, 2003).
- Swan, Trever W., "Long-Run Problems of the Balance of Payments," Witten but unpublished in 1995, later published in Arndt and Corden, eds. (The Australian Economy, 1963).
- Tarmidi, Lepi T., "*Krisis Moneter Indonesia: Sebab, Dampak, Peran IMF dan Saran. Pidato Pengukuhan (Indonesian Monetary Crisis: Caused, Impact, IMF Driver, and Suggestion*," *Professor Inauguration Paper* (Indonesia University, Economic Faculty, 1998).

- The World Bank, *The East Asian Miracle: Economic Growth and Public Policy*, (Oxford University Press., Washington, D.C.20433, U.S.A, 1993).
- Thomson, James B., "Bank Failures, Predictions, Economic Models, Variables, Accuracy, Economics Theory, Regression Analysis, Comparative Studies" *Economic Review*, Vol. 27 (1991).
- Thorsten, Beck, Ross Levine; and Norman Loayza, *Finance and the Sources of Growth*, (The World Bank, 1999).
- Van Rijckeghem, C. and B. Weder, "Financial Contagion: Spillovers through Banking Centers," *Paper prepared for the November 19-20, 1999 joint WIDER and WB Conferences "Sources of Contagion: Is it Finance or Trade?"* Finland (1999).
- Vogelvang, Ben, *Econometrics: Theory and Applications with EViews*, (Prentice Hall, 2005).
- Warjiyo, Perry and Juda Agung, *Transmission Mechanisms of Monetary Policy in Indonesia*, (Directorate of Economic Research and Monetary Policy, Bank Indonesia, Jakarta, 2002).
- Werner, Richard A., "Post-Crisis Banking Sector Restructuring and Its Impact on Economic Growth," *The Japanese Economy*, Vol. 30. No.6 (Nov-Dec. 2002), 3-37.
- Williams, Jonathan and Nghia Nguyen, "Financial Liberalization, Crisis and Restructuring: A Comparative Study of Bank Performance and Bank Governance in South East Asia," *Journal of Banking and Finance*, 29 (2005), 2119-2164.
- Woo, Wing Thy; Jeffrey D. Sachs and Klaus Schwab as Edited, "The Asian Financial Crisis: Lessons for a Resilient Asia," *The MIT Press*, Cambridge, Massachusetts, London, England. (2000).
- Worrell, DeLisle, "Quantitative Assessment of the Financial Sector: An Integrated Approach," *IMF Working Paper*, WP/04/153 (2004).
- Yoshitomi, Masaru & Kenichi Ohno, "Capital-Account Crisis and Credit Contraction, the New Nature of Crisis Requires New Policy Responses," *ADB Institute, Working Paper Series No. 2* (1999).

## **Appendices**



## Appendix 1 Commercial Bank Financial Statements Model

### BALANCE SHEET

<b>ASSETS</b>		<b>LIABILITIES AND SHAREHOLDERS' EQUITY</b>		
1	Cash	xxx	1 Demand Deposits	xxx
2	Placement with Central Bank	xxx	2 Liabilities Immediately Payable	xxx
3	Current accounts with others Banks	xxx	3 Savings Deposits	xxx
4	Placement with others Banks	xxx	4 Time Deposits	xxx
5	Securities	xxx	5 Certificates of Deposit	xxx
6	Securities sold with agreement to repurchase	xxx	6 Deposits from other Banks	xxx
7	Government Recapitalization Bonds	xxx	7 Liabilities to repurchase securities sold with repo agreement	xxx
8	Securities purchased with agreement to resell (reverse repo)	xxx	8 Derivative Payable	xxx
9	Derivative receivables	xxx	9 Acceptances Payable	xxx
10	Loans	xxx	10 Securities Issued	xxx
11	Acceptances receivable	xxx	11 Fund Borrowings	xxx
12	Other receivables - trade transactions	xxx	Estimated Losses on Commitments and Contingences	xxx
13	Investment in Shares of Stock	xxx	13 Obligation under Capital Lessee	xxx
14	Accrued income	xxx	14 Accrued Expenses	xxx
15	Prepaid expenses	xxx	15 Taxes Payable	xxx
16	Prepaid tax	xxx	16 Deferred Tax Liabilities	xxx
17	Deferred tax assets	xxx	17 Other Liabilities	xxx
18	Premises and Equipment	xxx	18 Subordinated Loans	xxx
19	Abandoned property	xxx	19 Loan Capital	xxx
20	Leased assets	xxx	Minority Interest in Net Assets of Consolidated Subsidiaries	xxx
21	Repossessed assets	xxx	21 <b>Shareholder's Equity</b>	<b>xxx</b>
22	Other assets	xxx	Share capital	xxx
	<b>TOTAL ASSETS</b>	<b>xxx</b>	Additional Paid-in Capital/agio	
			Share options	xxx
			Funds for paid-up capital	xxx
			Differences arising from Transactions of Foreign Currency Financial Statement	xxx
			Premises and Equipment Revaluation Income	xxx
			Unrealized (Losses) Gain from Securities and Government Recapitalization Bonds	xxx
			Retained Earnings (Accumulated Losses)	xxx
			Reacquired shares by subsidiary for trading purposes	xxx
			<b>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</b>	<b>xxx</b>

STATEMENTS OF PROFIT AND LOSS

FOR BANK AND CONSOLIDATED  
(AUDITED)

	DESCRIPTION
	<b>INCOME AND EXPENSES FROM OPERATIONS</b>
1	TOTAL INTEREST INCOME
2	TOTAL INTEREST EXPENSES -/-
	<b>NET INTEREST INCOME</b>
3	<b>TOTAL OTHER OPERATING INCOME</b>
	Provision for Possible Losses on Earning
4	Assets
5	Addition of Estimated Losses on Commitments and Contingencies
6	Provision for Possible Losses on Others
7	<b>TOTAL OTHER OPERATING EXPENSES -/-</b>
	<b>PROFIT FROM OPERATIONS</b>
	<b>NON-OPERATING INCOME AND EXPENSES</b>
8	Non operating income
9	Non operating expenses
	<b>NON-OPERATING INCOME (EXPENSES) – NET</b>
10	Extraordinary Income/Expenses
11	<b>PROFIT BEFORE INCOME TAX</b>
12	Estimated Income Tax Expenses -/-
	- Current
	- Deferred
13	<b>PROFIT BEFORE MINORITY INTERESTS</b>
14	Minority Interests -/-
15	Accumulated losses Beginning of the Year
16	Dividend -/-
	Others -/-
17	Accumulated losses End of the Year
18	<b>EARNING PER SHARE</b>
	- Basic
	- Diluted

Source: Adapted from PT Bank Mandiri (Persero) Tbk, the Balance Sheets as of June 30, 2005.

## Appendix 2 Receiver Banks of BI Liquidity Support (IDR billion)

NO	Bank Name	Status	Initial Liquidity Support	Collateral BI version	Collateral BPK version	Collateral insufficiency
1	BDNI	Frozen bank	37,040	7,091	5,434	31,606
2	BCA	Bank Taken Over (BTO)	26,596	32,107	4,010	22,586
3	Bank Danamon	Bank Taken Over (BTO)	23,050	37,231	3,260	19,790
4	BUN	Frozen bank	12,068	2,235	1,331	10,737
5	BHS	Liquidated bank	3,866	-	-	3,866
6	BIRA	Frozen bank (BBKU)	4,018	986	1,330	2,688
7	Bank Pacific	Liquidated bank	2,133	-	-	2,133
8	BNN	Frozen bank (BBKU)	3,020	2,250	1,122	1,898
9	Bank PDFCI	Bank Taken Over (BTO)	1,997	100	12	1,985
10	Bank Pelita	Frozen bank	1,990	345	95	1,895
11	Bank Tiara Asia	Bank Taken Over (BTO)	2,978	918	1,272	1,706
12	SBU	Liquidated bank	1,687	-	-	1,687
13	Pesona Utama	Frozen bank (BBKU)	2,335	596	651	1,684
14	Bank PSP	Frozen bank (BBKU)	1,939	334	334	1,605
15	Bank Surya	Frozen bank	1,654	101	101	1,553
16	BCD	Frozen bank (BBKU)	1,403	49	82	1,321
17	Bank Ficorinvest	Frozen bank (BBKU)	916	6	6	910
18	SEAB	Liquidated bank	899	-	-	899
19	Bank Subentra	Frozen bank	861	-	-	861
20	Bank Modern	Frozen bank	2,558	1,829	1,791	767
21	Bank Pinaesaan	Liquidated bank	681	-	-	681
22	Bank Sewu	Frozen bank (BBKU)	642	47	48	594
23	Bank Astria Raya	Liquidated bank	579	-	-	579
24	Bank Asia Pasific	Frozen bank (BBKU)	2,055	1,827	150	1,905
25	Bank Istismarat	Frozen bank	520	20	5	515
26	Bank Industri	Liquidated bank	511	-	-	511
27	Papan Sejahtera	Frozen bank (BBKU)	929	1,387	443	486
28	Bank Centris	Frozen bank	630	163	171	459
29	Dagang Industri	Frozen bank (BBKU)	482	33	33	449
30	Bank Intan	Frozen bank (BBKU)	402	222	15	387
31	Bank Umum Sertivia	Frozen bank (BBKU)	362	-	-	362
32	Mataram Dhanarta	Liquidated bank	337	-	-	337
33	Bank Dewa Rutji	Frozen bank (BBKU)	609	305	305	304
34	Bank Guna Inti	Liquidated bank	251	-	-	251
35	Bank Uppindo	Frozen bank (BBKU)	243	3	3	240
36	Bank Tata	Frozen bank (BBKU)	221	372	7	214
37	Bank Jakarta	Liquidated bank	211	-	-	211
38	Bank Anrico	Liquidated bank	210	-	-	210
39	Kosagrha Semesta Citrahasta	Liquidated bank	202	-	-	202
40	Manunggal	Liquidated bank	202	-	-	202
41	Bank Aken	Frozen bank (BBKU)	301	177	177	124
42	Bank Hokindo	Frozen bank	214	150	95	119
43	Bank Dwipa Semesta	Liquidated bank	110	-	-	110
44	Bank Danahutama	Frozen bank (BBKU)	185	192	94	91
45	Bank Lautan Berlian	Frozen bank (BBKU)	241	180	177	64
46	Bank Deka	Frozen bank	153	67	99	54
47	Bank Umum Majapahit	Liquidated bank	9	-	-	9
48	Bank Baja Inti	Frozen bank (BBKU)	36	202	65	(29)
	<b>Total</b>		<b>144,536</b>	<b>91,525</b>	<b>22,718</b>	<b>121,818</b>

Source: BI & HDB Hadori & Rekan (2002, 61)

### Appendix 3 Distribution of Government Obligations (Ex-Recapitalization Bond)

(in IDR million)

No	BANK's NAME	31 DEC 1999	31 DEC 2000	31 DEC 2001	31 DEC 2002	31 DEC 2003	31 DEC 2004	31 DEC 2005
1	Bank Ekspor Indonesia (Persero) Tbk	0	0	0	10,028	46,039	437,197	500,451
2	Bank Mandiri (Persero) Tbk	163,352,500	176,895,296	153,493,218	148,845,927	122,906,853	93,081,021	92,055,964
3	Bank Negara Indonesia (Persero)	52,561,243	62,463,750	60,644,983	53,181,617	43,861,750	38,277,440	36,948,207
4	Bank Rakyat Indonesia (Persero)	0	28,981,600	28,436,257	28,393,561	27,578,595	22,686,255	17,721,871
5	Bank Tabungan Negara (Persero) (BTN)	0	13,994,778	13,775,120	14,190,737	13,197,481	10,959,343	9,483,911
6	BPD - Bengkulu	4,941	4,941	4,941	4,941	4,941	0	0
7	BPD - Dt. Aceh	67,659	67,659	67,659	66,206	62,999	98,745	241,799
8	BPD - Dt. Yogyakarta	0	0	0	0	0	0	14,239
9	BPD - DKI Jakarta	0	172,695	172,695	186,479	0	0	0
10	BPD - Jawa Tengah	389,422	389,422	389,422	380,933	362,231	103,829	145,837
11	BPD - Jawa Timur	61,149	60,861	60,437	51,149	0	0	0
12	BPD - Kalimantan Barat	47,398	47,398	47,398	46,471	94,699	0	0
13	BPD - Kalimantan Selatan	0	0	0	0	0	95,740	215,398
14	BPD - Kalimantan Tengah	0	0	0	0	2,740	2,740	0
15	BPD - Kalimantan Timur	0	0	0	0	0	0	0
16	BPD - Lampung	0	217	11,269	11,197	11,043	0	0
17	BPD - Maluku	139,543	139,543	139,543	135,842	127,687	108,922	95,874
18	BPD - Nusa Tenggara Barat	14,554	14,554	14,554	14,539	0	0	0
19	BPD - Nusa Tenggara Timur	0	466	466	466	466	0	0
20	BPD - Sulawesi Utara	0	18,482	18,482	18,232	17,681	0	9,976
21	BPD - Sumatera Utara	0	302,871	302,871	296,029	280,956	19,960	80,563
22	Bank Artha Graha	0	285,691	1,228,436	513,834	398,457	499,050	240,908
23	Bank Buana Indonesia (BBI)	0	5,845	205,898	225,250	1,827,705	2,647,090	1,890,705
24	Bank Bukopin	379,277	367,359	367,274	449,995	109,898	255,264	130,056
25	Bank Bumi Putera	0	0	233,666	0	0	59,568	170,306
26	Bank Central Asia (BCA)	60,877,000	60,039,788	60,784,819	50,756,992	41,225,920	46,658,916	44,339,168
27	Bank Century	0	0	140,357	99,165	684,184	102,096	371,549
28	Bank Danamon Indonesia	19,598,350	47,025,433	27,768,254	15,639,724	21,233,696	17,324,189	14,102,005
29	Bank Ekonomi Rahardja	0	0	0	3,964	1,039,184	1,154,844	1,099,392
30	Bank Ganesha	0	0	0	0	0	0	34,021
31	Bank Haqa	0	0	0	0	37,910	41,876	47,983
32	Bank IFI	0	0	129,936	141,867	348,811	356,923	39,369
33	Bank Internasional Indonesia (BII)	6,627,576	6,462,166	19,868,480	23,508,774	17,187,524	11,880,976	11,823,051
34	Bank Kesawan	0	0	0	44,771	225,150	276,458	361,364
35	Bank Lippo	7,729,237	6,004,924	5,810,489	5,690,730	5,617,445	6,993,136	7,854,648
36	Bank Mayapada	0	0	0	0	0	10,328	12,227
37	Bank Mega	0	1,974,810	2,934,448	2,312,900	1,058,836	4,547,762	8,592,136
38	Bank Mestika	0	0	0	0	0	0	2,395
39	Bank Niaga	0	9,344,716	8,350,238	5,571,946	4,667,640	3,820,330	3,671,643
40	Bank NISP	0	0	0	0	2,281,898	1,819,547	1,966,191
41	Bank Nusantara Parahyangan	0	0	0	105,024	45,768	103,247	284,873
42	Bank Panin	0	1,818,996	11,585,489	1,881,626	4,002,109	6,845,041	11,410,494
43	Bank Permata	0	0	0	11,691,561	10,245,249	7,787,122	4,219,941
44	Bank Shinta	0	0	0	0	9,000	6,793	67,600
45	Bank Swadesi	0	0	0	0	0	0	5,005
46	Bank Windu Kentjana	0	0	0	0	0	0	50,626
47	Bank Agro	0	0	0	0	0	12,084	21,107
48	Bank Akita	0	0	0	0	0	14,968	13,102
49	Bank Bintang Manunggal	0	0	459	0	0	5,560	7,352
50	Bank Eksekutif Internasional	0	0	133,261	9,879	0	0	0
51	Bank Harda Internasional	0	0	19,109	19,591	9,890	11,749	44,457
52	Bank Himpunan Saudara 1906	0	0	0	0	0	0	32,279
53	Bank Ina Perdana	0	0	27,909	29,733	63,746	0	0



## Appendix 3 Continued

(in IDR million)

No	BANK's NAME	31 DEC 1999	31 DEC 2000	31 DEC 2001	31 DEC 2002	31 DEC 2003	31 DEC 2004	31 DEC 2005
54	Bank Indo Monex	0	0	0	0	3,790	1,950	2,000
55	Bank Jasa Arta	0	0	941	59,282	28,772	28,471	11,188
56	Bank Jasa Jakarta	0	0	0	0	47,663	114,439	186,369
57	Bank Kesejahteraan Ekonomi	0	0	0	0	0	0	9,550
58	Bank Mayora	0	0	0	0	0	21,530	26,166
59	Bank Mitraniaga	0	0	9,458	9,729	7,721	49,100	44,271
60	Bank Prima Master	0	0	0	0	0	0	2,993
61	Bank Victoria International	0	164,062	744,933	327,468	194,923	59,550	490,629
62	Bank Yudha Bhakti	0	0	152,373	4,761	19,109	89,222	121,996
63	China Trust Indonesia Bank	0	0	0	0	0	0	0
64	Commonwealth Bank	0	0	0	7,522	299,715	158,322	1,141,409
65	DBS Indonesia Bank	0	0	0	0	206,326	852,924	888,074
66	Finconesia Bank	0	0	0	0	0	0	0
67	Multicor Bank	0	0	0	0	136,699	9,840	0
68	OCBC – Indonesia	0	0	0	0	0	224,251	295,380
69	Rabobank International Indonesia Bank	0	0	0	0	0	20,070	44,116
70	Woori Indonesia Bank	0	0	0	115,714	166,941	165,371	333,900
71	ABN Amro Bank	0	0	350,000	503,424	984,587	3,305,508	1,804,214
72	Citibank	0	0	0	13,633	330,787	1,065,517	1,705,604
73	Deutsche Bank	0	98,377	608,277	3,032,245	7,381,041	3,860,877	5,027,354
74	Hongkong Shanghai Bank Corporation	0	0	53,463	282,357	1,145,784	541,891	1,984,517
75	JP Morgan Chase Bank	0	0	0	0	0	0	438,763
76	Standard Chartered Bank	0	76,343	43,741	860,736	2,154,408	2,536,899	2,337,350
	<b>GENERAL TOTAL</b>	311,849,849	417,223,043	399,131,023	369,748,551	333,984,447	292,211,841	287,315,886

Source: Financial Report various issued, collected by PT. Ekofin

#### Appendix 4 The MANOVA Procedures

The MANOVA tests are used to assess the overall difference in the performance of banks by the CAMEL ratio before and after capital injection. (It can also be used to assess differences in the performance of groups of banks. Unfortunately, it cannot be applied here because the number of banks in each group is below 20. This method is effective with more than 20 rows of items).

The basic processes in MANOVA are:

1. To test the MANOVA data's assumptions;
2. To test the difference between groups (Core of MANOVA); and
3. Output interpretation and result validation process.

Based on the CAMELS ratio data structure and the Wilcoxon Signed-Rank Test, the equation for all of banks can be expressed as:

$$Y = X_1 + X_2 + \dots + X_n \quad \text{..... Equation 1}$$

Alternatively, the equation for each group of banks can be expressed as:

$$Y_1 + Y_2 = X_1 + X_2 + \dots + X_n \quad \text{..... Equation 2}$$

Where Y is the independent variable and  $X_1$  until  $X_n$  are dependent variables (CAMEL ratio):

- $Y_1$  = before capital injection; and
- $Y_2$  = after capital injection;

To test the variance-covariance assumption from MANOVA

The test, used together with Box's M is:

Ho = All dependent variables have equal covariance matrices on the group (each group).

Ha = All dependent variables have different covariance matrices on the group (each group).

Decision criteria:

- If probability > 0.05, then Ho is accepted
- If probability < 0.05, then Ho is rejected

Individual tests, using the Levene test for equality of error variances (decision criteria same as with Box's M test), are carried out. If the variance-covariance assumption can be verified, then MANOVA analysis process can be continued.

For Output of Multivariate significance test by Pillai Trace, Wilk's Lambda, Hotelling Trace, and Roy's Largest Root procedure (the decision criteria are the same as above) the SPSS software is used.

Appendix 5 Results of Wilcoxon Signed-Rank Test for State-Owned Banks Before and After Capital Injection (with level of significance of  $\alpha = 0.10$ )

**1998 vs 2000**

No	Hyptheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Positive ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	0.000	*	1.000	Rejected
5	Ha5	ROE	0.000	*	1.000	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.826	Positive ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

\* The sum of negative ranks equals the sum of positive ranks

**1998 vs 2001**

No	Hyptheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Positive ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.730	Negative ranks	0.465	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.826	Positive ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1998 vs 2002**

No	Hyptheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Positive ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.730	Negative ranks	0.465	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.826	Positive ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1998 vs 2003**

No	Hyptheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Positive ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.730	Negative ranks	0.465	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.826	Positive ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1998 vs 2004**

No	Hyptheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Positive ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.730	Negative ranks	0.465	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.826	Positive ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1997 vs 2000**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-0.365	Positive ranks	0.715	Rejected
4	Ha4	ROA	-1.826	Positive ranks	0.068	Accepted
5	Ha5	ROE	-1.461	Positive ranks	0.144	Rejected
6	Ha6	NIM	-0.730	Positive ranks	0.405	Rejected
7	Ha7	CIR	-0.365	Positive ranks	0.715	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1997 vs 2001**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.095	Negative ranks	0.273	Rejected
4	Ha4	ROA	-0.365	Negative ranks	0.715	Rejected
5	Ha5	ROE	-0.365	Negative ranks	0.715	Rejected
6	Ha6	NIM	-0.730	Negative ranks	0.465	Rejected
7	Ha7	CIR	-0.365	Negative ranks	0.715	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1997 vs 2002**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.365	Negative ranks	0.715	Rejected
6	Ha6	NIM	-1.095	Negative ranks	0.273	Rejected
7	Ha7	CIR	-0.365	Positive ranks	0.715	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1997 vs 2003**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-0.730	Negative ranks	0.465	Rejected
4	Ha4	ROA	-1.461	Negative ranks	0.144	Rejected
5	Ha5	ROE	-0.365	Negative ranks	0.715	Rejected
6	Ha6	NIM	-1.461	Negative ranks	0.144	Rejected
7	Ha7	CIR	-0.730	Positive ranks	0.465	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1997 vs 2004**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.826	Negative ranks	0.068	Accepted
5	Ha5	ROE	-0.365	Negative ranks	0.715	Rejected
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-1.095	Positive ranks	0.273	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1996 vs 2000**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.461	Positive ranks	0.144	Rejected
4	Ha4	ROA	-1.826	Positive ranks	0.068	Accepted
5	Ha5	ROE	-0.730	Positive ranks	0.465	Rejected
6	Ha6	NIM	-1.095	Positive ranks	0.273	Rejected
7	Ha7	CIR	-0.730	Negative ranks	0.465	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1996 vs 2001**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-0.365	Negative ranks	0.715	Rejected
4	Ha4	ROA	-0.365	Negative ranks	0.715	Rejected
5	Ha5	ROE	-1.826	Negative ranks	0.068	Accepted
6	Ha6	NIM	-0.365	Negative ranks	0.715	Rejected
7	Ha7	CIR	-1.826	Negative ranks	0.068	Accepted
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1996 vs 2002**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.461	Negative ranks	0.144	Rejected
4	Ha4	ROA	-1.461	Negative ranks	0.144	Rejected
5	Ha5	ROE	-1.826	Negative ranks	0.068	Accepted
6	Ha6	NIM	-0.730	Negative ranks	0.465	Rejected
7	Ha7	CIR	-1.461	Negative ranks	0.144	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1996 vs 2003**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-0.730	Negative ranks	0.465	Rejected
4	Ha4	ROA	-0.730	Negative ranks	0.465	Rejected
5	Ha5	ROE	-1.473	Negative ranks	0.141	Rejected
6	Ha6	NIM	-1.461	Negative ranks	0.144	Rejected
7	Ha7	CIR	-1.461	Negative ranks	0.144	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

**1996 vs 2004**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.826	Negative ranks	0.068	Accepted
2	Ha2	P-NPL-exp to Loan	-1.826	Negative ranks	0.068	Accepted
3	Ha3	EBTDA	-1.826	Negative ranks	0.068	Accepted
4	Ha4	ROA	-1.461	Negative ranks	0.144	Rejected
5	Ha5	ROE	-1.826	Negative ranks	0.068	Accepted
6	Ha6	NIM	-1.826	Negative ranks	0.068	Accepted
7	Ha7	CIR	-0.730	Negative ranks	0.465	Rejected
8	Ha8	LDR	-1.626	Positive ranks	0.068	Accepted

Source: SPSS Output

## Appendix 6 Results of Wilcoxon Signed-Rank Test for Private Banks Before and After Capital Injection

### 1998 vs 2000

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Positive ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-0.676	Negative ranks	0.499	Rejected
5	Ha5	ROE	-2.197	Negative ranks	0.028	Accepted
6	Ha6	NIM	-2.197	Negative ranks	0.028	Accepted
7	Ha7	CIR	-2.366	Positive ranks	0.018	Accepted
8	Ha8	LDR	-1.183	Positive ranks	0.237	Rejected

Source: SPSS Output

### 1998 vs 2001

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.028	Negative ranks	0.043	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Positive ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-2.366	Negative ranks	0.018	Accepted
5	Ha5	ROE	-2.366	Positive ranks	0.018	Accepted
6	Ha6	NIM	-2.366	Negative ranks	0.018	Accepted
7	Ha7	CIR	-2.366	Positive ranks	0.018	Accepted
8	Ha8	LDR	-1.183	Positive ranks	0.237	Rejected

Source: SPSS Output

### 1998 vs 2002

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.197	Negative ranks	0.028	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Positive ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-2.366	Negative ranks	0.018	Accepted
5	Ha5	ROE	-2.366	Positive ranks	0.018	Accepted
6	Ha6	NIM	-2.197	Negative ranks	0.028	Accepted
7	Ha7	CIR	-2.366	Positive ranks	0.018	Accepted
8	Ha8	LDR	-1.183	Positive ranks	0.237	Rejected

Source: SPSS Output

### 1998 vs 2003

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.197	Negative ranks	0.028	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Positive ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-2.366	Negative ranks	0.018	Accepted
5	Ha5	ROE	-2.366	Positive ranks	0.018	Accepted
6	Ha6	NIM	-2.197	Negative ranks	0.028	Accepted
7	Ha7	CIR	-2.366	Positive ranks	0.018	Accepted
8	Ha8	LDR	-1.183	Positive ranks	0.237	Rejected

Source: SPSS Output

### 1998 vs 2004

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.197	Negative ranks	0.028	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Positive ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-2.366	Negative ranks	0.018	Accepted
5	Ha5	ROE	-2.366	Positive ranks	0.018	Accepted
6	Ha6	NIM	-2.197	Negative ranks	0.028	Accepted
7	Ha7	CIR	-2.366	Positive ranks	0.018	Accepted
8	Ha8	LDR	-1.183	Positive ranks	0.237	Rejected

Source: SPSS Output with  $\alpha = 0.05$

**1997 vs 2000**

No	Hypoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-1.859	Negative ranks	0.063	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-2.197	Positive ranks	0.028	Accepted
5	Ha5	ROE	0.000	*	1.000	Rejected
6	Ha6	NIM	-1.352	Positive ranks	0.176	Rejected
7	Ha7	CIR	-0.507	Positive ranks	0.612	Rejected
8	Ha8	LDR	-2.366	Positive ranks	0.018	Accepted

Source: SPSS Output

**1997 vs 2001**

No	Hypoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-0.645	Negative ranks	0.398	Rejected
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-1.014	Positive ranks	0.310	Rejected
4	Ha4	ROA	-1.352	Positive ranks	0.176	Rejected
5	Ha5	ROE	-0.169	Negative ranks	0.866	Rejected
6	Ha6	NIM	-0.507	Positive ranks	0.612	Rejected
7	Ha7	CIR	-1.859	Negative ranks	0.063	Accepted
8	Ha8	LDR	-2.366	Positive ranks	0.018	Accepted

Source: SPSS Output

**1997 vs 2002**

No	Hypoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.197	Negative ranks	0.028	Accepted
3	Ha3	EBTDA	-1.014	Positive ranks	0.310	Rejected
4	Ha4	ROA	-1.183	Positive ranks	0.237	Rejected
5	Ha5	ROE	-0.675	Positive ranks	0.499	Rejected
6	Ha6	NIM	-0.507	Positive ranks	0.612	Rejected
7	Ha7	CIR	-1.859	Negative ranks	0.063	Accepted
8	Ha8	LDR	-2.366	Positive ranks	0.018	Accepted

Source: SPSS Output

**1997 vs 2003**

No	Hypoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	0.000	*	1.000	Rejected
4	Ha4	ROA	0.000	*	1.000	Rejected
5	Ha5	ROE	-1.352	Negative ranks	0.176	Rejected
6	Ha6	NIM	-0.676	Negative ranks	0.499	Rejected
7	Ha7	CIR	-1.690	Negative ranks	0.091	Accepted
8	Ha8	LDR	-2.197	Positive ranks	0.028	Accepted

Source: SPSS Output

**1997 vs 2004**

No	Hypoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.197	Negative ranks	0.028	Accepted
3	Ha3	EBTDA	-1.183	Negative ranks	0.237	Rejected
4	Ha4	ROA	-2.366	Negative ranks	0.018	Accepted
5	Ha5	ROE	-2.366	Negative ranks	0.018	Accepted
6	Ha6	NIM	-1.183	Negative ranks	0.237	Rejected
7	Ha7	CIR	-0.845	Negative ranks	0.398	Rejected
8	Ha8	LDR	-2.197	Positive ranks	0.028	Accepted

Source: SPSS Output with  $\alpha = 0.05$ 

\* The sum of negative ranks equal the sum of positive ranks

## 1996 vs 2000

No	Hypthoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-2.028	Positive ranks	0.043	Accepted
4	Ha4	ROA	-2.197	Positive ranks	0.028	Accepted
5	Ha5	ROE	-1.183	Positive ranks	0.237	Rejected
6	Ha6	NIM	-1.014	Positive ranks	0.310	Rejected
7	Ha7	CIR	-1.014	Negative ranks	0.310	Rejected
8	Ha8	LDR	-2.366	Positive ranks	0.018	Accepted

Source: SPSS Output

## 1996 vs 2001

No	Hypthoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-0.845	Negative ranks	0.398	Rejected
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-1.014	Positive ranks	0.310	Rejected
4	Ha4	ROA	-1.521	Positive ranks	0.128	Rejected
5	Ha5	ROE	-0.169	Negative ranks	0.866	Rejected
6	Ha6	NIM	-0.169	Negative ranks	0.866	Rejected
7	Ha7	CIR	-2.028	Negative ranks	0.043	Accepted
8	Ha8	LDR	-2.366	Positive ranks	0.018	Accepted

Source: SPSS Output

## 1996 vs 2002

No	Hypthoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-1.014	Negative ranks	0.310	Rejected
4	Ha4	ROA	-1.185	Positive ranks	0.236	Rejected
5	Ha5	ROE	-0.845	Positive ranks	0.398	Rejected
6	Ha6	NIM	-0.338	Positive ranks	0.735	Rejected
7	Ha7	CIR	-1.859	Negative ranks	0.063	Accepted
8	Ha8	LDR	-2.197	Positive ranks	0.280	Rejected

Source: SPSS Output

## 1996 vs 2003

No	Hypthoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.366	Negative ranks	0.018	Accepted
3	Ha3	EBTDA	-0.507	Negative ranks	0.612	Rejected
4	Ha4	ROA	-1.183	Positive ranks	0.237	Rejected
5	Ha5	ROE	-1.014	Negative ranks	0.310	Rejected
6	Ha6	NIM	-0.507	Negative ranks	0.612	Rejected
7	Ha7	CIR	-2.028	Negative ranks	0.043	Accepted
8	Ha8	LDR	-2.028	Positive ranks	0.043	Accepted

Source: SPSS Output

## 1996 vs 2004

No	Hypthoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.366	Negative ranks	0.018	Accepted
2	Ha2	P-NPL-exp to Loan	-2.197	Negative ranks	0.028	Accepted
3	Ha3	EBTDA	-2.366	Negative ranks	0.018	Accepted
4	Ha4	ROA	-1.521	Negative ranks	0.128	Rejected
5	Ha5	ROE	-2.366	Negative ranks	0.018	Accepted
6	Ha6	NIM	-1.014	Negative ranks	0.310	Rejected
7	Ha7	CIR	-1.352	Negative ranks	0.176	Rejected
8	Ha8	LDR	-1.859	Positive ranks	0.063	Accepted

Source: SPSS Output with  $\alpha = 0.05$



Appendix 7 Results of Wilcoxon Signed-Rank Test for Regional Dev. Banks Before and After Capital Injection

**1998 vs 2000**

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	0.000	*	1.000	Rejected
3	Ha3	EBTDA	-1.883	Negative ranks	0.060	Accepted
4	Ha4	ROA	-1.098	Positive ranks	0.272	Rejected
5	Ha5	ROE	-0.157	Negative ranks	0.875	Rejected
6	Ha6	NIM	-2.432	Negative ranks	0.015	Accepted
7	Ha7	CIR	-1.353	Positive ranks	0.019	Accepted
8	Ha8	LDR	-1.334	Positive ranks	0.182	Rejected

Source: SPSS Output

\* The sum of negative ranks equals the sum of positive ranks

**1998 vs 2001**

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-1.334	Positive ranks	0.182	Rejected
3	Ha3	EBTDA	-3.059	Negative ranks	0.002	Accepted
4	Ha4	ROA	-2.825	Negative ranks	0.005	Accepted
5	Ha5	ROE	-2.667	Negative ranks	0.008	Accepted
6	Ha6	NIM	-2.040	Negative ranks	0.041	Accepted
7	Ha7	CIR	-2.824	Positive ranks	0.005	Accepted
8	Ha8	LDR	-2.589	Positive ranks	0.010	Accepted

Source: SPSS Output

**1998 vs 2002**

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-2.197	Positive ranks	0.028	Accepted
3	Ha3	EBTDA	-3.059	Negative ranks	0.002	Accepted
4	Ha4	ROA	-2.981	Negative ranks	0.003	Accepted
5	Ha5	ROE	-2.746	Negative ranks	0.006	Accepted
6	Ha6	NIM	-2.353	Negative ranks	0.019	Accepted
7	Ha7	CIR	-2.589	Positive ranks	0.010	Accepted
8	Ha8	LDR	-2.353	Positive ranks	0.019	Accepted

Source: SPSS Output

**1998 vs 2003**

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-2.667	Positive ranks	0.008	Accepted
3	Ha3	EBTDA	-3.059	Negative ranks	0.002	Accepted
4	Ha4	ROA	-2.981	Negative ranks	0.003	Accepted
5	Ha5	ROE	-2.981	Negative ranks	0.003	Accepted
6	Ha6	NIM	-2.588	Negative ranks	0.010	Accepted
7	Ha7	CIR	-2.432	Positive ranks	0.015	Accepted
8	Ha8	LDR	-1.490	Positive ranks	0.136	Rejected

Source: SPSS Output

**1998 vs 2004**

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-2.589	Positive ranks	0.100	Rejected
3	Ha3	EBTDA	-3.059	Negative ranks	0.002	Accepted
4	Ha4	ROA	-2.981	Negative ranks	0.003	Accepted
5	Ha5	ROE	-2.824	Negative ranks	0.005	Accepted
6	Ha6	NIM	-2.667	Negative ranks	0.008	Accepted
7	Ha7	CIR	-1.334	Positive ranks	0.182	Rejected
8	Ha8	LDR	-0.706	Positive ranks	0.480	Rejected

Source: SPSS Output with  $\alpha = 0.05$

## 1997 vs 2000

No	Hypotesees	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.589	Negative ranks	0.010	Accepted
2	Ha2	P-NPL-exp to Loan	-1.412	Negative ranks	0.158	Rejected
3	Ha3	EBTDA	-0.549	Negative ranks	0.583	Rejected
4	Ha4	ROA	-2.197	Positive ranks	0.028	Accepted
5	Ha5	ROE	-0.784	Negative ranks	0.433	Rejected
6	Ha6	NIM	-2.589	Negative ranks	0.010	Accepted
7	Ha7	CIR	-0.471	Positive ranks	0.638	Rejected
8	Ha8	LDR	-2.589	Positive ranks	0.010	Accepted

Source: SPSS Output

## 1997 vs 2001

No	Hypotesees	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.061	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-0.432	Negative ranks	0.666	Rejected
3	Ha3	EBTDA	-2.904	Negative ranks	0.004	Accepted
4	Ha4	ROA	-1.883	Negative ranks	0.060	Accepted
5	Ha5	ROE	-2.981	Negative ranks	0.003	Accepted
6	Ha6	NIM	-2.981	Negative ranks	0.003	Accepted
7	Ha7	CIR	-2.432	Positive ranks	0.015	Accepted
8	Ha8	LDR	-3.059	Positive ranks	0.002	Accepted

Source: SPSS Output

## 1997 vs 2002

No	Hypotesees	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-0.889	Positive ranks	0.375	Rejected
3	Ha3	EBTDA	-2.903	Negative ranks	0.004	Accepted
4	Ha4	ROA	-2.589	Negative ranks	0.010	Accepted
5	Ha5	ROE	-2.197	Negative ranks	0.028	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	-2.118	Positive ranks	0.034	Accepted
8	Ha8	LDR	-3.059	Positive ranks	0.002	Accepted

Source: SPSS Output

## 1997 vs 2003

No	Hypotesees	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-1.177	Positive ranks	0.239	Rejected
3	Ha3	EBTDA	-2.981	Negative ranks	0.003	Accepted
4	Ha4	ROA	-2.746	Negative ranks	0.006	Accepted
5	Ha5	ROE	-2.197	Negative ranks	0.028	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	-2.040	Positive ranks	0.041	Accepted
8	Ha8	LDR	-2.981	Positive ranks	0.003	Accepted

Source: SPSS Output

## 1997 vs 2004

No	Hypotesees	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-1.098	Positive ranks	0.272	Rejected
3	Ha3	EBTDA	-3.061	Negative ranks	0.002	Accepted
4	Ha4	ROA	-3.059	Negative ranks	0.002	Accepted
5	Ha5	ROE	-2.118	Negative ranks	0.034	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	0.098	Negative ranks	0.272	Rejected
8	Ha8	LDR	-2.510	Positive ranks	0.012	Accepted

Source: SPSS Output with  $\alpha = 0.05$

## 1996 vs 2000

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-2.589	Negative ranks	0.010	Accepted
2	Ha2	P-NPL-exp to Loan	-1.569	Negative ranks	0.117	Rejected
3	Ha3	EBTDA	-0.235	Negative ranks	0.814	Rejected
4	Ha4	ROA	-2.275	Positive ranks	0.230	Rejected
5	Ha5	ROE	-0.471	Negative ranks	0.638	Rejected
6	Ha6	NIM	-2.589	Negative ranks	0.010	Accepted
7	Ha7	CIR	-0.392	Positive ranks	0.695	Rejected
8	Ha8	LDR	-2.353	Positive ranks	0.019	Accepted

Source: SPSS Output

## 1996 vs 2001

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-1.098	Negative ranks	0.272	Rejected
3	Ha3	EBTDA	-2.510	Negative ranks	0.012	Accepted
4	Ha4	ROA	-2.197	Negative ranks	0.028	Accepted
5	Ha5	ROE	-2.981	Negative ranks	0.003	Accepted
6	Ha6	NIM	-2.981	Negative ranks	0.003	Accepted
7	Ha7	CIR	-1.961	Positive ranks	0.050	Accepted
8	Ha8	LDR	-3.059	Positive ranks	0.002	Accepted

Source: SPSS Output

## 1996 vs 2002

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-0.706	Positive ranks	0.480	Rejected
3	Ha3	EBTDA	-2.589	Negative ranks	0.010	Accepted
4	Ha4	ROA	-2.589	Negative ranks	0.010	Accepted
5	Ha5	ROE	-2.903	Negative ranks	0.004	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	-1.177	Positive ranks	0.239	Rejected
8	Ha8	LDR	-3.059	Positive ranks	0.002	Accepted

Source: SPSS Output

## 1996 vs 2003

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-1.098	Positive ranks	0.272	Rejected
3	Ha3	EBTDA	-2.589	Negative ranks	0.010	Accepted
4	Ha4	ROA	-2.353	Negative ranks	0.190	Rejected
5	Ha5	ROE	-3.059	Negative ranks	0.002	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	-0.784	Positive ranks	0.433	Rejected
8	Ha8	LDR	-2.981	Positive ranks	0.003	Accepted

Source: SPSS Output

## 1996 vs 2004

No	Hypotheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.059	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-0.549	Positive ranks	0.583	Rejected
3	Ha3	EBTDA	-2.824	Negative ranks	0.005	Accepted
4	Ha4	ROA	-2.824	Negative ranks	0.005	Accepted
5	Ha5	ROE	-2.981	Negative ranks	0.003	Accepted
6	Ha6	NIM	-3.059	Negative ranks	0.002	Accepted
7	Ha7	CIR	-2.040	Negative ranks	0.041	Accepted
8	Ha8	LDR	-2.197	Positive ranks	0.028	Accepted

Source: SPSS Output with  $\alpha = 0.05$

## Appendix 8 The Wilcoxon Signed-Rank Test for All Banks Before and After Capital Injection

### 1998 vs 2000

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-2.889	Positive ranks	0.240	Rejected
3	Ha3	EBTDA	-3.741	Negative ranks	0.000	Accepted
4	Ha4	ROA	0.000	*	1.000	Rejected
5	Ha5	ROE	-0.882	Positive ranks	0.378	Rejected
6	Ha6	NIM	-3.802	Negative ranks	0.000	Accepted
7	Ha7	CIR	-3.771	Positive ranks	0.000	Accepted
8	Ha8	LDR	-2.646	Positive ranks	0.008	Accepted

Source: SPSS Output with  $\alpha = 0.05$

### 1998 vs 2001

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.893	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-3.528	Positive ranks	0.000	Accepted
3	Ha3	EBTDA	-4.197	Negative ranks	0.000	Accepted
4	Ha4	ROA	-4.136	Negative ranks	0.000	Accepted
5	Ha5	ROE	-0.122	Positive ranks	0.003	Accepted
6	Ha6	NIM	-3.680	Negative ranks	0.000	Accepted
7	Ha7	CIR	-4.106	Positive ranks	0.000	Accepted
8	Ha8	LDR	-3.315	Positive ranks	0.001	Accepted

Source: SPSS Output with  $\alpha = 0.05$

### 1998 vs 2002

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.136	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-3.863	Positive ranks	0.000	Accepted
3	Ha3	EBTDA	-4.197	Negative ranks	0.000	Accepted
4	Ha4	ROA	-4.167	Negative ranks	0.000	Accepted
5	Ha5	ROE	-0.122	Positive ranks	0.903	Rejected
6	Ha6	NIM	-3.771	Negative ranks	0.000	Accepted
7	Ha7	CIR	-4.015	Positive ranks	0.000	Accepted
8	Ha8	LDR	-3.224	Positive ranks	0.001	Accepted

Source: SPSS Output with  $\alpha = 0.05$

### 1998 vs 2003

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.136	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-4.045	Positive ranks	0.000	Accepted
3	Ha3	EBTDA	-4.197	Negative ranks	0.000	Accepted
4	Ha4	ROA	-4.136	Negative ranks	0.000	Accepted
5	Ha5	ROE	-0.091	Positive ranks	0.927	Rejected
6	Ha6	NIM	-3.893	Negative ranks	0.000	Accepted
7	Ha7	CIR	-3.954	Positive ranks	0.000	Accepted
8	Ha8	LDR	-2.798	Positive ranks	0.005	Accepted

Source: SPSS Output with  $\alpha = 0.05$

### 1998 vs 2004

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.106	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-4.015	Positive ranks	0.000	Accepted
3	Ha3	EBTDA	-4.197	Negative ranks	0.000	Accepted
4	Ha4	ROA	-4.197	Negative ranks	0.000	Accepted
5	Ha5	ROE	0.000	*	1.000	Rejected
6	Ha6	NIM	-3.954	Negative ranks	0.000	Accepted
7	Ha7	CIR	-3.528	Positive ranks	0.000	Accepted
8	Ha8	LDR	-2.312	Positive ranks	0.021	Accepted

Source: SPSS Output with  $\alpha = 0.05$

\* The sum of negative ranks equals the sum of positive ranks

Appendix 8 Continued

**1997 vs 2000**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.741	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-3.376	Negative ranks	0.001	Accepted
3	Ha3	EBTDA	-0.943	Positive ranks	0.346	Rejected
4	Ha4	ROA	-3.610	Positive ranks	0.000	Accepted
5	Ha5	ROE	-0.456	Positive ranks	0.648	Rejected
6	Ha6	NIM	-1.217	Negative ranks	0.224	Rejected
7	Ha7	CIR	-0.913	Positive ranks	0.362	Rejected
8	Ha8	LDR	-3.984	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$

**1997 vs 2001**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.133	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-3.026	Negative ranks	0.002	Accepted
3	Ha3	EBTDA	-7.764	Negative ranks	0.078	Accepted
4	Ha4	ROA	-1.004	Negative ranks	0.316	Rejected
5	Ha5	ROE	-1.886	Negative ranks	0.059	Accepted
6	Ha6	NIM	-2.555	Negative ranks	0.011	Accepted
7	Ha7	CIR	-0.517	Positive ranks	0.605	Rejected
8	Ha8	LDR	-3.984	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$

**1997 vs 2002**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Rejected
2	Ha2	P-NPL-exp to Loan	-2.094	Negative ranks	0.036	Rejected
3	Ha3	EBTDA	-2.190	Negative ranks	0.290	Accepted
4	Ha4	ROA	-1.886	Negative ranks	0.590	Accepted
5	Ha5	ROE	-1.642	Negative ranks	0.101	Accepted
6	Ha6	NIM	-2.829	Negative ranks	0.005	Rejected
7	Ha7	CIR	-0.122	Positive ranks	0.903	Accepted
8	Ha8	LDR	-4.197	Positive ranks	0.000	Rejected

Source: SPSS Output with  $\alpha = 0.05$

**1997 vs 2003**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-2.190	Negative ranks	0.029	Accepted
3	Ha3	EBTDA	-2.737	Negative ranks	0.006	Accepted
4	Ha4	ROA	-2.616	Negative ranks	0.009	Accepted
5	Ha5	ROE	-2.798	Negative ranks	0.005	Accepted
6	Ha6	NIM	-3.315	Negative ranks	0.001	Accepted
7	Ha7	CIR	-0.563	Positive ranks	0.574	Rejected
8	Ha8	LDR	-4.076	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$

**1997 vs 2004**

No	Hypoheses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-1.551	Negative ranks	0.121	Rejected
3	Ha3	EBTDA	-3.498	Negative ranks	0.000	Accepted
4	Ha4	ROA	-4.197	Negative ranks	0.000	Accepted
5	Ha5	ROE	-3.406	Negative ranks	0.001	Accepted
6	Ha6	NIM	-3.589	Negative ranks	0.000	Accepted
7	Ha7	CIR	-0.852	Positive ranks	0.394	Rejected
8	Ha8	LDR	-3.893	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$

**1996 vs 2000**

No	Hyphoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.863	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-3.437	Negative ranks	0.001	Accepted
3	Ha3	EBTDA	-1.490	Positive ranks	0.136	Rejected
4	Ha4	ROA	-3.680	Positive ranks	0.000	Accepted
5	Ha5	ROE	-0.730	Positive ranks	0.465	Rejected
6	Ha6	NIM	-1.125	Negative ranks	0.260	Rejected
7	Ha7	CIR	-0.669	Negative ranks	0.503	Rejected
8	Ha8	LDR	-3.832	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$ **1996 vs 2001**

No	Hyphoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-3.163	Negative ranks	0.002	Accepted
2	Ha2	P-NPL-exp to Loan	-3.376	Negative ranks	0.001	Accepted
3	Ha3	EBTDA	-1.399	Negative ranks	0.162	Rejected
4	Ha4	ROA	-0.608	Negative ranks	0.543	Rejected
5	Ha5	ROE	-2.737	Negative ranks	0.006	Accepted
6	Ha6	NIM	-2.433	Negative ranks	0.015	Accepted
7	Ha7	CIR	-0.730	Negative ranks	0.465	Rejected
8	Ha8	LDR	-4.197	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$ **1996 vs 2002**

No	Hyphoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-2.433	Negative ranks	0.015	Accepted
3	Ha3	EBTDA	-2.038	Negative ranks	0.042	Accepted
4	Ha4	ROA	-1.612	Negative ranks	0.107	Rejected
5	Ha5	ROE	-2.190	Negative ranks	0.029	Accepted
6	Ha6	NIM	-2.737	Negative ranks	0.006	Accepted
7	Ha7	CIR	-1.247	Negative ranks	0.212	Rejected
8	Ha8	LDR	-4.167	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$ **1996 vs 2003**

No	Hyphoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-2.464	Negative ranks	0.014	Accepted
3	Ha3	EBTDA	-2.494	Negative ranks	0.130	Rejected
4	Ha4	ROA	-1.582	Negative ranks	0.114	Rejected
5	Ha5	ROE	-3.315	Negative ranks	0.001	Accepted
6	Ha6	NIM	-3.376	Negative ranks	0.001	Accepted
7	Ha7	CIR	-1.490	Negative ranks	0.136	Rejected
8	Ha8	LDR	-3.893	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$ **1996 vs 2004**

No	Hyphoteses	CAMEL Variables	Z count	The sum based on	Asym sig.	Decision
1	Ha1	CAR	-4.197	Negative ranks	0.000	Accepted
2	Ha2	P-NPL-exp to Loan	-2.129	Negative ranks	0.033	Accepted
3	Ha3	EBTDA	-4.000	Negative ranks	0.000	Accepted
4	Ha4	ROA	-3.635	Negative ranks	0.000	Accepted
5	Ha5	ROE	-4.167	Negative ranks	0.000	Accepted
6	Ha6	NIM	-3.589	Negative ranks	0.000	Accepted
7	Ha7	CIR	-2.585	Negative ranks	0.010	Accepted
8	Ha8	LDR	-3.498	Positive ranks	0.000	Accepted

Source: SPSS Output with  $\alpha = 0.05$

## Appendix 9 MANOVA Tests for All Recapitalized Banks

### 1998 versus 2000

#### Box's Test of Equality of Covariance Matrices<sup>a</sup>

Box's M	305.046
F	6.811
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

#### Multivariate Tests<sup>b</sup>

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.913	48.454 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.087	48.454 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	10.476	48.454 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	10.476	48.454 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.561	5.905 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.439	5.905 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	1.277	5.905 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	1.277	5.905 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

#### Levene's Test of Equality of Error Variances<sup>a</sup>

	F	df 1	df 2	Sig.
CAR	18.365	1	44	.000
PNPL	41.502	1	44	.000
EBTDA	42.749	1	44	.000
ROA	1.291	1	44	.262
ROE	2.286	1	44	.138
NIM	11.533	1	44	.001
CIR	20.530	1	44	.000
LDR	7.423	1	44	.009

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1998 versus 2000

1998 versus 2001

**Box's Test of Equality of Covariance Matrices**

Box's M	485.948
F	10.850
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.922	54.858 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.078	54.858 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	11.861	54.858 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	11.861	54.858 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.491	4.465 <sup>a</sup>	8.000	37.000	.001
	Wilks' Lambda	.509	4.465 <sup>a</sup>	8.000	37.000	.001
	Hotelling's Trace	.965	4.465 <sup>a</sup>	8.000	37.000	.001
	Roy's Largest Root	.965	4.465 <sup>a</sup>	8.000	37.000	.001

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df 1	df 2	Sig.
CAR	13.951	1	44	.001
PNPL	49.868	1	44	.000
EBTDA	44.373	1	44	.000
ROA	38.593	1	44	.000
ROE	2.525	1	44	.119
NIM	16.880	1	44	.000
CIR	18.956	1	44	.000
LDR	9.040	1	44	.004

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1998 versus 2001



1998 versus 2002

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	499.796
F	11.160
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.923	55.618 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.077	55.618 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	12.025	55.618 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	12.025	55.618 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.596	6.822 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.404	6.822 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	1.475	6.822 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	1.475	6.822 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	29.618	1	44	.000
PNPL	77.450	1	44	.000
EBTDA	45.859	1	44	.000
ROA	39.927	1	44	.000
ROE	8.651	1	44	.005
NIM	9.776	1	44	.003
CIR	20.070	1	44	.000
LDR	8.960	1	44	.005

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1998 versus 2002

1998 versus 2003

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	534.086
F	11.925
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multi variate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.928	60.041 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.072	60.041 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	12.982	60.041 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	12.982	60.041 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.606	7.121 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.394	7.121 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	1.540	7.121 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	1.540	7.121 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	32.218	1	44	.000
PNPL	78.134	1	44	.000
EBTDA	46.352	1	44	.000
ROA	40.830	1	44	.000
ROE	10.549	1	44	.002
NIM	11.691	1	44	.001
CIR	23.175	1	44	.000
LDR	8.407	1	44	.006

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1998 versus 2003

1998 versus 2004

**Box's Test of Equality of Covariance Matrices**

Box's M	545.711
F	12.185
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>a</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.931	61.999 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.069	61.999 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	13.405	61.999 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	13.405	61.999 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.606	7.105 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.394	7.105 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	1.536	7.105 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	1.536	7.105 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df 1	df 2	Sig.
CAR	33.463	1	44	.000
PNPL	95.400	1	44	.000
EBTDA	46.739	1	44	.000
ROA	41.311	1	44	.000
ROE	11.245	1	44	.002
NIM	13.559	1	44	.001
CIR	24.563	1	44	.000
LDR	8.233	1	44	.006

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1998 versus 2004

1997 versus 2000

**Box's Test of Equality of Covariance Matrices**

Box's M	339.700
F	7.585
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.  
 a. Design: Intercept+CAMEL

**Multi variate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.985	294.531 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.015	294.531 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	63.682	294.531 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	63.682	294.531 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.646	8.439 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.354	8.439 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	1.825	8.439 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	1.825	8.439 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic  
 b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df 1	df 2	Sig.
CAR	17.400	1	44	.000
PNPL	24.219	1	44	.000
EBTDA	2.757	1	44	.104
ROA	82.006	1	44	.000
ROE	7.229	1	44	.010
NIM	6.055	1	44	.018
CIR	3.744	1	44	.059
LDR	1.538	1	44	.222

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.  
 a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1997 versus 2000

1997 versus 2001

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	359.017
F	8.016
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.991	494.461 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.009	494.461 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	106.911	494.461 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	106.911	494.461 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.689	10.229 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.311	10.229 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	2.212	10.229 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	2.212	10.229 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	6.632	1	44	.013
PNPL	7.998	1	44	.007
EBTDA	1.615	1	44	.210
ROA	1.853	1	44	.180
ROE	5.204	1	44	.027
NIM	3.929	1	44	.054
CIR	11.160	1	44	.002
LDR	3.876	1	44	.055

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1997 versus 2002

1997 versus 2002

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	198.088
F	4.423
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.991	502.857 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.009	502.857 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	108.726	502.857 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	108.726	502.857 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.716	11.660 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.284	11.660 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	2.521	11.660 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	2.521	11.660 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	26.739	1	44	.000
PNPL	18.890	1	44	.000
EBTDA	1.166	1	44	.286
ROA	1.484	1	44	.230
ROE	1.431	1	44	.238
NIM	6.735	1	44	.013
CIR	9.557	1	44	.003
LDR	3.728	1	44	.060

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1997 versus 2002

1997 versus 2003

**Box's Test of Equality of Covariance Matrices**

Box's M	190.775
F	4.260
df1	36
df2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.993	642.343 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.007	642.343 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	138.885	642.343 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	138.885	642.343 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.739	13.126 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.261	13.126 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	2.838	13.126 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	2.838	13.126 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df1	df2	Sig.
CAR	17.136	1	44	.000
PNPL	20.528	1	44	.000
EBTDA	.587	1	44	.448
ROA	.596	1	44	.444
ROE	.010	1	44	.921
NIM	12.323	1	44	.001
CIR	4.749	1	44	.035
LDR	2.844	1	44	.099

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1997 versus 2003

1997 versus 2004

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	168.879
F	3.771
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.989	407.716 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.011	407.716 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	88.155	407.716 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	88.155	407.716 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.762	14.799 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.238	14.799 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	3.200	14.799 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	3.200	14.799 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	14.891	1	44	.000
PNPL	10.024	1	44	.003
EBTDA	.206	1	44	.652
ROA	.164	1	44	.687
ROE	.298	1	44	.588
NIM	9.018	1	44	.004
CIR	1.477	1	44	.231
LDR	2.606	1	44	.114

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1997 versus 2004



1996 versus 2000

**Box's Test of Equality of Covariance Matrices**

Box's M	377.308
F	8.425
df1	36
df2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.982	256.637 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.018	256.637 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	55.489	256.637 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	55.489	256.637 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.696	10.605 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.304	10.605 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	2.293	10.605 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	2.293	10.605 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df 1	df 2	Sig.
CAR	15.755	1	44	.000
PNPL	25.490	1	44	.000
EBTDA	5.477	1	44	.024
ROA	84.178	1	44	.000
ROE	10.378	1	44	.002
NIM	6.252	1	44	.016
CIR	2.868	1	44	.097
LDR	.402	1	44	.529

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1996 versus 2000

1996 versus 2001

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	385.802
F	8.614
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.989	425.605 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.011	425.605 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	92.023	425.605 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	92.023	425.605 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.780	16.403 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.220	16.403 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	3.547	16.403 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	3.547	16.403 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	6.097	1	44	.017
PNPL	8.608	1	44	.005
EBTDA	4.465	1	44	.040
ROA	3.205	1	44	.080
ROE	5.441	1	44	.024
NIM	4.127	1	44	.048
CIR	9.088	1	44	.004
LDR	1.129	1	44	.294

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1996 versus 2001

1996 versus 2002

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	178.828
F	3.993
df1	36
df2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.989	415.223 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.011	415.223 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	89.778	415.223 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	89.778	415.223 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.771	15.574 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.229	15.574 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	3.367	15.574 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	3.367	15.574 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	20.929	1	44	.000
PNPL	21.442	1	44	.000
EBTDA	8.671	1	44	.005
ROA	3.769	1	44	.059
ROE	7.841	1	44	.008
NIM	6.932	1	44	.012
CIR	7.517	1	44	.009
LDR	.911	1	44	.345

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1996 versus 2002

1996 versus 2003

**Box's Test of Equality of Covariance Matrices**

Box's M	147.334
F	3.290
df1	36
df2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept+CAMEL

**Multivariate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.990	466.262 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.010	466.262 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	100.813	466.262 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	100.813	466.262 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.813	20.106 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.187	20.106 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	4.347	20.106 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	4.347	20.106 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic

b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances<sup>a</sup>**

	F	df 1	df 2	Sig.
CAR	12.813	1	44	.001
PNPL	23.372	1	44	.000
EBTDA	8.250	1	44	.006
ROA	2.885	1	44	.096
ROE	9.614	1	44	.003
NIM	12.422	1	44	.001
CIR	3.090	1	44	.086
LDR	.121	1	44	.730

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1996 versus 2003

1996 versus 2004

**Box's Test of Equality of Covariance Matrices**

Box's M	116.235
F	2.595
df 1	36
df 2	6514.357
Sig.	.000

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.  
a. Design: Intercept+CAMEL

**Multi variate Tests<sup>b</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.988	392.852 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.012	392.852 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	84.941	392.852 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	84.941	392.852 <sup>a</sup>	8.000	37.000	.000
CAMEL	Pillai's Trace	.791	17.489 <sup>a</sup>	8.000	37.000	.000
	Wilks' Lambda	.209	17.489 <sup>a</sup>	8.000	37.000	.000
	Hotelling's Trace	3.781	17.489 <sup>a</sup>	8.000	37.000	.000
	Roy's Largest Root	3.781	17.489 <sup>a</sup>	8.000	37.000	.000

a. Exact statistic  
b. Design: Intercept+CAMEL

**Levene's Test of Equality of Error Variances**

	F	df 1	df 2	Sig.
CAR	10.724	1	44	.002
PNPL	13.570	1	44	.001
EBTDA	6.455	1	44	.015
ROA	1.913	1	44	.174
ROE	4.531	1	44	.039
NIM	9.169	1	44	.004
CIR	.733	1	44	.397
LDR	.020	1	44	.887

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.  
a. Design: Intercept+CAMEL

Source: SPSS file Output Manova Before-After Cap Injection 1996 versus 2004



Appendix 10 (Continued)

Variable	Manufacture Sector						Electricity, Water and Gas Sector						Construction Sector					
	Common		Dummies		Fixed Effect		Common		Dummies		Fixed Effect		Common		Dummies		Fixed Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.637620	0.0589	0.724021	0.0641			386.03440	0.4562	209.5632	0.7112			0.231076	0.4371	0.372770	0.2776		
OPROFIT?(-1)	0.010797	0.1374	0.011354	0.1415	0.011354	0.1415	18.005470	0.1438	23.78958	0.0661	23.78958	0.0661	0.011476	0.0791	0.009434	0.1688	0.009434	0.1688
GDPGRGDP?(-1)	-0.004037	0.1291	-0.004025	0.1364	-0.004025	0.1364	-3.057214	0.4935	-2.810710	0.5275	-2.81071	0.5275	-0.006412	0.0086	-0.006478	0.0087	-0.006478	0.0087
INFLATION?(-1)	-0.001658	0.7500	-0.000738	0.8944	-0.000738	0.8944	3.896350	0.4673	3.249631	0.5570	3.249631	0.557	-0.004888	0.2967	-0.003677	0.4583	-0.003677	0.4583
INTEREST?(-1)	-0.027343	0.1651	-0.036641	0.1701	-0.036641	0.1701	-43.861110	0.1816	-29.14225	0.4936	-29.14225	0.4936	-0.007067	0.6858	-0.019339	0.4123	-0.019339	0.4123
EXCHANGE?(-1)	-0.000044	0.4392	-0.000046	0.4264	-0.000046	0.4264	0.084026	0.2466	0.093705	0.1990	0.093705	0.199	-0.000007	0.8921	-0.000016	0.7516	-0.000016	0.7516
CAPITAL?(-1)	0.000000	0.9264	-0.000001	0.8220	-0.000001	0.8220	-0.004542	0.3124	-0.005938	0.2007	-0.005938	0.2007	0.000006	0.0184	0.000006	0.0151	0.000006	0.0151
D99?	0.201253	0.6031	0.220034	0.5819	0.220034	0.5819	-543.97010	0.2817	-618.71150	0.2225	-618.7115	0.2225	-0.058109	0.8666	0.006806	0.9847	0.006806	0.9847
DUMPRIVATE?			0.107681	0.4525					89.186170	0.7054					0.026522	0.8347		
DUMREGIONAL?			0.064144	0.7008					-242.1257	0.3742					0.140020	0.3476		
<b>Fixed Effects (Cross)</b>																		
_STATEOWNED--C					0.724020						209.56318						0.372770	
_PRIVATE--C					0.831701						298.7494						0.399292	
_REGIONAL--C					0.788165						-32.5626						0.512790	
					<b>Effects Specification</b>						<b>Effects Specification</b>							
					Cross-section fixed (dummy variables)						Cross-section fixed (dummy variables)							
R-squared	0.393533		0.401452		0.401452		0.099364		0.144872		0.144872		0.65812		0.666980		0.666980	
Adjusted R-squared	0.303208		0.281743		0.281743		-0.034773		-0.026153		-0.026153		0.607202		0.600376		0.600376	
S.E. of regression	0.357396		0.362859		0.362859		604.9896		602.4645		602.4645		0.319901		0.322668		0.322668	
Sum squared resid	6.003403		5.925011		5.925011		17202583		16333357		16333357		4.809817		4.685172		4.685172	
Log likelihood	-17.12893		-16.76748		-16.76748		-426.0056		-424.5798		-424.5798		-11.03308		-10.311030		-10.31103	
Durbin-Watson stat	2.620002		2.656251		2.656251		2.435109		2.5718		2.5718		2.666457		2.762378		2.762378	
Mean dependent var	-0.044456		-0.044456		-0.044456		-80.29773		-80.29773		-80.29773		-0.066315		-0.066315		-0.066315	
S.D. dependent var	0.428152		0.428152		0.428152		594.7376		594.7376		594.7376		0.510424		0.510424		0.510424	
Akaike info criterion	0.913779		0.973363		0.973363		15.782020		15.8029		15.8029		0.692112		0.738583		0.738583	
Schwarz criterion	1.205755		1.338332		1.338332		16.074000		16.16787		16.16787		0.984088		1.103552		1.103552	
F-statistic	4.356867		3.353555		3.353555		0.740767		0.847081		0.847081		12.92505		10.014120		10.01412	
Prob(F-statistic)	0.000863		0.003222		0.003222		0.638720		0.577686		0.577686		0.000000		0.000000		0.000000	

Appendix 10 (Continued)

Variable	Trade, Hotel & Restaurants Sector						Transportation Sector						Financial Sector					
	Common		Dummies		Fixed Effect		Common		Dummies		Fixed Effect		Common		Dummies		Fixed Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.098515	0.5596	0.234102	0.2160			0.212989	0.5420	0.378038	0.3506			0.495314	0.3190	0.489745	0.3961		
OPROFIT?(-1)	-0.001332	0.7158	-0.003545	0.3445	-0.003545	0.3445	-0.007057	0.3528	-0.007917	0.3259	-0.007917	0.3259	-0.013974	0.1965	-0.014713	0.2031	-0.014713	0.2030
GDPGRGDP?(-1)	-0.001714	0.2039	-0.001785	0.1761	-0.001785	0.1761	-0.008056	0.0052	-0.008089	0.0058	-0.008089	0.0058	-0.011102	0.0066	-0.011123	0.0071	-0.011123	0.0077
INFLATION?(-1)	-0.011099	0.0001	-0.009967	0.0006	-0.009967	0.0006	-0.012057	0.0318	-0.010494	0.0776	-0.010494	0.0776	-0.014508	0.0666	-0.014638	0.0841	-0.014638	0.0846
INTEREST?(-1)	0.003158	0.7504	-8.33E-03	0.5205	-0.008325	0.5205	0.002101	0.9185	-0.013724	0.6216	-0.013724	0.6216	0.003807	0.8959	0.005115	0.8971	0.005115	0.8974
EXCHANGE?(-1)	0.000012	0.6701	2.64E-06	0.9258	0.000003	0.9258	-0.000029	0.6183	-0.000038	0.5342	-0.000038	0.5342	-0.000160	0.0603	-0.000161	0.0681	-0.000161	0.0685
CAPITAL?(-1)	0.000002	0.0728	2.88E-06	0.0330	0.000003	0.0330	0.000003	0.2985	0.000003	0.3258	0.000003	0.3258	0.000006	0.1426	0.000006	0.1441	0.000006	0.1448
D99?	-0.076779	0.6966	-0.011672	0.9523	-0.011672	0.9523	0.161773	0.6912	0.219857	0.6006	0.219857	0.6006	1.022602	0.0813	1.029508	0.0901	1.029508	0.0908
DUMPRIVATE?			0.012228	0.8611					0.108009	0.4731					-0.042643	0.8421		
DUMREGIONAL?			0.137037	0.0982					0.145203	0.4093					0.004151	0.9861		
<b>Fixed Effects (Cross)</b>																		
_STATEOWNED--C					0.234101						0.378038							0.489745
_PRIVATE--C					0.246329						0.486047							0.447102
_REGIONAL--C					0.371138						0.523241							0.493896
																		<b>Effects Specification</b>
																		Cross-section fixed (dummy variables)
																		<b>Effects Specification</b>
																		Cross-section fixed (dummy variables)
R-squared	0.639703		0.671560		0.671560		0.378653		0.388830		0.388830		0.517136		0.517972		0.517972	
Adjusted R-squared	0.586041		0.605872		0.605872		0.286112		0.266596		0.266596		0.445220		0.421566		0.421566	
S.E. of regression	0.181892		0.177482		0.177482		0.376179		0.381287		0.381287		0.533543		0.544798		0.544798	
Sum squared resid	1.55498		1.417489		1.417489		6.651010		6.542077		6.542077		13.37940		13.356240		13.35624	
Log likelihood	20.01982		22.56566		22.56566		-19.94610		-19.49196		-19.49196		-39.16716		-39.119500		-39.11950	
Durbin-Watson stat	1.723075		1.814465		1.814465		2.119086		2.196444		2.196444		2.205818		2.202729		2.202729	
Mean dependent var	0.033805		0.033805		0.033805		-0.033058		-0.033058		-0.033058		-0.113913		-0.113913		-0.113913	
S.D. dependent var	0.282706		0.282706		0.282706		0.445225		0.445225		0.445225		0.716323		0.716323		0.716323	
Akaike info criterion	-0.437085		-0.456933		-0.456933		1.016222		1.072435		1.072435		1.715170		1.786164		1.786164	
Schwarz criterion	-0.145109		-0.091963		-0.091963		1.308197		1.437405		1.437405		2.007145		2.151133		2.151133	
F-statistic	11.921110		10.223480		10.22348		4.091736		3.181029		3.181029		7.190835		5.372839		5.372839	
Prob(F-statistic)	0.000000		0.000000		0.000000		0.001400		0.004668		0.004668		0.000008		0.000055		0.000055	



Appendix 10 (Continued)

Variable	Social Services Sector						Others Sector					
	Common		Dummies		Fixed Effect		Common		Dummies		Fixed Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.199994	0.5655	0.482700	0.2252			0.199994	0.5655	0.482700	0.2252		
OPROFIT?(-1)	0.003518	0.6410	0.000952	0.9035	0.000952	0.9035	0.003518	0.6410	0.000952	0.9035	0.000952	0.9035
GDPGRDP?(-1)	-0.005127	0.0677	-0.005215	0.0627	-0.005215	0.0627	-0.005127	0.0677	-0.005215	0.0627	-0.005215	0.0627
INFLATION?(-1)	-0.005484	0.3176	-0.002916	0.6108	-0.002916	0.6108	-0.005484	0.3176	-0.002916	0.6108	-0.002916	0.6108
INTEREST?(-1)	-0.002237	0.9129	-0.028243	0.3020	-0.028243	0.3020	-0.002237	0.9129	-0.028243	0.3020	-0.028243	0.3020
EXCHANGE?(-1)	-0.000041	0.4824	-5.78E-05	0.3347	-0.000058	0.3347	-0.000041	0.4824	-0.000058	0.3347	-0.000058	0.3347
CAPITAL?(-1)	0.000000	0.8621	7.83E-07	0.7778	0.000001	0.7778	0.000000	0.8621	0.000001	0.7778	0.000001	0.7778
D99?	0.307890	0.4491	0.419988	0.3092	0.419988	0.3092	0.307890	0.4491	0.419988	0.3092	0.419988	0.3092
DUMPRIVATE?			0.129547	0.3804					0.129547	0.3804		
DUMREGIONAL?			0.261584	0.1325					0.261584	0.1325		
<b>Fixed Effects (Cross)</b>												
_STATEOWNED--C					0.482700						0.482700	
_PRIVATE--C					0.612247						0.612247	
_REGIONAL--C					0.744284						0.744284	
					<b>Effects</b>						<b>Effects</b>	
					<b>Specification</b>						<b>Specification</b>	
					Cross-section fixed (dummy variables)						Cross-section fixed (dummy variables)	
R-squared	0.303075		0.337958		0.337958		0.303075		0.337958		0.337958	
Adjusted R-squared	0.199277		0.205549		0.205549		0.199277		0.205549		0.205549	
S.E. of regression	0.374925		0.373454		0.373454		0.374925		0.373454		0.373454	
Sum squared resid	6.606736		6.276050		6.276050		6.606736		6.276050		6.276050	
Log likelihood	-19.76242		-18.35033		-18.35033		-19.76242		-18.35033		-18.35033	
Durbin-Watson stat	2.046071		2.171370		2.171370		2.046071		2.17137		2.171370	
Mean dependent var	-0.034429		-0.034429		-0.034429		-0.034429		-0.034429		-0.034429	
S.D. dependent var	0.418990		0.418990		0.418990		0.418990		0.418990		0.418990	
Akaike info criterion	1.009543		1.030921		1.030921		1.009543		1.030921		1.030921	
Schwarz criterion	1.301518		1.395891		1.395891		1.301518		1.395891		1.395891	
F-statistic	2.919866		2.552386		2.552386		2.919866		2.552386		2.552386	
Prob(F-statistic)	0.012749		0.018376		0.018376		0.01275		0.018376		0.018376	

Appendix 11 Recapitulation of PLS for Capital Injection Effectivity using Data Panel Technique Through Eviews 5.1.

Variable	All Sector						Agriculture Sector						Mining Sector									
	DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM					
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.				
C	1.011532	0.0045			1.011532	0.0054	1.415684	0.0144			1.763065	0.0146	-3.959362	0.0809			-5.155526	0.0640				
OPROFIT?(-1)	-0.032642	0.1123	-0.007108	0.9108	0.032642	0.1202	0.038889	0.2481	-0.102124	0.9198	0.039557	0.4182	-0.367288	0.0098	-0.835516	0.0480	-0.443665	0.0239				
GDRPGDP?(-1)	-0.00486	0.1244	-0.00431	0.1989	-0.004864	0.1326	-0.004539	0.3796	-0.003458	0.5142	-0.004397	0.3898	-0.022114	0.2893	-0.016628	0.4356	-0.021508	0.2985				
INFLATION?(-1)	-0.003412	0.4436	-0.00538	0.3701	-0.003412	0.4536	0.007550	0.3076	0.011341	0.2397	0.009957	0.2196	-0.132769	0.0001	-0.172239	0.0001	-0.143738	0.0001				
INTEREST?(-1)	-0.041542	0.0278	-0.04469	0.1568	-0.041542	0.0312	-0.078759	0.0128	-0.139656	0.0083	-0.100466	0.0121	0.092236	0.4467	0.204543	0.3073	0.152076	0.3130				
EXCHANGE?(-1)	-0.00004	0.4214	-0.00003	0.5323	-0.000040	0.4317	-0.000025	0.7582	-0.00005	0.5740	-0.000037	0.6516	0.000048	0.007	0.001106	0.0030	0.000996	0.0050				
CAPITAL?(-1)	-0.000014	0.2069	0.000006	0.8485	-0.000014	0.2170	-0.000014	0.4469	-0.000010	0.8439	-0.000015	0.5710	0.000020	0.0092	0.001004	0.0415	0.000242	0.0201				
D99?	-1.495055	0.1841	-1.350629	0.2719	-1.495055	0.1937	-1.026187	0.5769	-1.737206	0.3748	-1.368089	0.4631	3.382374	0.6476	7.413810	0.3455	4.687745	0.5318				
_STATEOWNED-D99_STATEOWNED*OPROFIT_STATEOWNED(-1)	-0.065717	0.6283	-0.02398	0.8755	-0.065717	0.6360	-0.055283	0.8054	0.006140	0.9800	-0.052217	0.8158	0.215497	0.8115	0.681226	0.4898	0.284278	0.7530				
_PRIVATE-D99_PRIVATE*OPROFIT_PRIVATE(-1)	-0.054085	0.6062	-0.013476	0.9136	-0.054085	0.6143	-0.092520	0.5943	-0.028549	0.8857	-0.087933	0.6150	0.527442	0.4519	0.969609	0.2300	0.589513	0.4039				
_REGIONAL-D99_REGIONAL*OPROFIT_REGIONAL(-1)	0.071779	0.0172	0.111907	0.1049	0.071779	0.0195	-0.077549	0.1097	-0.027925	0.7954	-0.078203	0.1922	0.282472	0.1463	0.755002	0.0891	0.359511	0.1281				
_STATEOWNED-D99_STATEOWNED*GDRPGDP_STATEOWNED(-1)	0.000467	0.9557	0.000081	0.9926	0.000467	0.9567	-0.00296	0.8318	-0.003000	0.8288	-0.002787	0.8392	-0.000961	0.9863	-0.006658	0.9047	-0.002207	0.9682				
_PRIVATE-D99_PRIVATE*GDRPGDP_PRIVATE(-1)	0.002861	0.6018	0.002295	0.6875	0.002861	0.6098	0.002909	0.7482	0.001629	0.8581	0.002697	0.7630	0.022632	0.5361	0.017496	0.6332	0.022218	0.5392				
_REGIONAL-D99_REGIONAL*GDRPGDP_REGIONAL(-1)	0.006992	0.3381	0.006243	0.4105	0.006992	0.3487	-0.004676	0.6968	-0.00603	0.6178	-0.004825	0.6837	-0.054855	0.261	-0.062567	0.2025	-0.095804	0.2490				
_STATEOWNED-D99_STATEOWNED*INFLATION_STATEOWNED(-1)	-0.018883	0.6306	-0.016714	0.6802	-0.018883	0.6381	-0.002571	0.9684	-0.005109	0.9371	-0.004599	0.9427	0.065562	0.8019	0.104778	0.6869	0.075758	0.7694				
_PRIVATE-D99_PRIVATE*INFLATION_PRIVATE(-1)	-0.017669	0.3697	-0.015562	0.4484	-0.017669	0.3802	0.015596	0.6307	0.014234	0.6633	0.014047	0.6614	0.086854	0.5069	0.122668	0.3551	0.095486	0.4629				
_REGIONAL-D99_REGIONAL*INFLATION_REGIONAL(-1)	0.072212	0.0006	0.074379	0.0008	0.072212	0.0008	-0.02093	0.5065	-0.024447	0.4452	-0.02333	0.4557	0.166475	0.1943	0.208229	0.1116	0.177796	0.1630				
_STATEOWNED-D99_STATEOWNED*INTEREST_STATEOWNED(-1)	0.075704	0.4716	0.082141	0.4679	0.075704	0.4814	0.066275	0.7025	0.147618	0.4151	0.094179	0.5881	-0.12435	0.8586	-0.24081	0.7388	-0.196796	0.7784				
_PRIVATE-D99_PRIVATE*INTEREST_PRIVATE(-1)	0.084717	0.3560	0.086999	0.3662	0.084717	0.3665	0.092494	0.5409	0.138434	0.3684	0.108914	0.4688	-0.120282	0.843	-0.20637	0.7363	-0.165729	0.7838				
_REGIONAL-D99_REGIONAL*INTEREST_REGIONAL(-1)	0.121978	0.1134	0.114029	0.1699	0.121978	0.1212	-0.154816	0.2207	-0.109231	0.4056	-0.133536	0.2923	1.193815	0.0232	0.955025	0.0769	1.114513	0.0342				
_STATEOWNED-D99_STATEOWNED*EXCHANGE_STATEOWNED(-1)	0.000071	0.6276	0.000064	0.7098	0.000071	0.6795	0.000001	0.9966	0.000025	0.9272	0.000014	0.9606	-0.000734	0.5106	-0.00089	0.4220	-0.000783	0.4783				
_PRIVATE-D99_PRIVATE*EXCHANGE_PRIVATE(-1)	0.000037	0.8007	0.000030	0.8416	0.000037	0.8051	-0.00009	0.7157	-0.00007	0.7767	-0.000078	0.7459	-0.000717	0.4674	-0.000870	0.3766	-0.000762	0.4350				
_REGIONAL-D99_REGIONAL*EXCHANGE_REGIONAL(-1)	-0.000162	0.1917	-0.000171	0.1861	-0.000162	0.2014	0.000464	0.0278	0.000484	0.0231	0.000476	0.0229	-0.003677	0.0001	-0.00386	0.0001	-0.003729	0.0001				
_STATEOWNED-D99_STATEOWNED*CAPITAL_STATEOWNED(-1)	0.000016	0.1605	-0.000004	0.9026	0.000016	0.1698	0.000016	0.4088	-0.00001	0.8731	0.000016	0.5317	-0.000020	0.0119	-0.000044	0.0424	-0.000024	0.0226				
_PRIVATE-D99_PRIVATE*CAPITAL_PRIVATE(-1)	0.000023	0.3859	0.000002	0.9574	0.000023	0.3965	0.000028	0.5175	0.000000	0.9986	0.000027	0.5563	-0.000234	0.1835	-0.00047	0.0833	-0.000270	0.1495				
_REGIONAL-D99_REGIONAL*CAPITAL_REGIONAL(-1)	0.000086	0.4715	0.000057	0.6633	0.000086	0.4814	0.000039	0.8412	0.000003	0.9890	0.000040	0.8389	0.00072	0.3672	0.000376	0.6531	0.000664	0.4029				
			<b>F Effects (Cross)</b>			<b>R Effects (Cross)</b>				<b>F Effects (Cross)</b>			<b>F Effects (Cross)</b>				<b>F Effects (Cross)</b>			<b>R Effects (Cross)</b>		
_STATEOWNED-C			0.814451		0.00000				1.79587		-0.104622			-7.924424		0.092486						
_PRIVATE-C			0.884495		0.00000				2.427901		0.100990			-8.518805		-0.399052						
_REGIONAL-C			1.104131		0.00000				2.453806		0.003632			-5.288728		0.306566						
<b>Effects Specification</b>					S.D.	Rho					S.D.	Rho				S.D.	Rho					
Cross-section random			0.00000	0.00000	0.00000	0.0000					0.20231	0.23250				0.738861	0.1987					
Idiosyncratic random			0.23048	1.00000							0.36754	0.76750				1.483955	0.8013					
			Weighted Statistics						Weighted Statistics						Weighted Statistics							
R-squared	0.809886		0.812998		0.809886		0.594718		0.628173		0.605408		0.625882		0.659026		0.621834					
Adjusted R-squared	0.645995		0.625996		0.645995		0.245337		0.256345		0.265242		0.303366		0.318053		0.295830					
S.E. of regression	0.225381		0.231660		0.225381		0.370367		0.370336		0.367703		1.502246		1.486325		1.483978					
Sum squared resid	1.473103		1.448991		1.473103		4.036185		3.703013		3.920969		65.44551		59.64740		63.86356					
Log likelihood	21.50733		21.96119				-6.210707		-3.841492				-82.82345		-80.27235							
Durbin-Watson stat	2.384983		2.472590		2.384983		2.440837		2.789752		2.539838		2.811546		2.585878		2.595123					
Mean dependent var	0.008216		0.008216		0.008216		-0.001820		-0.001820		-0.000619		-0.339		-0.33900		-0.144725					
S.D. dependent var	0.378803		0.378803		0.378803		0.429447		0.429447		0.429447		1.799859		1.799859		1.768433					
Akaike info criterion	0.163370		0.219593				1.171298		1.157872				3.957216		3.937176							
Schwarz criterion	1.112291		1.241508				2.120220		2.179788				4.906138		4.969091							
F-statistic	4.941615		4.347543		4.941615		1.702205		1.689420		1.779744		1.940623		1.932779		1.907440					
Prob(F-statistic)	0.000033		0.000141		0.000033		0.084407		0.089750		0.068143		0.043627		0.046342		0.047833					
			Unweighted						Unweighted Statistics						Unweighted Statistics							
R-squared			0.80988								0.55988						0.610142					
Sum squared resid			1.47316								4.382064						69.79079					
Mean dependent var			0.00822								-0.001820						-0.33900					
Durbin-Watson stat			2.38500								2.272588						2.374723					

Appendix 11 (Continued)

Variable	Manufactur Sector						Electric, Water & Gas Sector						Construction Sector						
	DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM		
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	
C	0.948493	0.0205			0.948493	0.0232	4.287613	0.9886			4.287613	0.9889	1.153588	0.0068			1.153588	0.0080	
OPROFIT?(-1)	0.031073	0.1961	0.045312	0.5479	0.031073	0.2057	0.114588	0.9950	13.378030	0.8176	0.114588	0.9951	0.031043	0.2060	0.037515	0.6267	0.031043	0.2169	
GDRPGDP?(-1)	-0.006713	0.0740	-0.006849	0.0886	-0.006713	0.0801	-0.003595	0.9990	-0.191685	0.9494	-0.003595	0.9990	-0.003716	0.3237	-0.00384	0.3240	-0.003716	0.3252	
INFLATION?(-1)	-0.00048	0.9267	0.001206	0.8644	-0.000480	0.9282	0.022001	0.9956	0.627226	0.9083	0.022001	0.9957	0.003289	0.5389	0.003068	0.6717	0.003289	0.5479	
INTEREST?(-1)	-0.03343	0.1245	-0.041300	0.2659	-0.033432	0.1326	-0.198809	0.9903	1.319784	0.9628	-0.198809	0.9906	-0.055544	0.0155	-0.050072	0.1898	-0.055544	0.0187	
EXCHANGE?(-1)	-0.00010	0.1084	-0.000103	0.1114	-0.000096	0.1159	-0.000317	0.9944	-0.00226	0.9630	-0.000317	0.9945	-0.000072	0.2331	-0.000070	0.2822	-0.000072	0.2442	
CAPITAL?(-1)	-0.000014	0.2783	-0.000022	0.5774	-0.000014	0.2887	-0.000057	0.9955	-0.00682	0.8192	-0.000057	0.9956	-0.000007	0.6054	-0.000010	0.7991	-0.000007	0.6140	
D99?	-1.282119	0.3302	-1.474188	0.3106	-1.282119	0.3406	-745.71030	0.4607	-786.5843	0.4810	-745.7103	0.4715	-2.140298	0.1166	-2.086437	0.1647	-2.140298	0.1252	
_STATEOWNED-D99_STATEOWNED*OPROFIT_STATEOWNED(-1)	-0.097194	0.5439	-0.110586	0.5434	-0.097194	0.5526	27.69695	0.8219	13.690650	0.9221	27.69695	0.8261	0.130766	0.4254	0.123113	0.5091	0.130766	0.4364	
_PRIVATE-D99_PRIVATE*OPROFIT_PRIVATE(-1)	-0.104213	0.4011	-0.116581	0.4308	-0.104213	0.4112	-36.81224	0.6988	-50.475640	0.6572	-36.81224	0.7058	-0.128593	0.3120	-0.136406	0.3690	-0.128593	0.3236	
_REGIONAL-D99_REGIONAL*OPROFIT_REGIONAL(-1)	0.087096	0.0144	0.072731	0.3655	0.087096	0.0164	277.54340	0.0000	264.15360	0.0002	277.5434	0.0000	0.034373	0.3229	0.027834	0.7336	0.034373	0.3345	
_STATEOWNED-D99_STATEOWNED*GDRPGDP_STATEOWNED(-1)	0.004769	0.6313	0.004976	0.6291	0.004769	0.6387	2.324424	0.7611	2.449879	0.7577	2.324424	0.7667	-0.005773	0.5700	-0.005748	0.5861	-0.005773	0.5793	
_PRIVATE-D99_PRIVATE*GDRPGDP_PRIVATE(-1)	0.004973	0.4427	0.005084	0.4537	0.004973	0.4525	0.494583	0.9207	0.688047	0.8949	0.494583	0.9226	0.004825	0.4659	0.004967	0.4745	0.004825	0.4766	
_REGIONAL-D99_REGIONAL*GDRPGDP_REGIONAL(-1)	0.019306	0.0300	0.019507	0.0361	0.019306	0.0334	6.531787	0.3245	6.785240	0.3291	6.531787	0.3361	0.005402	0.5369	0.005561	0.5445	0.005402	0.5467	
_STATEOWNED-D99_STATEOWNED*INFLATION_STATEOWNED(-1)	-0.021383	0.6439	-0.022983	0.6325	-0.021383	0.6510	2.763926	0.9381	2.083127	0.9551	2.763926	0.9396	0.034568	0.4658	0.034669	0.4823	0.034568	0.4765	
_PRIVATE-D99_PRIVATE*INFLATION_PRIVATE(-1)	-0.016957	0.4639	-0.018337	0.4508	-0.016957	0.4736	-6.00870	0.7353	-6.79241	0.7208	-6.008696	0.7414	0.004511	0.8481	0.004513	0.8555	0.004511	0.8517	
_REGIONAL-D99_REGIONAL*INFLATION_REGIONAL(-1)	0.107698	0.0000	0.105945	0.0001	0.107698	0.0000	192.08560	0.0000	191.413300	0.0000	192.0856	0.0000	0.002166	0.9244	0.002352	0.9225	0.002166	0.9262	
_STATEOWNED-D99_STATEOWNED*INTEREST_STATEOWNED(-1)	0.062617	0.6125	0.071891	0.5910	0.062617	0.6202	46.575340	0.6248	43.823870	0.6709	46.57534	0.6332	0.211934	0.1006	0.204501	0.1425	0.211934	0.1087	
_PRIVATE-D99_PRIVATE*INTEREST_PRIVATE(-1)	0.092407	0.3923	0.098393	0.3880	0.092407	0.4025	37.139090	0.6539	36.022880	0.6805	37.13909	0.6617	0.132087	0.2343	0.127964	0.2750	0.132087	0.2455	
_REGIONAL-D99_REGIONAL*INTEREST_REGIONAL(-1)	0.087591	0.3280	0.099181	0.3097	0.087591	0.3384	192.16460	0.0083	194.36130	0.0140	192.1646	0.0098	0.095596	0.2968	0.092070	0.3564	0.095596	0.3083	
_STATEOWNED-D99_STATEOWNED*EXCHANGE_STATEOWNED(-1)	0.000117	0.5523	0.000124	0.5434	0.000117	0.5609	0.003049	0.9839	0.004918	0.9751	0.003049	0.9843	-0.000134	0.5956	-0.000136	0.5711	-0.000134	0.5158	
_PRIVATE-D99_PRIVATE*EXCHANGE_PRIVATE(-1)	0.000022	0.8973	0.000029	0.8712	0.000022	0.8995	0.007417	0.9558	0.009439	0.9459	0.007417	0.9568	-0.000018	0.9179	-0.00002	0.9154	-0.000018	0.9199	
_REGIONAL-D99_REGIONAL*EXCHANGE_REGIONAL(-1)	-0.000178	0.2224	-0.000170	0.2638	-0.000178	0.2323	-0.618115	0.0000	-0.615457	0.0000	-0.618115	0.0000	0.000078	0.5960	0.000077	0.6181	0.000078	0.6048	
_STATEOWNED-D99_STATEOWNED*CAPITAL_STATEOWNED(-1)	0.000017	0.2214	0.000024	0.5365	0.000017	0.2313	0.000397	0.9694	0.007151	0.8112	0.000397	0.9702	0.000015	0.2677	0.000019	0.6405	0.000015	0.2791	
_PRIVATE-D99_PRIVATE*CAPITAL_PRIVATE(-1)	0.000033	0.2911	0.000040	0.4177	0.000033	0.3015	0.009729	0.6808	0.016598	0.6584	0.009729	0.6881	0.000041	0.1937	0.000045	0.3702	0.000041	0.2043	
_REGIONAL-D99_REGIONAL*CAPITAL_REGIONAL(-1)	0.000263	0.0687	0.000273	0.0848	0.000263	0.0745	0.246292	0.0287	0.256063	0.0386	0.246292	0.0325	0.000046	0.7469	0.000051	0.7465	0.000046	0.7527	
			<b>F. Effects (Cross)</b>			<b>R. Effects (Cross)</b>						<b>F. Effects (Cross)</b>			<b>R. Effects (Cross)</b>				
_STATEOWNED-C			1.118073			0.00000			64.886570		0.00000		1.131100			0.00000			
_PRIVATE-C			1.178468			0.00000			37.058730		0.00000		1.072562			0.00000			
_REGIONAL-C			1.061072			0.00000			-34.207750		0.00000		1.058150			0.00000			
<b>Effects Specification</b>																			
					S.D.	Rho					S.D.	Rho			S.D.	Rho			
Cross-section random					0.00000	0.0000			0.0000	0.0000		0.0000		0.00000	0.0000			0.00000	
Idiosyncratic random					0.27146	1.0000			209.6675	1.0000		209.6675		0.278068	1.0000			0.278068	
					<b>Weighted Statistics</b>							<b>Weighted Statistics</b>							
R-squared	0.793413		0.794565		0.793413		0.936452		0.936592		0.936452		0.848185		0.848387		0.848185		
Adjusted R-squared	0.615321		0.58913		0.615321		0.881670		0.873185		0.881670		0.717311		0.696773		0.717311		
S.E. of regression	0.265551		0.274442		0.265551		204.5843		211.7922		204.5843		0.271385		0.281070		0.271385		
Sum squared resid	2.044999		2.033599		2.044999		1213787.0		1211111		1213787.0		2.135842		2.133011		2.135842		
Log likelihood	12.48662		12.64035		12.48662		-353.0945		-353.0338		-353.0945		11.29137		11.32784		11.29137		
Durbin-Watson stat	2.541555		2.584785		2.541555		3.024792		3.026985		3.024792		2.569216		2.543829		2.569216		
Mean dependent var	-0.044456		-0.044456		-0.044456		-80.30679		-80.30679		-80.30679		-0.066315		-0.066315		-0.066315		
S.D. dependent var	0.428152		0.428152		0.428152		594.73640		594.73640		594.73640		0.510424		0.510424		0.510424		
Akaike info criterion	0.491396		0.58533		0.491396		13.785250		13.85577		13.785250		0.534859		0.606260		0.534859		
Schwarz criterion	1.440317		1.580448		1.440317		14.734180		14.87769		14.734180		1.483781		1.628175		1.483781		
F-statistic	4.455073		3.867716		4.455073		17.094010		14.77099		17.094010		6.480897		5.955723		6.480897		
Prob(F-statistic)	0.000089		0.000386		0.000089		0.000000		0.00000		0.000000		0.000002		0.000013		0.000002		
			<b>Unweighted Statistics</b>				<b>Unweighted Statistics</b>						<b>Unweighted Statistics</b>						
R-squared			0.793413		0.793413		0.936452		0.936452		0.936452		0.848185		0.848179		0.848185		
Sum squared resid			2.044999		2.044999		1213787		1213787		1213787		2.135842		2.135937		2.135842		
Mean dependent var			-0.044456		-0.044456		-80.30679		-80.30679		-80.30679		0.510424		0.510424		0.510424		
Durbin-Watson stat			2.541555		2.541555		3.024792		3.024792		3.024792		2.569365		2.569365		2.569365		

Appendix 11 (Continued)

Variable	Trade, Hotel & Restaurant Sector						Transportation Sector						Financial Sector								
	DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM				
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.			
C	0.619562	0.0214			0.619562	0.0232	1.427216	0.0018			1.427216	0.0022	1.732839	0.0154			1.732839	0.0176			
OPROFIT7(-1)	0.007222	0.6438	0.048104	0.3277	0.007222	0.6486	0.011531	0.651	0.001924	0.9809	0.011531	0.6572	0.006909	0.8669	0.078364	0.5486	0.006909	0.8697			
GDPRGDP7(-1)	-0.002409	0.3204	-0.002931	0.2537	-0.002409	0.3273	-0.003593	0.3633	-0.003344	0.4277	-0.003593	0.3724	-0.008691	0.1782	-0.009640	0.1627	-0.008691	0.1875			
INFLATION7(-1)	-0.005175	0.1395	-0.002391	0.6021	-0.005175	0.1451	0.000889	0.874	0.002212	0.7700	0.000889	0.8764	0.003079	0.3748	0.007355	0.5488	0.003079	0.7403			
INTEREST7(-1)	-0.025101	0.0815	-0.028837	0.2316	-0.025101	0.0858	-0.052813	0.0272	-0.070053	0.0832	-0.052813	0.0300	-0.036593	0.3278	-0.037715	0.5542	-0.036593	0.3382			
EXCHANGE7(-1)	-0.000033	0.3859	-0.000044	0.2871	-0.000033	0.3927	-0.000176	0.0081	-0.000184	0.0107	-0.000176	0.0093	-0.000412	0.0003	-0.000428	0.0005	-0.000412	0.0004			
CAPITAL7(-1)	-0.000003	0.7495	-0.000024	0.3479	-0.000003	0.753	-0.000011	0.4365	-0.000006	0.8803	-0.000011	0.4452	-0.000012	0.5978	-0.000049	0.4709	-0.000012	0.6056			
D997	-1.154570	0.1859	-1.411864	0.1384	-1.154570	0.1921	-2.320760	0.1059	-2.542941	0.1076	-2.320760	0.1124	-4.034975	0.0836	-4.400322	0.0862	-4.034975	0.0902			
STATEOWNED-D99 STATEOWNED*OPROFIT STATEOWNED(-1)	-0.048975	0.6417	-0.090689	0.4429	-0.048975	0.6465	-0.101425	0.5554	-0.088485	0.6493	-0.101425	0.5629	-0.029062	0.9166	-0.102928	0.7434	-0.029062	0.9184			
PRIVATE-D99 PRIVATE*OPROFIT PRIVATE(-1)	0.023861	0.7690	-0.016215	0.8650	0.023861	0.7722	0.008014	0.9518	0.021820	0.8899	0.008014	0.9527	-0.110491	0.6074	-0.181846	0.4777	-0.110491	0.6151			
REGIONAL-D99 REGIONAL*OPROFIT REGIONAL(-1)	0.008036	0.7177	-0.033227	0.5220	0.008036	0.7216	-0.004271	0.9062	0.005443	0.9492	-0.004271	0.9080	-0.086671	0.1471	-0.158797	0.2562	-0.086671	0.1557			
STATEOWNED-D99 STATEOWNED*GDPRGDP STATEOWNED(-1)	0.000602	0.9265	0.001053	0.8744	0.000602	0.9276	-0.021266	0.0534	-0.021233	0.0621	-0.021266	0.0578	0.003663	0.8319	0.004410	0.8045	0.003663	0.8355			
PRIVATE-D99 PRIVATE*GDPRGDP PRIVATE(-1)	-0.000322	0.9395	0.000188	0.9657	-0.000322	0.9403	0.001194	0.8631	0.000889	0.9021	0.001194	0.8656	0.007017	0.5328	0.007964	0.4977	0.007017	0.5416			
REGIONAL-D99 REGIONAL*GDPRGDP REGIONAL(-1)	0.003407	0.5453	0.004126	0.4780	0.003407	0.551	0.010591	0.2533	0.010287	0.2873	0.010591	0.2622	-0.020896	0.1662	-0.019600	0.2118	-0.020896	0.1752			
STATEOWNED-D99 STATEOWNED*INFLATION STATEOWNED(-1)	-0.016889	0.5794	-0.019758	0.5266	-0.016889	0.5848	-0.012596	0.7996	-0.013580	0.7916	-0.012596	0.8033	-0.057864	0.4732	-0.062383	0.4551	-0.057864	0.4827			
PRIVATE-D99 PRIVATE*INFLATION PRIVATE(-1)	-0.036827	0.0206	-0.039480	0.0171	-0.036827	0.0223	-0.027260	0.2758	-0.027897	0.2868	-0.027260	0.2848	-0.035855	0.3744	-0.040115	0.3425	-0.035855	0.3846			
REGIONAL-D99 REGIONAL*INFLATION REGIONAL(-1)	-0.012885	0.3841	-0.015871	0.3043	-0.012885	0.3908	0.002396	0.9205	0.001130	0.9643	0.002396	0.9220	-0.073543	0.0662	-0.078175	0.0642	-0.073543	0.0720			
STATEOWNED-D99 STATEOWNED*INTEREST STATEOWNED(-1)	0.048237	0.5536	0.050591	0.5598	0.048237	0.5593	0.062691	0.6368	0.085460	0.5511	0.062691	0.6432	0.175033	0.4173	0.172186	0.4586	0.175033	0.4273			
PRIVATE-D99 PRIVATE*INTEREST PRIVATE(-1)	0.023583	0.7387	0.026509	0.7182	0.023583	0.7424	0.147781	0.2063	0.160796	0.1918	0.147781	0.2148	0.178963	0.3416	0.179987	0.3624	0.178963	0.3520			
REGIONAL-D99 REGIONAL*INTEREST REGIONAL(-1)	0.024873	0.6709	0.039824	0.5267	0.024873	0.6753	-0.036760	0.7003	-0.022667	0.8268	-0.036760	0.7057	-0.010382	0.9464	0.010493	0.9501	-0.010382	0.9476			
STATEOWNED-D99 STATEOWNED*EXCHANGE STATEOWNED(-1)	0.000086	0.5089	0.000096	0.4692	0.000086	0.515	0.000286	0.1821	0.000294	0.1862	0.000286	0.1903	0.000509	0.1462	0.000524	0.1463	0.000509	0.1527			
PRIVATE-D99 PRIVATE*EXCHANGE PRIVATE(-1)	0.000163	0.1608	0.000173	0.1461	0.000163	0.1667	0.000152	0.419	0.000158	0.4163	0.000152	0.4278	0.000403	0.1889	0.000418	0.1880	0.000403	0.1983			
REGIONAL-D99 REGIONAL*EXCHANGE REGIONAL(-1)	0.000147	0.1281	0.000160	0.1094	0.000147	0.1334	0.000442	0.0073	0.000449	0.0090	0.000442	0.0084	0.000902	0.0011	0.000921	0.0014	0.000902	0.0013			
STATEOWNED-D99 STATEOWNED*CAPITAL STATEOWNED(-1)	0.000006	0.5012	0.000027	0.2889	0.000006	0.5073	0.000013	0.3775	0.000008	0.8434	0.000013	0.3865	0.000015	0.5152	0.000052	0.4430	0.000015	0.5243			
PRIVATE-D99 PRIVATE*CAPITAL PRIVATE(-1)	-0.000005	0.8198	0.000016	0.6083	-0.000005	0.8223	0.000016	0.6385	0.000010	0.8514	0.000016	0.6449	0.000046	0.3902	0.000083	0.3301	0.000046	0.4004			
REGIONAL-D99 REGIONAL*CAPITAL REGIONAL(-1)	-0.000076	0.4125	-0.000046	0.6460	-0.000076	0.4191	0.000025	0.8703	0.000017	0.9161	0.000025	0.8728	-0.000125	0.6087	-0.000072	0.7862	-0.000125	0.6164			
			<b>F. Effects (Cross)</b>		<b>R. Effects (Cross)</b>				<b>F. Effects (Cross)</b>		<b>R. Effects (Cross)</b>				<b>F. Effects (Cross)</b>		<b>R. Effects (Cross)</b>				
STATEOWNED-C			0.898964		0.00000				1.560919		0.00000				2.161682		0.00000				
PRIVATE-C			0.893176		0.00000				1.734451		0.00000				2.100180		0.00000				
REGIONAL-C			0.637281		0.00000				1.716601		0.00000				1.676197		0.00000				
<b>Effects Specification</b>																					
					S.D.	Rho					S.D.	Rho					S.D.	Rho			
Cross-section random					0.000000	0.0000					0.000000	0.0000					0.000000	0.0000			
Idiosyncratic random					0.177330	1.0000					0.290784	1.0000					0.472119	1.0000			
					Weighted Statistics							Weighted Statistics								Weighted Statistics	
R-squared	0.794735		0.802027		0.794735		0.779542		0.782020		0.779542		0.77667		0.779722		0.776670				
Adjusted R-squared	0.617782		0.604053		0.617782		0.589491		0.564039		0.589491		0.584144		0.559444		0.584144				
S.E. of regression	0.174779		0.177891		0.174779		0.28526		0.293970		0.285260		0.461934		0.475455		0.461934				
Sum squared resid	0.885888		0.854418		0.885888		2.359828		2.333302		2.359828		6.188117		6.103558		6.188117				
Log likelihood	35.49209		36.48674				8.548859		8.859718				-17.9623		-17.58394						
Durbin-Watson stat	2.454264		2.457387				2.45657		2.546326		2.456570		2.859488		2.849632		2.859488				
Mean dependent var	0.033805		0.033805		2.454264		-0.033058		-0.033058		-0.033058		-0.113913		-0.113913		-0.113913				
S.D. dependent var	0.282706		0.033805		0.282706		0.445225		0.445225		0.445225		0.716323		0.716323		0.716323				
Akaike info criterion	-0.345167		-0.308609		0.282706		0.634587		0.696010		0.634587		1.598629		1.657598						
Schwarz criterion	0.603754		0.713306				1.983508		1.717925				2.54755		2.679513						
F-statistic	4.491229		4.051182		4.491229		4.101764		3.587569		4.101764		4.034111		3.539715		4.034111				
Prob(F-statistic)	0.000082		0.000260		0.000082		0.000189		0.000719		0.000189		0.00022		0.000802		0.000220				
			Unweighted Statistics							Unweighted Statistics						Unweighted Statistics					
R-squared			0.794735				0.779542				0.779542						0.776670				
Sum squared resid			0.885888				2.359828				2.359828						6.188117				
Mean dependent var			0.033805				-0.033058				-0.033058						-0.113913				
Durbin-Watson stat			2.454264				2.45657				2.45657						2.859488				

Appendix 11 (Continued)

Variable	Social Services Sector						Others Sector					
	DUM		DUM + FEM		DUM+ REM		DUM		DUM + FEM		DUM+ REM	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.999705	0.0831			0.999705	0.0896	0.321651	0.0031			0.321651	0.0034
OPROFIT?(-1)	0.024269	0.4784	-0.027895	0.7956	0.024269	0.4878	0.004178	0.4944	0.028323	0.1380	0.004178	0.4995
GDRPGDP?(-1)	-0.004614	0.3832	-0.003767	0.5031	-0.004614	0.3933	-0.000977	0.3027	-0.001304	0.1876	-0.000977	0.3083
INFLATION?(-1)	0.004024	0.5931	0.003324	0.7424	0.004024	0.6010	-0.002033	0.1374	-0.000698	0.6916	-0.002033	0.1419
INTEREST?(-1)	-0.034746	0.2626	-0.056121	0.2905	-0.034746	0.2727	-0.016400	0.0053	-0.015774	0.0926	-0.016400	0.0057
EXCHANGE?(-1)	-0.000157	0.0690	-0.000158	0.0896	-0.000157	0.0748	0.000002	0.8762	-0.000002	0.8804	0.000002	0.8777
CAPITAL?(-1)	-0.000014	0.4559	0.000012	0.8227	-0.000014	0.4655	-0.000002	0.5871	-0.000014	0.1488	-0.000002	0.5915
D99?	-2.343768	0.2184	-2.423311	0.2458	-2.343768	0.2281	0.290730	0.3896	0.182961	0.6105	0.290730	0.3951
_STATEOWNED-D99_STATEOWNED*OPROFIT_STATEOWNED(-1)	-0.053989	0.8143	0.003763	0.9884	-0.053989	0.8182	-0.012948	0.7526	-0.038075	0.4020	-0.012948	0.7554
_PRIVATE-D99_PRIVATE*OPROFIT_PRIVATE(-1)	-0.051565	0.7716	0.005903	0.9776	-0.051565	0.7763	0.080559	0.0158	0.056204	0.1330	0.080559	0.0170
_REGIONAL-D99_REGIONAL*OPROFIT_REGIONAL(-1)	-0.016231	0.7384	0.036445	0.7499	-0.016231	0.7438	-0.011058	0.2086	-0.035431	0.0828	-0.011058	0.2139
_STATEOWNED-D99_STATEOWNED*GDRPGDP_STATEOWNED(-1)	-0.006698	0.6395	-0.007074	0.6316	-0.006698	0.6466	0.002918	0.2577	0.003163	0.2228	0.002918	0.2632
_PRIVATE-D99_PRIVATE*GDRPGDP_PRIVATE(-1)	0.005588	0.5481	0.004670	0.6297	0.005588	0.5566	0.000274	0.8687	0.000604	0.7193	0.000274	0.8702
_REGIONAL-D99_REGIONAL*GDRPGDP_REGIONAL(-1)	0.004252	0.7294	0.003140	0.8061	0.004252	0.7349	0.001279	0.5608	0.001725	0.4402	0.001279	0.5654
_STATEOWNED-D99_STATEOWNED*INFLATION_STATEOWNED(-1)	-0.011554	0.8620	-0.010286	0.8810	-0.011554	0.8649	-0.009069	0.4471	-0.010504	0.3822	-0.009069	0.4524
_PRIVATE-D99_PRIVATE*INFLATION_PRIVATE(-1)	-0.042775	0.2035	-0.041210	0.2402	-0.042775	0.2130	-0.012137	0.0478	-0.013506	0.0318	-0.012137	0.0503
_REGIONAL-D99_REGIONAL*INFLATION_REGIONAL(-1)	-0.013590	0.6730	-0.012619	0.7092	-0.013590	0.6796	0.001265	0.8258	-0.000191	0.9740	0.001265	0.8278
_STATEOWNED-D99_STATEOWNED*INTEREST_STATEOWNED(-1)	0.281514	0.1205	0.312163	0.1107	0.281514	0.1283	-0.027054	0.3965	-0.029310	0.3808	-0.027054	0.4021
_PRIVATE-D99_PRIVATE*INTEREST_PRIVATE(-1)	0.114477	0.4607	0.130517	0.4234	0.114477	0.4703	-0.009629	0.7274	-0.010043	0.7217	-0.009629	0.7305
_REGIONAL-D99_REGIONAL*INTEREST_REGIONAL(-1)	-0.004211	0.9737	0.0022119	0.9878	-0.004211	0.9743	0.025183	0.2750	0.031260	0.2009	0.025183	0.2806
_STATEOWNED-D99_STATEOWNED*EXCHANGE_STATEOWNED(-1)	-0.000061	0.8292	-0.000060	0.8380	-0.000061	0.8327	0.000019	0.7091	0.000024	0.6448	0.000019	0.7124
_PRIVATE-D99_PRIVATE*EXCHANGE_PRIVATE(-1)	0.000188	0.4534	0.000188	0.4693	0.000188	0.4630	0.000037	0.4119	0.000042	0.3583	0.000037	0.4174
_REGIONAL-D99_REGIONAL*EXCHANGE_REGIONAL(-1)	0.000418	0.0513	0.000415	0.0619	0.000418	0.0561	-0.000064	0.0940	-0.000058	0.1323	-0.000064	0.0978
_STATEOWNED-D99_STATEOWNED*CAPITAL_STATEOWNED(-1)	0.000015	0.4497	-0.000012	0.8343	0.000015	0.4593	0.000002	0.5627	0.000014	0.1453	0.000002	0.5673
_PRIVATE-D99_PRIVATE*CAPITAL_PRIVATE(-1)	0.000030	0.5000	0.000002	0.9758	0.000030	0.5091	-0.000013	0.1020	-0.000001	0.9477	-0.000013	0.1059
_REGIONAL-D99_REGIONAL*CAPITAL_REGIONAL(-1)	-0.000038	0.8489	-0.000077	0.7274	-0.000038	0.8520	-0.000023	0.5279	-0.000005	0.8955	-0.000023	0.5328
			<b>F. Effects (Cross)</b>		<b>R. Effects (Cross)</b>				<b>F. Effects (Cross)</b>		<b>R. Effects (Cross)</b>	
_STATEOWNED-C			0.930867		0.00000				0.455497		0.00000	
_PRIVATE-C			1.186687		0.00000				0.425161		0.00000	
_REGIONAL-C			1.400670		0.00000				0.286222		0.00000	
<b>Effects Specification</b>												
					S.D.	Rho					S.D.	Rho
Cross-section random					0.000000	0.0000					0.000000	0.0000
Idiosyncratic random					0.390473	1.0000					0.069083	1.0000
					<b>Weighted Statistics</b>						<b>Weighted Statistics</b>	
R-squared	0.553216		0.560139		0.553216		0.874049		0.882621		0.874049	
Adjusted R-squared	0.168057		0.120278		0.168057		0.765470		0.765242		0.765470	
S.E. of regression	0.382164		0.392985		0.382164		0.068268		0.068301		0.068268	
Sum squared resid	4.235437		4.169808		4.2354		0.135155		0.125956		0.135155	
Log likelihood	-7.535834		-7.106381				87.196670		89.13509			
Durbin-Watson stat	2.366482		2.420703		2.3665		2.427119		2.366895		2.427119	
Mean dependent var	-0.034429		-0.034429		-0.0344		0.093630		0.093630		0.093630	
S.D. dependent var	0.418990		0.418990		0.4190		0.140967		0.140967		0.140967	
Akaike info criterion	1.219485		1.276596				-2.253333		-2.223094			
Schwarz criterion	2.168406		2.298511				-1.276412		-1.201179			
F-statistic	1.436333		1.273446		1.436333		8.049907		7.519417		8.049907	
Prob(F-statistic)	0.173427		0.267139		0.173427		0.000000		0.000001		0.000000	
					<b>Unweighted Statistics</b>						<b>Unweighted Statistics</b>	
R-squared					0.553216		0.560139		0.553216		0.560139	
Sum squared resid					0.168057		0.120278		0.168057		0.120278	
Mean dependent var					0.382164		0.392985		0.382164		0.392985	
Durbin-Watson stat					4.235437		4.169808		4.2354		4.169808	



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- Banking Macro Workshop for the Media, PT Bank Mandiri (Persero), Semarang, July 17 –19 2002.
- Customer Profitability Analysis (CPA), HBL Hadori & Rekan, November 7 –9, 2001.
- Selling Commercial and Corporate Bank Services, PT Bank Mandiri (Persero), incorporate with Citibank N.A., Jakarta July 30 – August 3, 2001.
- Basic Treasury, Bath V, PT Bank Mandiri (Persero) Jakarta, July 23 – July 27, 2001.
- Information System of Office Administration, Widyaloka Jakarta, May 5 – June 4, 1999.
- Education and Training: Reserve Field Orientation, at PUSDIK-RESINTELPAM LEMDIKLAT POLRI, Megamendung Cisarua-Bogor, August 4 - September 3, 1997.
- Management Training for Banking Practice, by PT BDN (Persero) at Wisma Baja, Jakarta, March 3 - June 3, 1997.
- Training Course in Work Ethics, by the Executive Performance Development Unit at Wisma Baja, Jakarta, May 26-28, 1997.
- Environmental Assessment, Ecology Institute of Padjajaran University, Bandung, August 22 - September 3, 1994.
- System and Energy Management, Polytechnic Education and Development Center (PEDC) Bandung Institute of Technology (ITB), Bandung, February 18 - March 16, 1991.
- Education and Training for Trainers, Industrial Technology Department, PEDC Bandung Institute of Technology, Bandung, November 3, 1986 - August 15, 1987.
- Basic Military Training, KODIKLAT Dam-II/BB, Pematang Siantar, August 22 - September 18, 1983.
- Penataran P4 Supporting Scheme, North Sumatra University Camp, Medan, September 1983.

#### 11. Seminars /Workshops Attended:

- Seminar: “The Proactive Operational Risk Management”, Federation of Indonesian Association of Banks (FIAB) and Indonesian Risk Professional Association (IRPA), Hilton Hotel, Jakarta February 20-21, 2003.
- Seminar on “Economic Prospects for 2003 to Enhance Election 2004”, Mandarin Hotel Jakarta, by Bisnis Indonesia, November 5, 2002.
- Seminar on “Government Debt: Sustainable?” Shangrilla Hotel, Jakarta, by CBPlus Mondial, October 31, 2002.
- Department of Management, Binus University, Presented a Paper on the “*Balanced Scorecard as a Guide in Strategic Action Implementation in the Banking Industry*”, Kampus Syahdan, Jakarta, May 21, 2001.
- National Seminar on *State Ownership of Corporate Enterprises* by LP Nahdlatul Ulama and Yayasan Permadani Bangsa, Hotel Kartika Chandra, Jakarta, March 2, 2000.
- One Day Seminar “Risk Management and Basel II Principles”, Bankers Institute of Indonesia, IBI Kemang Pratama Jakarta, July 25, 20002.



- One Day Seminar on “Corporate Visioning”, organized by Productivity & Quality Management Consultant, Aryaduta Hotel, July 3, 2002.
- Training of Instructors on Banking Management for Bank Rama Officer Staff, Canaro Banking Training Center, Gedung YTKI Gatot Subroto, Jakarta. May 25-26, 1998,
- Presented a paper at Workshop on Total Quality Environmental Management (TQEM), Hotel Bintang Jakarta, December 12-13, 1996.
- Moderated the National Workshop on ISO 14001: Implementation of Strategies under ISO series 14000 for Handled Free Trade Era and Link with Business Law, by Magister Law Students of Padjajaran University at Le Meridien Hotel, Jakarta, December 5, 1996
- Presented on “Strategies for Competing as a Winner in the Free Market Era,” Export-Import Management Guidance 100 Hour Scheme, Angkatan ke-5 Cooperated among Research and Management Consultants Institute with Private Universities Coordinating Region IV, Bandung, May 25, 1996,
- Speaker at the Indonesian Management Communication Forum, held by Management Studio of ITB, Aula Barat ITB, and Bandung, October 31 - November 2 1996.
- Workshop on Greenhouse Gas Emission Inventories in Indonesia, Bogor Institute of Agriculture, Bogor, August 4 -5, 1995.
- Committee Member of The Regional Southeast Asian Conference and Workshop on Eco-Efficiency and Cleaner Production for Enhancing Profitability and Competitiveness, Indonesian BCSD Cooperation with UNEP and BAPEDAL, Jakarta, July 2-6, 1995.
- Conference on Remote Sensing and GIS for Environmental Resources Management, BPPT, Jakarta. June 6-8, 1995.
- Seminar on Natural Resources Inventories Technology, BPPT, Jakarta. January 25-16, 1995.
- Workshop on Information Technology, Best Available Technology with Technology Transfer to Ward Business Community and Industry in Indonesia, LIPI, Bandung, December 12-13, 1994.
- Two Days National Seminar on Total Quality Environmental Management, Environmental Department of ITB, Bandung, December 16 - 17, 1994.
- One Day Seminar on Hazardous Waste Management and Environmental Audit, Ecology Institute Padjajaran University, Bandung, November 24 -25, 1994.
- Two Days Seminar on Clean Product and Clean Production Technology for Sustainable Industrial Development, Technology Center of ITB, Bandung, June 15 -16, 1994.
- Two Days Seminar on Techno-Economy “Developing Strategic Alliances among ASEAN Corporations; The Search for Complementary Alliances and Synergy”, Management Studio ITB, Bandung, November 8-9, 1993.
- Seminar on Aspects of Production Planning and Control, Industrial Engineering of ITB, Bandung, July 25, 1993
- Speaker on Student Leadership Training at Technical High School, Dharma Yadi I, Ujung Pandang, February 7-12, 1991.

## 12. Publications:

- “Menyoal Visi Indonesia 2030,” (Indonesian Vision 2030 Matter), *Bisnis Indonesia Daily*, June 7, 2007, 16.
- “Partnership Fund Management,” *Executive News Magazine*, No. Th II/June 2006, 26-27.
- “Wujud Neokolonialisme Baru” (Form of The New Colonialism), *Media Indonesia Daily*, June 28, 2005.
- “The Indonesian Banking Architecture in Emerging Market: Historical Lesson and Future Prospects,” Economic Module Working Paper, European-American DBA Program, summer, 2004.
- “Community Marketing in Retail Banking,” in *Marketing Breakthrough*, BUMN and *Business Review*, 11<sup>th</sup> Edition, p. 42, April 2004.
- “Costumer Relationship Management (CRM) and Costumer Intelligence (CI) in Banking Industries,” *Usahawan Magazine*, No. 01/TH XXXII, p. 31-33, January 2003.
- Management of Change Series (4) “*Virtual Capital*” *Buletin Mandiri*, Vol. 99, issued by PT Bank Mandiri, November 25, 2002.
- Management of Change Series (3) “*Transformational Leadership?*”, *Buletin Mandiri*, Vol. 98, issued by PT Bank Mandiri, November 11, 2002.
- Management of Change Series (2) “*Becoming Aware of Corporate Intelligence*”, *Buletin Mandiri*, Vol. 97, issued by PT Bank Mandiri, October 28, 2002.
- Management of Change Series (1) “*Vision Energizer, May Be?*”, *Buletin Mandiri*, Vol. 95, issued by PT Bank Mandiri, September 30, 2002
- “*Model of Corporate Assessment in Banking Perspective*”, Bina Nusantara University, Jakarta, June 22, 2002.
- “*Balanced Scorecard as Reference in Strategic Application in Banking Industries*”, Bina Nusantara University, Jakarta, May 21, 2001.
- Banking Management, a textbook for Accounting & Computer Department, Bina Nusantara University, Jakarta, August 2000.
- “Public Management in the Third Millennium”, *Neraca & Ekonomi Daily*, December 2, 1999.
- “Technology Education Paradigm”, *Neraca & Ekonomi Daily*, February 11, 1999.
- “The New Scenario of Banking Merger of State Owned Enterprises,” *Media Indonesia Daily*, January 12 1999.
- “Banking Merger Scenario of State Owned Enterprises”, *Media Indonesia Daily*, September 21, 1998.
- “TQEM in Banking Perspective”, *Ekolita Magazine*, March-April Edition 1999.
- “Bank and Corporate World”, *Usahawan Magazine*, No. 08/TH XXVII, p. 27-30, August 1998.
- “Business Clime Performance in Crisis of Banking Fund.”, *Indonesian Banking Development Magazine*, March - April 1998 Edition.
- “How to Trick the Merger of Government Bank?”, *Neraca & Economic Daily*, February 27, 1998.

- “Monetary Policy as Critical Factor of Banking Competitiveness,” *Indonesian Banking Development Magazine*, November - December 1997 Edition.
- “Internet Banking: Will It Be A Reality in Indonesia?”, *Neraca & Ekonomi Daily*, July 24-25, 1997.
- “Internet Technology Shock Stocks Based on Operation of International Direct Connection?” *Neraca & Ekonomi Daily*, July 3, 1997.
- “Total Quality Environmental Management for Economic Efficiency”, (Main Article), *Usahawan Magazine*, No. 10/TH XXV, October 1996.
- “Strategies for Competing as a Winner in the Free Market Era”, *Usahawan Magazine*, No. 9/TH XXV, September 1996.
- “Cleaner Production Application on Enhancing Profitability and Competitiveness on Textile Industry: Case Study PT.”X”, Bandung, January 27, 1996 (Magister Thesis, Under the supervision of Prof. Frans Mardi Hartanto, Phd. and Dr. Surna Djajadiningrat).
- “Time Base Competition”, *Usahawan Magazine*, Number 12/TH XXIV, December 1995.
- “ISO Series 14000 in Organization Learning Focus,” *Usahawan Magazine* Number 11/TH XXIV, p. 12-17, November 1995.
- “To Anticipate ISO Series 14000”, *Kompas Morning Daily News Papers*, p. IV/5-9-V/8-9, September 7, 1995.
- “Out Sourcing Strategy in Scheme to Enhancing Efficiency”, *Usahawan Magazine* Number 07/TH XXIV, p. 14 - 19, July 1995.
- “Turn A Round a Company Strategy”, *Usahawan Magazine* Number 03/TH XXIV, p. 10 -15, March 1995.
- “Feasibility Study of Palm Kernel Oil Plant Development in Mamuju Rigency”, Graduate Thesis, Sulawesi Selatan, December 1990.

### 13. Work Experience:

- Lecturer in Energy Engineering Department, Polytechnic Hasanuddin University, Ujung Pandang, August 15, 1987 - March 30, 1992.
- Head of Workshop in Energy Engineering Department of Hasanuddin University, Ujung Pandang. September 1989 - October 1990.
- Sales Supervisor, PT. Mitsui, Ujung Pandang, 1988.
- Sarjana Oriented I, PT Telkom Indonesia, Bandung, January - March 1992.
- Engineering Assistant (to Prof. Otto Soemarwoto, Senior Environmental Expert in Indonesia) Indonesian Business Council for Sustainable Development (Indonesian BCSD), Bandung, August 1, 1994 - January 1, 1996.
- Executive Director, Center for Economic and Environmental Studies (CEES), May 1996 - December 15, 1996.
- Product Development Manager, PT Bank Dagang Negara (Persero) Head Office, Corporate Two Division, December 15, 1996 – August 1, 1999.
- Lecturer in Strategic Management, Banking Management, Financial Management I, Bank & Financial Institutions and E-Corporation

Management, Management Department, Faculty of Economics, Bina Nusantara University, February 1999 to date,

- Relationship Manager, Government Relations Management Unit, PT Bank Mandiri (Persero), August 1, 1999 - December 2001,
- Publicity and Media Relations Manager (Communication Manager), PT Bank Mandiri (Persero) Tbk., Office of Corporate Secretary, Corporate Communications Department, January 1, 2002 to date.

14. Consultancy Works:

- Institution: Directorate of Bina Program, Human Settlement, Jakarta  
Work: Data Analyst and Enumerator for the Strategy and Development Program for Housing and Settlement Sector; (Funded by OECF Japan), December 1992 - July 1993.
- Institution: General Directorate of Cipta Karya.  
Work: Management Specialist on the Studies/Project for Institutional Enhancement for Wastewater Center Infrastructure, Medan City, Sumatera Utara, November 1995 - March 1996.
- Institution: General Directorate of Cipta Karya.  
Work: Management Specialist on the City Rejuvenation Project for Region One in East District at PT Galih Karsa Utama, August 1995 - December 1995.
- Institution: General Directorate of Cipta Karya.  
Work: Management Specialist on the City Rejuvenation Project for Region Two in Middle District at PT TROPIC Konsultan, Jakarta, September 1995 – January, 1996.
- Institution: General Directorate of Cipta Karya.  
Work: Management Specialist on the City Rejuvenation Project for Region Three in West District at PT. Bina Karya, Jakarta, October 1995 - March 1996.
- Institution: National Logistic Bureau (BULOG)  
Work: Team Leader for Plant Lay-Out Design: Developing Soybean Processing Project at PT. Sapta Karya Dayatama, Jakarta, January 1996 - April 1996.
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Work: Systems Analyst/Specialist to Design an Income and Account Receivable Software using Local Area Network (LAN), at CV. Prima Cipta, Bandung, June – August 1996.

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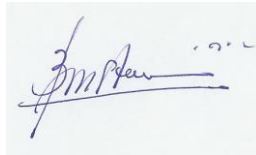
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## **Candidate's Declaration**

This is to hereby confirm that this doctoral dissertation was not an outcome of any form of plagiarism and that it had not previously been presented elsewhere for the purpose of a degree award.

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A handwritten signature in blue ink, appearing to read 'Batara Maju Simatupang', written over a horizontal line.

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Amazingly, the price paid by the Government of Indonesia in overcoming the economic crisis in the form of national banking restructuring amounted to IDR 658.72 trillion or equivalent to 51.03% of GDP in the year 2000. In the history of world economic crises, this is the one of a most expensive intervention made by any state on this planet so far. As much as IDR430.4 trillion (or 67%) of the total expenditure was allocated for the recapitalization of banks. This was considered as "too big or too important to fail."

Empirically, this fantastic policy has been able to top up individual performance of banks in general. Unfortunately, five years after the recapitalization, the contribution of recapitalized banks has returned to the level before the crisis neither in 1997/1998, nor to their function as intermediary institutions. This brings to the fore, the consequence of the low contribution of the recapitalized banks in the process of economic recovery nationally, and especially on the real sector.

In addition, the banks' recapitalization program through the capital injection did improve the performance of banks generally, but unfortunately, the recapitalization program could not directly recover the Indonesian economy from the crisis of 1997-1998 and could not also restore the banks to their function as good intermediary institutions.



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