JBIC Review

No. 12
August 2005

ISSN 1347-5681

JBIC
JAPAN BANK FOR INTERNATIONAL COOPERATION

Economic Reforms and Financing Structure of Indonesian Listed Companies after the Asian Crisis

Rebuilding the Indonesian Banking Sector —Economic Analysis of Bank Consolidation and Efficiency—

Indonesia's Medium-term Development Plan and Public Debt Sustainability

JBICI Review No.12
August 2005

Published semiannually
by JBIC Institute, Japan Bank for International Cooperation
4-1, Ohtemachi 1-chome, Chiyoda-ku, Tokyo 100-8144, Japan

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Economic Reforms and Financing Structure of Indonesian Listed Companies after the Asian Crisis: Corporate Finance Issues and the Solutions.....1

Hidenobu Okuda

Yasushi Take

Rebuilding the Indonesian Banking Sector－Economic Analysis of Bank Consolidation and Efficiency－ ...32

Kimie Harada

Takatoshi Ito

Indonesia's Medium-term Development Plan and Public Debt Sustainability.....60

Sumio Ishikawa

Economic Reforms and Financing Structure of Indonesian Listed Companies after the Asian Crisis: Corporate Finance Issues and the Solutions*

Hidenobu Okuda**
Yasushi Take***

Abstract

In this paper, the debt-ratio determinants of Indonesian listed companies are analyzed in regression for five years from 2000, and corporate financing activities after the Asian crisis are studied. The estimate results show that financing activities of listed companies are explainable by their economic rationality. The structure of excessive borrowings leveraging business groups and specific social and political elements, which has historically been seen as a problem, is not found in the results. This is considered to be a consequence of financial and corporate reforms following the Asian crisis.

However, the estimate results also illustrate that there still remain policy tasks. First of all, the insufficient collateral capacity and low visibility may become serious impediments to financing activities. Secondly, banks do not bear adequate risks that meet the profitability of borrowers, which indicates insufficient credit activities of the banks. Thirdly, it is difficult for companies with low collateral capacity to borrow long-term funds. Moreover, the core companies in each business group may function as a conduit for such borrowing.

To solve these problems, it is urgent that companies promote corporate information disclosure and facilitate the implementation of the legal process of collaterals. The banking sector assumes a key role in the external funding activities of private companies, and policy support is strongly desirable for enhancement of the credit capacity. Furthermore, in order to meet the demand of large-scale long-term funds, it is essential to develop capital markets such as the stock and debenture markets as substitutes for bank loans.

Introduction

Indonesia's economy was hit hard by the Asian crisis in 1997, in both the real and the financial sectors. Since 2003, however, the economy has steadily recovered on the foundation of its favorable domestic consumption. Furthermore, since the latter half of 2004 investment expansion has been bringing the economy into a new growth track. In the financial sector, privatization of the national banks started in 2002, which stimulated banks' lending activities in a shift to expansion after the long downturn.

One of the keys to sustaining Indonesia's stable economic growth is to develop a sound and efficient corporate finance structure. In Indonesia before the Asian crisis, weaknesses in corporate finance, represented by collusion between banks and companies and by excessive borrowings, were generally regarded as serious problems and critical factors that aggravated the crisis. In consequence, Indonesia has subsequently promoted structural reforms of corporate finance. In the banking sectors where management was seen to be inappropriate, many banks were financed by public funds in the course of management reconstruction and were reorganized in the wake of resignation of the former top management. At the same time, in the corporate sectors where excessive borrowings and overinvestment emerged as serious problems, many

* In the process of composing this paper, we received useful advice and suggestions from Dr. Yuri Sato, Ms. Miki Hamada, Dr. Anwar Nastion. We were tremendously supported by the JBIC Institute and its Jakarta representative office, particularly for the field survey of Jakarta. We owed Mr. Peter Chandra for his insightful information about financing activities of Indonesian listed companies. We would like, in writing, to express our gratitude for their support.
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enterprise groups faced a financial crisis. This caused the disposal of nonperforming claims, along with business restructuring, to be reinforced on a large scale by IBRA and the Jakarta Initiative. Moreover, with the aim of tightening the management disciplines of banks and companies and of developing sound financial systems, a series of banking system reforms and corporate governance reforms have been implemented.

Even though corporate financial activities play an important role in Indonesia's economic development, there are still not enough economic science studies of these activities.[1] Sato (1993, 2004a and 2004b) and Takeda (2000) focused on clarification of ownership structures and conducted case studies of specific enterprise groups. Studies using econometric methods are represented by the analyses by Classen et al. (2000) and Hanazaki & Liu (2003). However, such quantitative analyses are studies of the background and impact of the Asian crisis. There has been no study yet of the current status of corporate finance under the new financial and economic circumstances after the crisis.

This paper analyzes the financing structure of listed companies in Indonesia after the Asian crisis and attempts to clarify policy tasks for the future consolidation of corporate finance by highlighting the characteristics of their financing structures. To this end, the debt-ratio formula for companies listed on the Jakarta Stock Exchange is estimated, to what extent general theories of corporate finance is applied to this formula is examined, and the impact on the formula of Indonesia's peculiar social and political factors is identified. The period of the study is the five years after 2000 (FY 2000-FY 2004), when the economy recovered from chaos after the crisis and a series of financial and economic reforms were implemented.

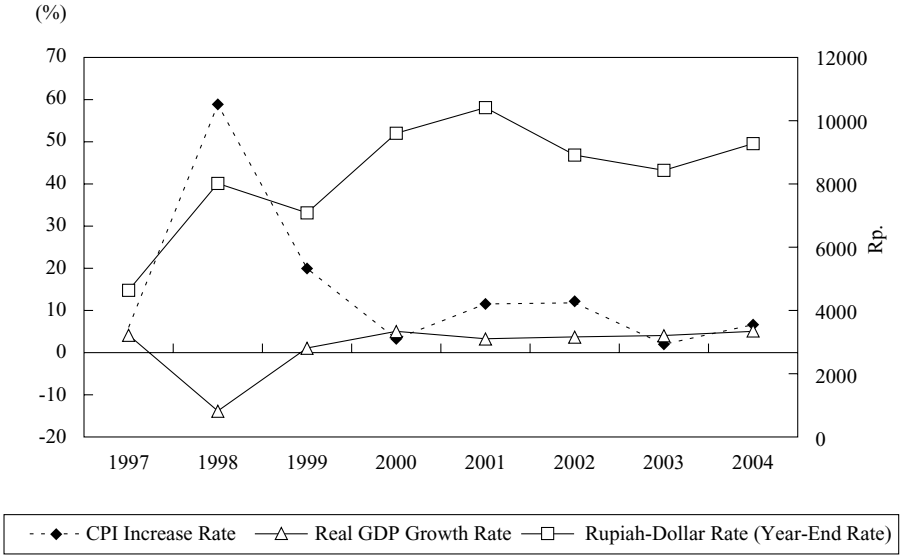
The significance of analyzing listed companies in developing countries is sometimes questioned, because listed companies are exceptional entities in such countries' markets.[2] However, there are the following advantages to this thesis in analyzing the listed companies. First of all, the available financial data are far more refined than those of unlisted companies, so that an in-depth analysis based on the framework of economics becomes possible. Secondly, consistent long-term control of the corporate data of various industries leads to a comprehensive overview of corporate finance profiles. The study of this thesis and the knowledge provided by advanced case studies are complementary approaches, which in combination are expected to greatly expand and deepen the study of this field. Thirdly, more than half of major private companies included in the top thousand companies by sales ranking are listed on the stock market in Indonesia. This means that the presence of major private companies reflects an importance that is not to be undervalued in the corporate sector or in Indonesia's economy, despite their limited number (Sato [2004]). Accordingly, a thorough analysis of the financing activities of listed companies is an essential process for studying issues of consolidating corporate finance.

This thesis is composed as follows. Chapter 1 covers changes of the corporate finance environment in Indonesia after the Asian crisis. Chapter 2 captures theoretical views for analysis of the financing activities of listed companies in Indonesia, based on the adjusted Modigliani-Miller theory with agency cost. In Chapter 3, after showing that listed companies play an important role in the corporate sector of Indonesia, management characteristics of listed companies are reviewed by corporate attribute based on the discussion in Chapter 2. In Chapter 4, determinants of the capital structures of listed companies are analyzed in regression, using the microeconomic data of individual companies. In Chapter 5, policy tasks for the consolidation of Indonesia's corporate finance are discussed, based on the study results and the discussion in the preceding chapters.

1 In Southeast Asian countries, it is difficult to use corporate data such as financial data. Therefore, econometric analyses, generally conducted in advanced countries, are not easy.

2 In developing countries, typical bluechip companies are not necessarily listed companies. As the listing objectives are different from those of advanced countries, it is often said that an analysis of listed companies does not always indicate tendencies of general companies. See Mieno (2002).

Figure 1 Macro Major Indices



Sources: Compiled from the Asian Development Bank's Key Indicators 2004 (www.adb.org/statistics), and the values for the year 2004 are compiled from the Bank Indonesia Website (http://www.bi.go.id/).

Chapter 1: Corporate Finance of Indonesian Companies after the Crisis

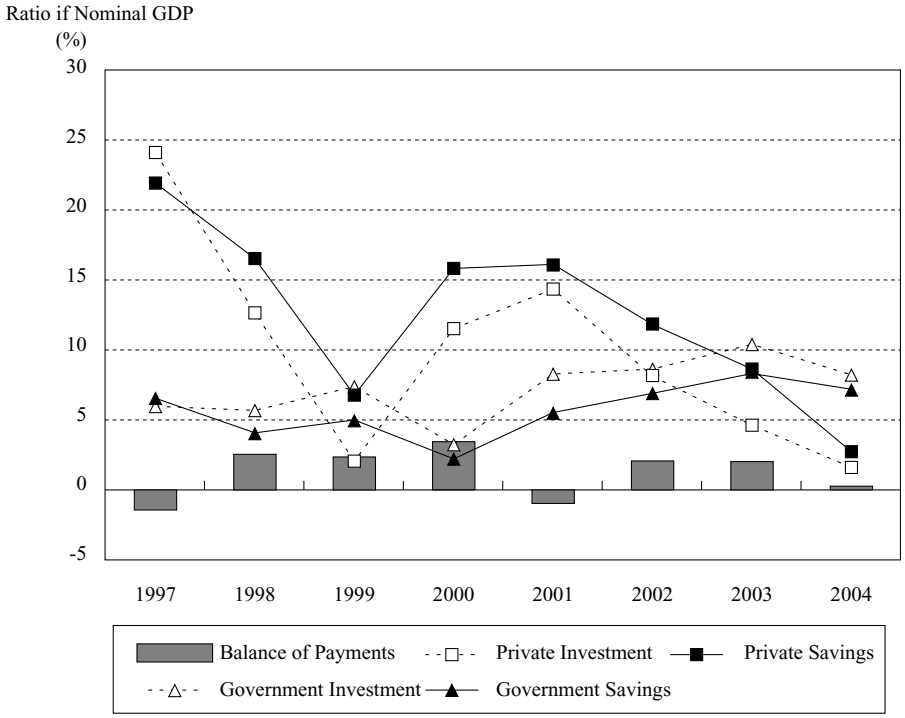
1. Macro Financial Environments of Indonesia

Although Indonesia's economy was hit hard by the Asian crisis, the macroeconomic climate has been on track for recovery since 2000, due to financial and corporate reforms (Figure 1). In 2003, the real GDP returned to its pre-crisis level, while the inflation rate remained high compared to that before the crisis. In spite of some negative impact of the tsunami damage in Banda Aceh, the macro economy continued to recover steadily in 2004. The foreign exchange rate has been relatively stable since 2001, although its fluctuation is greater than before the crisis due to the shift to a floating exchange rate system.

Meanwhile, the macro fund balance of Indonesia has changed significantly after the Asian crisis (Figure 2). The ratio of savings and investment to GDP had decreased substantially during the financial crisis and started to recover in succeeding years, but neither of them has returned to the level of before the crisis. In Indonesia's economy as a whole, the savings rate has been higher than the investment rate. The excessive savings are causing an underlying trend of favorable balance on the current account. The supply and demand of funds by sector suggests that in the government sector both the savings and investment rates are higher than those before the crisis, which leads to the conclusion that the government sector is unprofitable. On the other hand, the supply and demand of funds in the private business sector shows a sharp drop in the investment rate. The private sector as a whole is producing profits, with the savings rate higher than the investment rate.

The banking sector, which is the core of the financial sector, suffered serious damage by the Asian crisis. However, it continues to be at the core of the financial sector even after the crisis, assuming a major intermediary function for domestic resources. The ratio of total bank balance to GDP was 39.8% in 1997 and 45.7% in 2003, hovering around the same level. At the same time, however, a significant change took place in financial intermediation (Figure 3). The financing activities of banks show that the volume of borrowings decreased while that of deposits increased. During the period from 1997 through 2003, the ratio of borrowings from foreign markets to total assets dropped from 11.2% to 1.8% and the ratio of debt payable to total assets decreased from 3.8% to 0.3%. Meanwhile, the ratio of checking deposits to total assets grew from 10.7% to 18.4%, while the ratios of saving deposits and time deposits increased from 9.1% to 24.4% and from 20.0% to 30.5%,

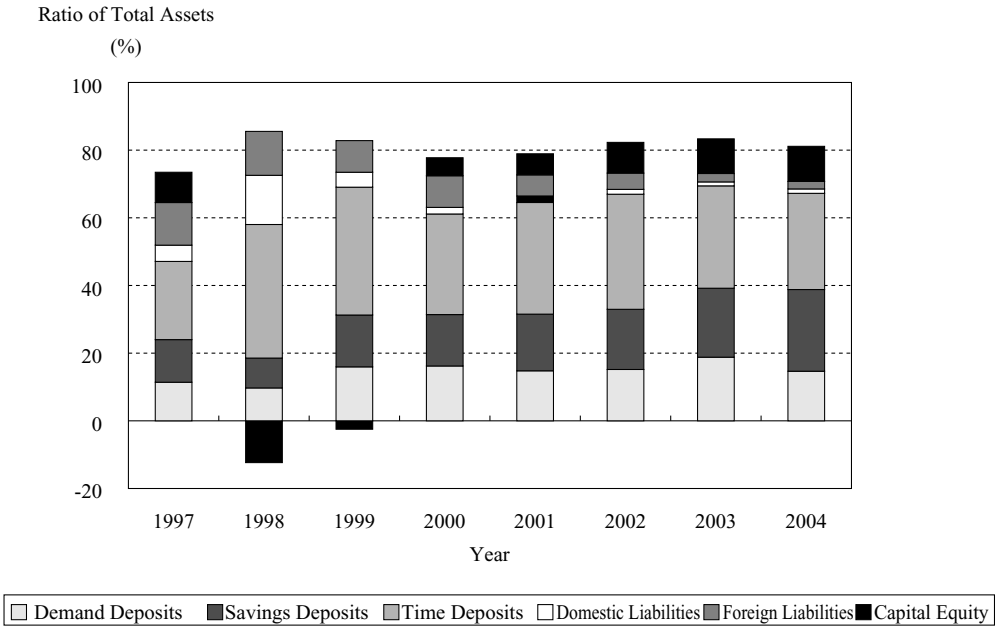
Figure 2 Balance of Savings and Investment



Note: Government investment is calculated based on government capital spending, while government savings is calculated from the balance of government revenue and government expenditure. Private investment is calculated by using the Balance of Payments, while private savings is calculated from the balance of national savings and government savings. The formula for calculating private investment is: Private Investment = Private Savings + Government Savings + Balance of Payments - Government Investment

Sources: Compiled from the Asian Development Bank's Key Indicators 2004 (www.adb.org/statistics), and the values for the year 2004 are compiled from the Bank Indonesia Website (http://www.bi.go.id/).

Figure 3 Financing Activities of Commercial Banks

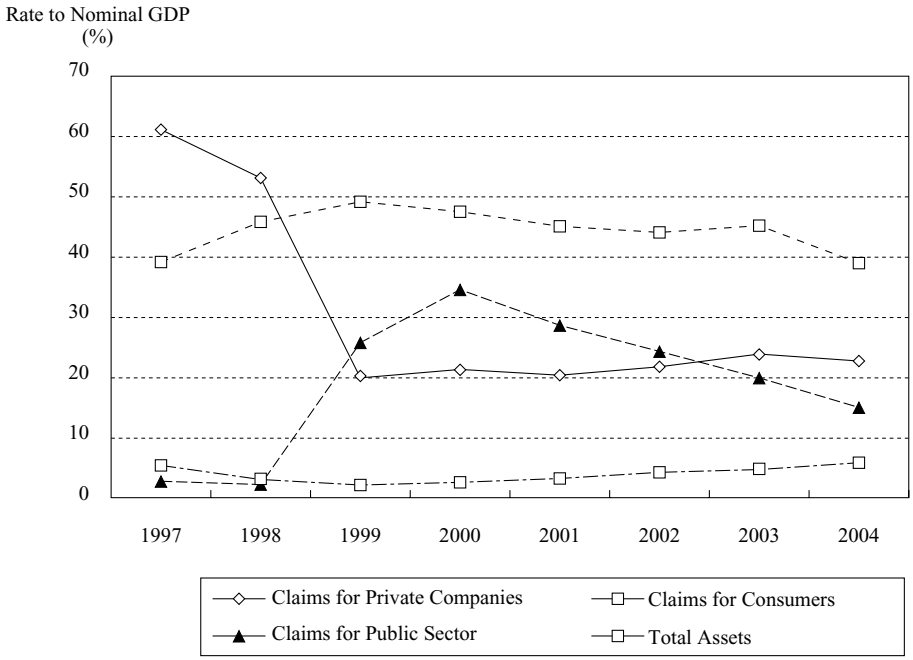


Source: Compiled from data provided by Bank Indonesia (http://www.bi.go.id/).

respectively. The ratio of capital stock to total assets dropped sharply due to the crisis but recovered in 2003 to 6.3%, nearly equal to the level of 1997.

The financing activities of banks also show that the rate of lending to private companies significantly declined due to the Asian crisis (Figure 4). The ratio

Figure 4 Assets Management of Commercial Banks



Source: Compiled from data provided by Bank Indonesia (http://www.bi.go.id/).

to GDP of outstanding balances of loans to private companies dropped to 21% in 2000 from over 60% in 1997, which caused the balance of government bonds to increase rapidly after injection of public funds to banks and their business restructuring. Due to the recovery of Indonesia's economy in succeeding years, the rate of lending to private companies recovered to 24% in 2003, and the rate of government bonds started to decrease gradually in 2000. Another trend following the Asian crisis is that the rate of lending to consumers started to increase only gradually, even after the economic recovery.

Financing activities through the stock market have been increasingly important since the crisis, which dealt a heavy blow to the function of banks as financial intermediaries (Figure 5). The ratio of outstanding shares of listed companies to GDP was no more than 9.5% in 1997, but started to grow in 1998 to reach 13.6% in 2003, about half as high again as that before the crisis. The number of listed companies also increased to 411 in 2003 from 306 in 1997.[3]

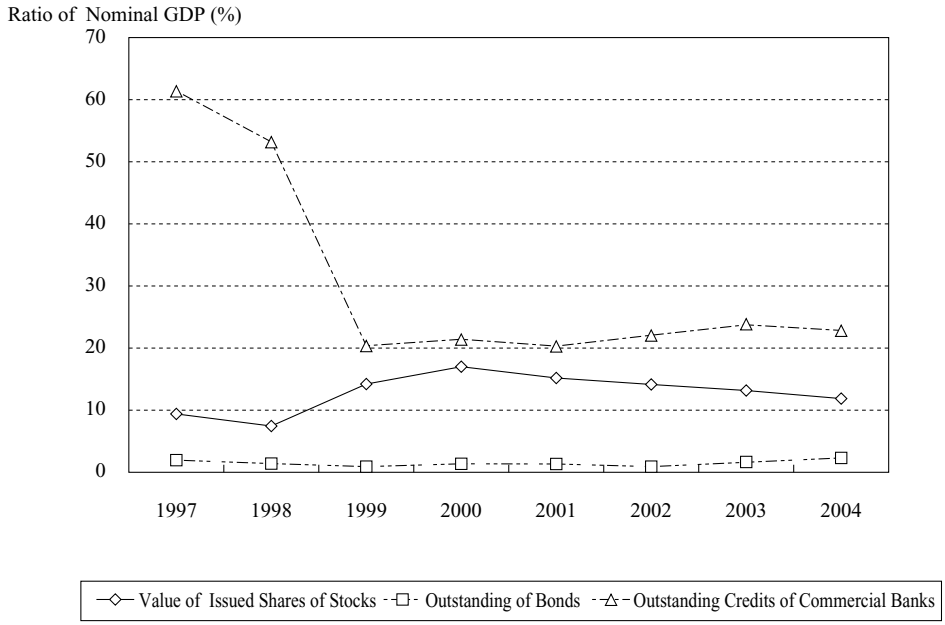
Despite a rise in the debenture market occasioned by the crisis, the scale of fund raising from it is still smaller than that from banks and the stock market, which exemplifies its limited financial function. The ratio of outstanding debenture balance of listed companies to GDP was 2.6% in 1997 but in 2003 recovered to 2.8%, exceeding that of before the financial crisis, after it had dropped to 1.8% in 1999.[4] The number of companies issuing debentures grew from about 70 at the end of 1997 to 134 at the end of 2003.

2. Reforms of Banks and Private Companies

In Indonesia after the Asian crisis, restructuring of the financial sector and private companies was implemented with a focus on the economic reconstruction of banks deeply affected by the crisis. Full-scale reorganization of banks and enterprise groups was put in hand, along with restructuring of capital structures through injection of public funds for the liquidation of failed banks, disposal of banks' non-performing claims by IBRA, and the Jakarta Initiative for solution of the external debt issues of

3 The value of outstanding shares (nominal) was 60 trillion rupiah in 1997 and 243 trillion rupiah in 2003.
4 The value of outstanding debentures (nominal) was 164 trillion rupiah in 1997 and 500 trillion rupiah in 2003.

Figure 5 Changes in Financing Methods of Private Companies



Note: The outstanding shares and the bond issued are based on the data of listed companies.
Source: Compiled from data provided by Bank Indonesia (http://www.bi.go.id/).

individual companies.

At the same time, reforms of banking systems and corporate governance structures have been implemented for solution of the non-performing asset problems of national banks and that of collusion between private banks and specific enterprise groups, which are seen to have caused aggravation of the financial crisis (Komatsu [2005]). The core of such projects includes tightening of prudence regulations for banks, tightening of governance regulations for listed companies, and development of legal systems such as for bankruptcy. Such restructuring of capital structures and reforms of financial systems were aimed at the dissolution through new management disciplines of collusion between banks and private companies, and they exercise a considerable influence over the financing structures of companies as described below:

(1) Influence of Disposal of Banks' Non-performing Claims

The ownership structure reform of the banking sector was implemented with a focus on extensive and progressive restructuring of banks along with disposal of non-performing claims. Eventually, particular ownership structures of banks and enterprises that emerged as serious problems before the crisis were dissolved as a result of nationalization and recapitalization of most of the major regional banks.

The total number of nationalized or recapitalized banks from 1997 through 1999 was 38. The relevant assets accounted for 67% of the total assets of the banking sector. The assets of the banks that survived without any reconstruction were no more than 17% of the total assets of the banking sector, 9% of which were local branches of foreign banks or banks jointly operated with foreign financial institutions (Sato (2004a)). Nationalized banks sold to foreign and domestic investors rejoined the market by 2003, following liquidation and consolidation by IBRA.[5]

The injected public funds were mainly financed by issuance of government bonds. These were to be held by recapitalized banks in proportion to the

5 Before the financial crisis, foreign investors were limited to holding a maximum 50% of the share capital. After the financial crisis, the limit of shares able to be held by foreign investors was raised as high as 99%.

6 See Takayasu (2005) and Ogushi (2002). The fixed-rate bond was converted to a floating-rate bond with a lower interest rate after redemption in 2004.

Table 1 Chronological Table of Financial and Corporate Reforms in Indonesia

Year	Month	Bank-Related Events	Reforms of Financial Systems	Corporate-Related Events
1997	Oct	The government participated in the IMF aid program.		
	Nov	The government closed down 16 private banks (First Bank Restructuring Program). →Increase of Banks' Insecurity and Expansion of Support for Liquidity Improvement by Bank Indonesia	The government started to guarantee deposits up to 20 million rupiah.	
1998	Jan		The blanket guarantee system (debt guarantee for all deposits) was introduced. The Indonesian Bank Restructuring Agency (IBRA/BPPN) was established under the Finance Ministry.	
	Feb	IBRA placed 54 private banks under its control (Second Bank Restructuring Program).		The law concerning annual corporate financial information (#24 in 1998) was issued.
	Apr	IBRA jointly established seven private banks and placed seven banks including one national bank under its control (Third Bank Restructuring Program).	IBRA had no legal authority to reconstruct failed banks or to liquidate the assets.	The order of enforcement for revision to the bankruptcy law was enacted.
	May	IBRA placed under its control BCA which was hit by a run on a bank.		
	Jun			The Indonesian Debt Restructuring Agency (INDRA) was established as a government bargaining agency for external private debts. The order of enforcement for revision to the bankruptcy law (#4 in 1998) was enacted.
	Aug	IBRA closed down three out of eight private banks under its control and nationalized four banks including BCA and Danamon (Fourth Bank Restructuring Program).		Commercial courts for bankruptcy litigation were established.
	Sep	Bank Indonesia announced its public fund injection plan for private companies. →The government postponed for the third time the selection of applicable banks, which had been scheduled for the end of December.	First Issuance of Government Bonds for Restructuring of Banks →Bank Indonesia conducted adequacy examinations for shareholders and management of banks to which public funds are to be injected.	The Jakarta Initiative Taskforce (JITF) was established as a government arbitration agency for external and domestic private debts.
	Nov		Revision to the Bank Law (#7 in 1992) The provisions of Bank Indonesia's independent authorities, strict punishment for fraud, the deposit insurance organization and the Sharia Law are newly added to the regulations. Bank Indonesia obliged all the banks to raise their capital adequacy ratio to 4% or more by the end of 1998. →The minimum requirement was changed later.	
1999	Feb		The authorities of IBRA were clarified by government order (#17 in 1999).	
	Mar	The government finalized the restructuring plan for private banks. It closed down 19 banks in category C (CAR: under 25%) and 19 banks in category B (CAR: 25% or above and under 4%) and nationalized 7 banks and injected public funds to 9 banks in category B. The remaining banks (74 banks in category A) were allowed to continue (Fifth Bank Restructuring Program).		The antimonopoly and unfair competition prohibition law (#8 in 1999) was established.

			The new central bank law (Law #23 in 1999) was enacted for regulating the authorities and independence of Bank Indonesia. IBRA excluded the former owners from management of national banks.	
	Apr			The consumer protection law (#8 in 1999) was enacted.
	Jul	The merger of nine national banks with BCA and Danamon was decided.		The revised law concerning annual corporate finance information (#64 in 1999) was issued. The corporate governance national committee was established.
	Aug	The merged four national banks started business as Bank Mandiri.	The shareholder management resigned from BII, a public fund injected bank.	The arbitration law (#30 in 1999) was enacted.
	Sep			The transfer mortgage law (#42 in 1999) was enacted.
	Oct	Bank Mandiri, a national bank, started to receive public fund injections.		
2000	Jan	Bank Indonesia closed down 1 financially troubled private bank.		
	Feb		BNI, a national bank, replaced its top management. The government bond market was established on the Surabaja Stock Exchange.	
	Mar		The internal supervisory committee was established in IBRA.	The national committee released the Good Corporate Governance Code (1st Edition). Bapepam revised the guideline for preparing financial statements of disclosed companies.
	Apr	Injection of public funds started for BNI, a national bank.		
	May	The stocks of BCA held by the government were partly sold to the market by initial public offering.		Bapepam issued a circular letter (SE-03/PM/2000)to recommend establishment of an accounting audit committee for disclosed companies.
	Jul		The external supervisory committee was established for IBRA.	
	Oct	Bank Indonesia closed down two financially troubled private banks.		
	Nov	The public fund injection plan was completed.		
2001	Jan		Bank Indonesia obliged all the banks to raise their capital adequacy ratio to 8% or more and to lower their nonperforming claim ratio to 5% or less by the end of 2001.	
				The Jakarta Stock Exchange issued a notice of resolution (#339 in 2001)concerning establishment of an independent auditor and an audit committee for listed companies.
	Aug			The judicial foundation law (#16 in 2001) was enacted.
	Oct	Bank Indonesia closed down one financially troubled private bank.		
	Nov	The merger of four public fund injected banks of which CAR was 8% or under with Bank Bali, a nationalized bank, was decided.		
2002	Mar	The stocks of BCA, a nationalized bank, held by the government were partly (51%) sold to an investment association in the U.S.		
	Aug			The Minister of State in charge of national companies for Good Corporate

				Governance was appointed (#117 in 2002).
	Sep	The five nationalized and public fund injected banks were merged and reborn as Bank Permata.	The government bond law was enacted, granting domestic issuance of government treasury bills.	
	Nov	The stocks of Bank Niaga, a nationalized bank, held by the government were partly (51%) sold to Malaysia.		
	Dec	Nonperforming claims (18 trillion rupiah) were transferred again from four nationalized banks to IBRA.		
2003	Feb	Lippo Bank, a public fund injected bank, was suspected of unfair stock price manipulation.		
	May	The stocks of Danamon, a nationalized bank, held by the government were partly (51%) sold to Singapore and an investment association of Deutsche Bank.		
	Jul			Bapepam issued a notice of resolution (Kep-27/PM/2003) concerning reporting on the use of funds raised from markets.
	Aug			The national company law (#19 in 2003) was enacted.
	Oct	The stocks of BII, a public fund injected bank, held by the government were partly (51%) sold to Singapore and the investment association of Korea National Bank. Credit fraud at BNI, a national bank, was detected.→Replacement of Top Management		
	Nov	Initial Public Offering of BRI (National Bank)		
	Dec	The illegal lending case of BRI, a national bank, was detected.		Bapepam issued a notice of resolution (Kep-40/PM/2003) concerning directors' responsibilities in annual reports. Bapepam issued a notice of resolution (Kep-41/PM/2003) concerning establishment of an accounting audit committee and operating rules.
2004	Jan		Revision to the Central Bank Law The provisions concerning the responsibility of reporting to the Diet by Bank Indonesia and the regulatory authorities for Bank Indonesia were regulated.	
	Apr	Bank Indonesia closed down two financially troubled private banks. The stocks of Bank Mandiri, a national bank, were sold by initial public offering.	IBRA was dissolved.	
	Aug		The law of establishment of LPS (deposit insurance organization) was passed in the Diet.	
2005	Dec	Bank Indonesia suspended the business of BG, a financially troubled private bank.		
	May	Bank Mandiri was suspected of illegal lending of 1 trillion rupiah.		

Sources: Sato (2004A), Sato (2004B), Takayasu (2005)

capital contribution by the government. The system provided profit-making sources, as well as funds for injection, to banks after the financial crisis.[6]

As most regional banks were nationalized or recapitalized, the relationship between banks and enterprise groups significantly changed after the crisis in terms of capital structure. It is often said that companies saddled with excessive debts are excessively funded by a bank in the same enterprise group. However, dissolution of the capital structures apparently created difficulty in the conventional collusion between banks and companies.[7]

(2) Tightening of Prudential Regulation for Banks

With regard to maintaining sound bank management, regulatory authorities were strengthened in the wake of establishment of Bank Indonesia's new organization and of stronger bank inspection powers, while Prudential Regulation for banks were further tightened. Dispensation of favors to specific companies has become difficult, due to clarification of bank management responsibilities and to tightened regulations.

Tightening of Prudential Regulation was achieved by raising the minimum capital adequacy ratio from 4% to 8%[8] and of increasing the minimum capital amount required for entry to the banking market. Furthermore, the legal lending limit for lending to companies in the same enterprise group was lowered to less than 20% (affiliate companies: less than 10%) of the total bank assets and the net open position of foreign exchange was regulated, as a general rule, to less than 30% of owner's equity. For banks of which the management was deemed to be unsound, the liquidation process was clarified by regulations specifying dissolution patterns suited to each situation, and the deposit insurance organization was developed for bankruptcy of banks. As regards the shareholder responsibilities of such banks, penalties were toughed for those who violated criminal regulations.

To strengthen the operation of bank inspection authorities, Bank Indonesia conducted a drastic organizational change which improved the independence of its inspection functions and increased the supervisory authority over it of the government and the Diet. In the 1998 revision to Bank Indonesia's charter, the authority for issuance and cancellation of bank licenses was transferred from the Minister of Finance to Bank Indonesia so that administrative control over banks was integrated in the central bank. By the same revision, in 1999 Bank Indonesia was regulated as an independent national organization not interfered in by other government bodies. Although appointment of the top management required proposal by the President and approval by the Diet, it was decided that neither the President nor the Diet has a right of dismissal. After the emergence in 2004 of the corruption problem among staff of Bank Indonesia, its charter was reformed for stricter supervision over the bank itself, the accountability of Bank Indonesia to the government and the Diet was regulated, and the dismissal process for top management who violated the regulations was clarified. The system of triennial audit for Bank Indonesia was changed to that of annual risk audit conducted under the bank supervisory program in accordance with international standards.

(3) Improvement of Corporate Governance

Following the crisis, reforms of the bankruptcy system and corporate governance for listed companies were implemented, along with restructuring of the banking sector. It is necessary for external investors in the capital market to easily monitor corporate conduct in order to strengthen governance by shareholders. Reform of the bankruptcy system is essential for strengthening governance by creditors. These reforms are expected to improve transparency of corporate management, to protect the interests of external investors and creditors, and to mitigate investment risks.

In 2001, appointment of an independent auditor and an accounting audit committee, as well as

7 When a recapitalized bank rejoined the market, the former owner allegedly purchased the sold bank through an agent to effectively reacquire the management right.

8 Further tightening to 12% is being examined and planned for the future.

expansion of the duties of a corporate secretary, was made obligatory by the Jakarta Stock Exchange, which made monitoring by external investors quite easy. Independent auditors having no stake in the company accounted for 30% of all corporate auditors, so the regulatory power of external investors was secured. An accounting audit committee was to be comprised of three or more members, including an independent auditor as the chairman. Members other than the chairman should be independent outsiders, including at least one expert in accounting and finance. The duties of a corporate secretary, who had originally been supposed to liaise between the company, the regulatory authorities, and external investors, were defined to be preparing registers of stakeholders, registers of major shareholders, and minutes of board meetings, as well as operating annual general meetings for shareholders. In 2003, the capital markets regulatory agency settled that directors are responsible for an annual report, which clarified responsibility in the information disclosure process.

The focus of corporate governance reform for listed companies is placed on: (1) establishment of a regulatory function independent from the company and supervised by a corporate auditor independent from existing corporate auditors, directors or shareholders; (2) consolidation of internal information management by appointment of an independent auditor and a corporate secretary; (3) enhancement of information disclosure capacity through the information management function appended to a corporate secretary.

However, it could hardly be said that the actual ownership structures of Indonesia are fully considered in these reforms. Thus, further improvement is necessary. With regard to the appointment of independent auditors and accounting audit committees, Sato (2004b) points out that there is no incentive for monitoring an independent auditor or an accounting audit committee, since major shareholders of Indonesian companies have so far themselves been its owners. Even though some progress has been recognized in information disclosure, the capacity for monitoring minor shareholders, including institutional investors, is considered to be still low due to insufficient infrastructure for efficient use of disclosed information. Therefore, since it is hard to achieve satisfactory results by internal audit systems, Sato suggests that companies and their supervisors should be monitored by government bodies.

It is widely believed that, although reforms of corporate finance have been implemented, these reforms have not been sufficiently effective. Development of commercial courts and reform of the bankruptcy law opened the door for legal procedures by creditors against failed companies, something which had been prohibited before the financial crisis, and for governance of corporate conduct thereby. However, Kaneko (2002) points out that legal liquidation of creditors' equity has to date not been functioning well, in spite of enactment of laws, due to legal professionals' corruption, bribery, and lack of experience.

Chapter 2: Analytic Views of Indonesian Listed Companies

1. Adjusted Modigliani-Miller Theory and Agency Cost

According to the Modigliani and Miller (1958) theory (hereinafter referred to as the MM theory), a corporate value does not depend on the capital structure, and corporate financing activities have no impact on the corporate value at all when there are a complete capital market, no corporate tax, no information dependence, no transaction cost and exogenous business earnings. However, as the preconditions of the MM theory are not likely in the real world, an adjusted MM theory based on reality is required. Figure 6 is a chart by Nishioka & Baba (2004) showing the relationship between a company's capital structure, capital cost and corporate value in consideration of bankruptcy risks and the impact of corporate tax. The higher the company's debt ratio d is, the lower the average capital cost becomes. However, when the debt ratio is high, the risk of bankruptcy also becomes high to raise the risk premium. The total capital cost is the summation of

9 See Nishioka & Baba (2004) for details.

the two. The debt ratio is lowest at the point d*. This rate is the optimal debt ratio when the corporate value is maximized.[9]

Aside from complete capital market and information dependence, determinants of corporate value, which are determinants of optimal corporate capital structure, are significantly affected by agency cost, taking account of an asymmetry postulate of information.[10] Since Jensen and Meckling (1976), of all the conflicts of interests generating agency cost, priority has been given to the conflict of interests that arises in the relationships between shareholders (= clients) and management executives (= agent) and between creditors (= clients) and shareholders (= agent).

The agency cost issue arising from the relationship between shareholders (= clients) and management executives (= agent) resides in management executives' pursuit of private profits and shareholders' desire to maximize corporate value. This issue could be solved by raising the corporate debt ratio and by decreasing free cash flows that management executives can use. Meanwhile, the agency issue between creditors (= clients) and shareholders (= agent) arises from incentives for shareholders to receive good dividends by appropriating borrowed money to dividends or by making management executives undertake high risk ? high return investments using the limited liability system. In this case, lowering the corporate debt ratio is one of the adequate measures to alleviate the issue and to enhance corporate value.

The seriousness of the agency cost issue depends on companies' management environments. According to Noma (2000), when the conduct of management executives is barely monitored from outside, when a company's growth or investment opportunities are limited, when a company's free cash flows are abundant, or when a company's liquidation value is high, conflicts of interests that arise in the relationship between shareholders (= clients) and management executives (= agent) are easily aggravated. Under such conditions, raising the corporate debt ratio leads to solution of the agency cost issue. Conversely, when the bankruptcy cost is high or when shareholders can easily change the company's asset quality or dividend policy to those in which they can enjoy an advantage, conflicts of interests that arise in the relationship between creditors (= clients) and shareholders (= agent) are again easily aggravated. In such cases, lowering the corporate debt ratio leads to solution of the agency cost issue and enhancement of the corporate value.

An asymmetry postulate of information about corporate management, along with the disclosure level of corporate information, is a critical factor of the agency cost issue. For instance, when a bank has a long-term relationship with a company, the asymmetry postulate of information is solved for both sides and the company's agency cost for bank loans is reduced. If there is a change that reduces the agency cost of owner's equity, a lower debt ratio is desirable for the company. On the other hand, if there is a change that reduces the agency cost of liabilities, a higher debt ratio is desirable.

2. Optimal Capital Structure of Indonesian Listed Companies

(1) Concentrative Ownership Structures and Agency Cost

One of the characteristics of Indonesian listed companies is highly concentrative ownership structures. Shareholders have ultimate control over management, so that conflicts of interest that arise in the relationship between management executives and major shareholders are considered to be limited (Sato (2004a and 2004b)). Since even major companies are largely controlled by certain minor shareholders or enterprise families, the agency cost issue between management executives and major shareholders is not so serious. The public-offering ratio is not so high,

10 The agency cost approach, which focuses on the cost arising from conflicts of interests among management executives, shareholders, and creditors, and which requires adjustment, is well known. There are other approaches, such as the trade-off approach based on the improved MM theory with a focus on company's benefits and the drawbacks of increased debts, and the signaling theory or pecking order theory, analyzing capital structure issues within the framework of information economics. See Tamura (1997) for details.

and control over management by major shareholders is typical, even in the case of Indonesian listed companies.

The existing studies show that the information disclosure level of listed companies in Indonesia is relatively low. As a result, the asymmetry postulate of information between creditors and management executives (= major shareholders) is high and the agency cost between the two is accordingly also high. Therefore, the serious agency issue of fund raising is predicted to be significant in the relationship between creditors and management executives (= major shareholders) or between small-business shareholders and management executives (= major shareholders).

Where there is a serious agency cost issue in the relationship between creditors (= clients) and management executives (= major shareholders = agent), the agency cost becomes high when funds are raised by loans. Hence, it is expected that high-profit companies with high retained earnings tend to reduce external borrowings. A company's collateral capacity is also critical as a factor of liability agency cost. The larger the asset scale for corporate collateral is as compared to that of debt, the more the liability agency cost is reduced. Therefore, in the case of companies with high collateral capacity, the optimal debt ratio is expected to be high. For financing by borrowed funds, a company's market visibility is a critical factor. The higher the market visibility is and the more widely the corporate management is known, the lower the asymmetry postulate of information is. When the business scale, the sales volume, and the asset scale, are larger, the agency cost generated between creditors and the company would be lower and the optimal debt ratio would be higher.

This is illustrated in Figure 7 by modifying the model of Nishioka & Baba (2004). If the agency cost issue between creditors (= clients) and management executives (= major shareholders = agent) is serious, the average funding cost shifts to the upper side and the optimal debt ratio goes down to d**. Meanwhile, if the collateral capacity is high, the shift of average funding cost to the upper side becomes marginal and the optimal debt ratio is modestly lowered to d***. The effects of high corporate visibility are equal to those of high collateral capacity.

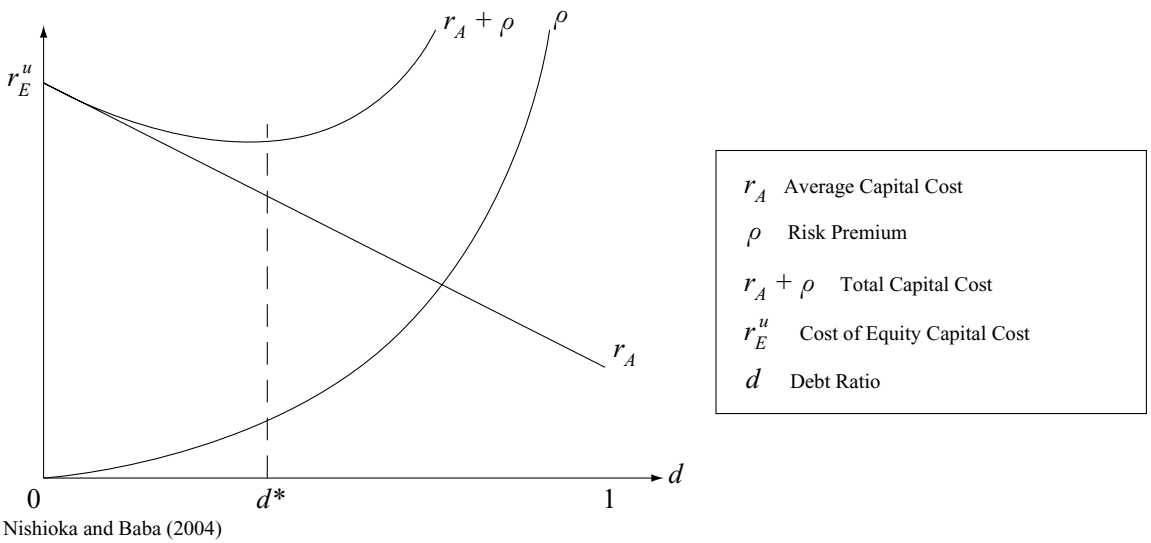
(2) Significance of Corporate Attributes Caused by Underdeveloped Systems

In developing countries where financial and legal systems are underdeveloped, there is considerable constraint on financial activities. Consequently, the tendency has been to expand such activities by externally borrowed funds through development of quasi markets where information sharing is easy and the agency cost issue barely arises. With such quasi markets, the company is apt to enjoy an advantage in liability agency cost to differentiate its financing activities.

①Existence of Business Groups

For example, as a company in a business group can

Figure 6 Optimal Corporate Capital Structure



Source: Nishioka and Baba (2004)

raise funds from a bank in the same group at a relatively low cost, the optimal debt ratio is considered to be high. This is because; (1) the asymmetry postulate of information between companies and a bank in the same enterprise group is low; (2) companies in the same group can enjoy favorable loan terms compared with other companies; and (3) companies in the same group can count on more adequate cooperation from a bank, even in a case of financial difficulties.

It is often said that one of the reasons why business groups are formed in developing countries is their advantage in financing risk money with the aid of internal capital markets. Funds from internal capital markets have the nature of internal funds for companies in the same group, so that business risks are absorbed into the funds. Particularly, the core business in a group is expected to function as a borrower of external funds, and its dependence on debts would be apt to be higher than the optimal level if it were a non-consolidated company.

Foreign companies may be taking different financing routes from those of other companies. A foreign company is generally owned and managed by its parent company and a local partner. The management information of a foreign company is shared with the parent company in its home country and the agency cost issue does not essentially occur between the two. Accordingly, fund raising through the parent company in the home country bears an agency cost which is as low as that through internal funds. Thus, capital expenditures of foreign companies are often funded through investment by the parent company.

②Political and Social Factors

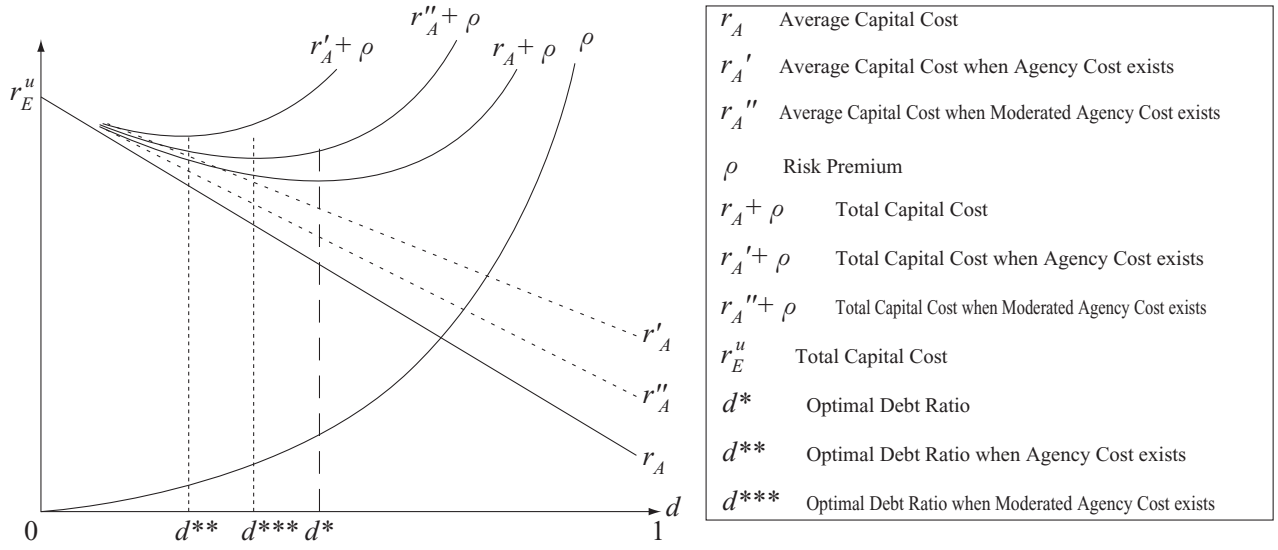
The agency cost of external borrowings may be affected by political and social factors such as territorial connections or blood relations of management executives (= major shareholders) and through the relationship with the government. Generally, the asymmetry postulate of information between investors and the company is considered to be aggravated in developing countries where information disclosure and legal systems are underdeveloped rather than in advanced countries, and the political and social factors may be used to mitigate or avoid such impediments. This is because the power of contracts is perceived as high since the code of conduct is common and social penalty rules are applied to contractual defaults (debt defaults) when contractors share the same social and cultural backgrounds.

One example is the difference between ethnic Chinese companies and non-Chinese local companies. There are common cultural and social rules for ethnic Chinese companies and Chinese banks. Conversely, as cultural and social rules for ethnic Chinese companies and non-Chinese banks are different, they cannot maintain a relationship of mutual trust. Thus, when a Chinese company is financed by a non-Chinese bank, the loan terms might be disadvantageous.[11] Either way, when a Chinese company borrows money externally, the agency cost may differ from that for a general non-Chinese local company due to the social, cultural and political backgrounds.

The agency cost arising in the relationship with creditors depends on whether the company is government-linked or not. If a government-linked company is recognized in the market as a company supported or guaranteed implicitly by the government, the risk for creditors in financing government-linked companies is mitigated. In the case of government-linked companies, information sharing through the government may minimize the asymmetry postulate of information against government-linked banks. In either case, since government-linked companies may have an agency relationship with creditors which could be different from that with general private companies, their capital structures are considered to have different characteristics from those of general private companies.

11 The local field survey shows that there is not necessarily a trusting relationship between ethnic Chinese companies and non-Chinese banks. Kwartanada (2000) also points out this issue. See Iwasaki (1997) for the relationship between ethnic Chinese companies and the government of Indonesia.

Figure 7 Agency Cost and Optimal Capital Structure



(3) Other Factors: Effects of the Asian Crisis on Corporate Restructuring

In the analysis of this paper, the impact of the Asian crisis is unignorable as a peculiar factor affecting the financing activities of listed companies. Companies under reconstruction after the crisis may, in contrast to other companies, be supported in various ways for reduction of their debts. Consequently, they are considered to be reducing debts more advantageously than unsupported companies, which would cause some difference in capital structure attributable to certain political reasons. In particular, the proportion of bank loans used mainly for short-term funds is relatively low compared to that of other companies, and greatly reduced in the case of companies under reconstruction.

Chapter 3: Listed Companies in Indonesia

1. Position of Listed Companies

The listed companies of Indonesia form the core of the country's domestic private companies. The sales of domestic private companies accounts for about 50% of the total sales of the country's top thousand companies, and 50% of the said domestic private companies are listed. In other words, half of the sales of major domestic private companies in Indonesia come from listed companies. At the same time, the proportions on a sales basis of national companies and foreign joint venture companies are about 30% and 20%, respectively, of the country's top thousand companies. However, the proportion of listed companies to national companies or foreign joint venture companies is as low as around 10% (Sato (2004a)).

In Indonesia, major domestic companies belong to some sort of enterprise group. The data of domestic private companies in enterprise groups show that listed companies effectively account for about 50% of the enterprise groups in terms of economic magnitude (Sato (2004a)).

The sales of Indonesian companies in the top hundred enterprise groups account for about 70% of the total sales of the country's top thousand companies. Moreover, the proportion of listed companies in enterprise groups tends to be higher than that of independent companies. Listed companies constitute the heart of the activities of major enterprise groups, which are themselves the core of Indonesian domestic private companies.

The listed companies represent the core major industries of Indonesia's economy, such as mining and manufacturing. The breakdown of listed companies in 2004 shows that manufacturing was the industry with the highest number of companies (143 companies: about 60%) followed by real estate (35 companies: 14%), retail & distribution (14 companies), finance (13 companies) and agriculture, forestry, fisheries and livestock (12 companies) (Figure 8). The industry in which the average corporate size is conspicuously the largest is

telecommunications, an industry of national companies, followed by mining & mining-related enterprises and by manufacturing. Meanwhile, the industries in which the average corporate size is small are hotels, travel, retail & distribution, and construction.

Listed companies in Indonesia consist of major domestic companies and represent the industries forming the core of Indonesia's future economic development. These are the areas in which large-scale resources are required and, most of all, in which consolidation of corporate finance is essential.

2. Corporate Attributes of Listed Companies and the Classification Approach

The listed companies in Indonesia include various companies with different corporate attributes in ownership and management structures. As described in Chapter 2, the financing structures of these companies seem to be somewhat different from each other. Based on the discussion in Chapter 3, the analysis presented below classifies the social attributes of listed companies.[12]

①In the classification of corporate ownership structures, major shareholders of each company are categorized as foreign-financed, Chinese, non-Chinese (local), and government-linked, on the basis of their names. Thus, the attribute of the largest number of shares held by major shareholders becomes the corporate attribute. When a company's holding company is the major shareholder, the ownership structure is classified as foreign-financed, Chinese, non-Chinese (local), Indian, and government-linked, on the basis of the name of the holding company's major shareholder.[13]

②When a company belongs to a business group, its importance and centrality are classified on the following three standards. Companies are classified as a core business only when the directors are not professional managers but the family members owning the business group, when the scale is relatively large in the group, and when the industry is a central industry in the group. Companies satisfying two of the above three standards are classified as major forces in the group.

③Judgment of whether a company is a restructured company or not depends on whether the enterprise group to which the company belongs changed before or after the Asian crisis. Specifically, companies of which the enterprise group in 1997 was the same as that in 2003 are classified as non-restructured companies, while those whose enterprise group has changed are restructured companies.

3. Financing Structures and Management Characteristics by Corporate Attribute

One of the characteristics of listed companies in Indonesia is that they have individual corporate attributes of racial and ownership structures, as described above. The relations between these racial and ownership structures and financing activities need to be clarified here.

ethnic Chinese companies account for 63% of all the listed companies, followed by foreign joint venture companies (20%), non-Chinese local companies (10%), government-linked companies (5%) and Indian companies (2%) (Figure 9). On the basis of total assets, however, the share of ethnic Chinese companies slightly declines to 42%, while those of foreign joint venture companies, government-linked companies, non-Chinese local companies, and Indian companies, are 27%, 23%, 6% and 2%, respectively. The scale of Chinese and non-Chinese regional companies is smaller than that of government-linked and foreign joint venture companies. The share of ethnic Chinese companies increased after the second financial deregulation, and

12 The classification also incorporates information on the business status of listed companies obtained through a field survey conducted at an Indonesian local company of Nomura Securities Co. Ltd.

13 When several companies constitute major shareholders of another company, such as in the case of joint-venture companies, the classification approach becomes complicated. For the purpose of this thesis, classification is simply based on the assumption that a shareholder of higher shareholding ratio is the major shareholder.

14 Another trend after the financial crisis is that there are many listed companies that remain on the market with excessive debts causing negative retained earnings. Such companies account for nearly 50% of the total. Since the average debt ratio of companies with negative retained earnings is over 100%, we will hereafter look at companies with a surplus fund which proves their sound management.

this trend has not changed since the financial crisis.

The average debt ratio of all listed companies was 74.9% in 2000 but decreased to 70.3% in 2003 and to 53.9% in 2004, which shows an overall decreasing trend for the degree of dependence on debts of listed companies.[14]

The data on debt ratios by corporate attribute show that the average debt ratios of ethnic Chinese companies and Indian companies are higher than those of non-Chinese local companies, and that the debt ratio of foreign joint venture companies is similar in trend to that of ethnic Chinese companies (Figure 10). This is consistent with the recognition that the average debt ratio of ethnic Chinese companies is higher than that of non-Chinese local companies and that the debt ratio of a Chinese company is generally high.[15]

The earning capacity of listed companies based on the pre-tax profit-earning ratio slowly declined during the period of observation (Figure 11). The data by corporate attribute show that the earning capacity of foreign joint venture companies and government-linked companies is high, and that of ethnic Chinese companies and non-Chinese local companies is almost equal. In companies other than government-linked companies, the profit-earning ratio is declining while the surplus fund is increasing.

A fixed asset ratio indicates a company's collateral capacity. Indian companies have the highest average fixed asset ratio, followed by government-linked companies, ethnic Chinese companies, foreign joint venture companies and non-Chinese local companies (Figure 12). There is no significant difference among government-linked companies, ethnic Chinese companies and foreign joint venture companies. Overall, the collateral capacity of Indian companies is high, while that of non-Chinese local companies is low.

The comparison between core companies and non-core companies indicates that core companies have a higher debt ratio and long-term debt ratio than non-core companies (Figure 13). On the other hand, non-core companies have a relatively higher bank debt ratio. The profitability fluctuation of non-core companies is larger than that of core companies, which indicates that the business risk of core companies is lower (Figure 14). The comparison of fixed asset ratio, as an indicator of collateral capacity, suggests that core companies can easily increase their debts because of their higher fixed asset ratio (Figure 15). Financing activities are different between core companies and non-core companies, which is consistent with the common belief that a core company is generally in charge of financing activities for the group.

Due to the effects of the financial crisis, companies of which the business group changed (restructured companies) are considered to have a low debt ratio as a result of debt disposal carried out for restructuring. However, while the debt ratio of restructured companies is low overall in 2000 following the financial crisis, after 2003 there is no significant difference between non-restructured companies and restructured companies (Figure 16). Although the profit-earning capacity of non-restructured companies is higher, the capacity levels of restructured companies and non-restructured companies have been similar historically (Figure 14). The fixed asset ratio, as an indicator of collateral capacity, shows the pattern that non-restructured companies are in a higher level than that of restructured companies. However, the fixed asset ratio of restructured companies has been rising by slow degrees (Figure 15).

Chapter 4: Estimation of Debt-Ratios

1. Methodology

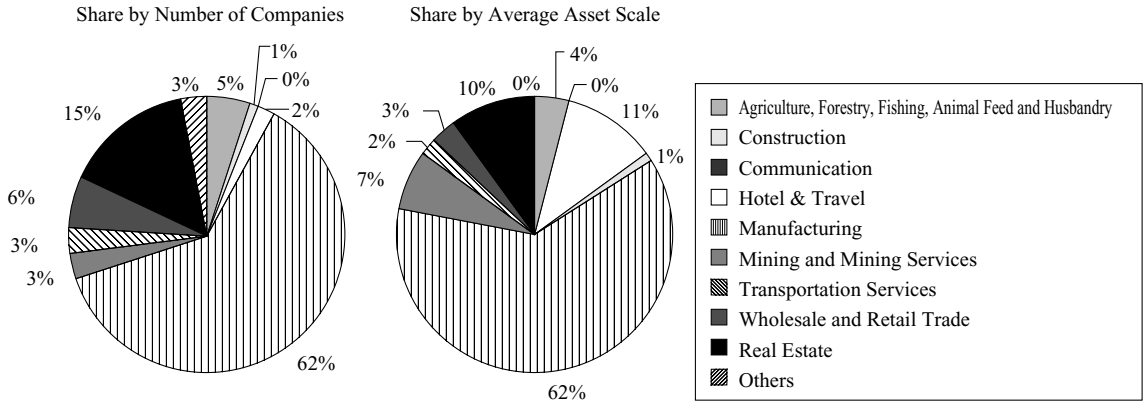
The analysis of listed companies in Indonesia shows differences in financing structures by corporate attribute. However, it is necessary to conduct a quantitative analysis controlling economic variables to identify if the above analysis results are superficial or correlative.

(1) Explained Variables

For a estimation analysis, debt ratios are used as indexes of corporate capital structure. The analysis is

15 Due to the impact of corporate consolidation and elimination, the average long-term debt ratio and the average bank debt ratio of non-Chinese local companies and government-linked companies significantly changed in the same way as the debt ratio.

Figure 8 Number of Companies and Average Asset Scale of Indonesian Listed Companies by Industry



Source: Compiled from ECFIN ed. (2004)

based on the three debt ratios, which are debt ratio (total debts/total assets), long-term debt ratio (long-term debts/total assets) and bank debt ratio (short-term bank debts/total assets), as explained variables.

The debt ratio stands for the proportion of borrowed funds to total corporate funds as a primary index of the financing structure. The tax-reduction effects of debts and business risks on the debt ratio affect the total liabilities. The debt ratio is monitored for study of the impacts of such factors on financing activities.

However, short-term debts such as accounts payable and notes for short-term funds are different in nature from long-term debts for capital expenditures and other funds invested from a long-term perspective. Accounts payable and notes are generally funded from business partners and the information asymmetry postulate of information is relatively low. As in long-term debts, the information asymmetry postulate of information between the company and debtors is high. Accordingly, the impact of agency cost is expected to be stronger in the judgment of long-term debts than of short-term debts.

Banks are the most important source of external funds for listed companies. Compared to other creditors, banks are considered to have a higher information production capacity and to be more susceptible to government regulations. The short-term bank debt ratio is used for study of determinants of bank loans. For study of determinants of listed companies' financing activities, it would be necessary to examine a comparison of estimated results of debt ratio, long-term debt ratio, and bank debt ratio.[16]

(2) Explanatory Variables

①Major Explanatory Variables

The following are used as variables impacting on debt ratios. The surplus fund of the previous year is used as a proxy variable of free cash flows. As free cash flows are the resources of which agency cost is the lowest, the more abundant the free cash flows are the lower the debt ratio is. The income tax rate of the previous year is used as an indicator of the tax-reduction effects of debts. Companies paying a higher corporate tax would theoretically increase the debt ratio in order to enjoy the tax-reduction effects of debts. The fixed asset ratio of the previous year is used as a proxy variable of collateral capacity. Since screening and monitoring them is quite easy, fixed assets are considered to be more suitable for collateral than other assets. As the information asymmetry between creditors and the company becomes low, the agency cost is reduced and the company can easily increase its debts. The logarithmic figure of corporate scale (total assets) is

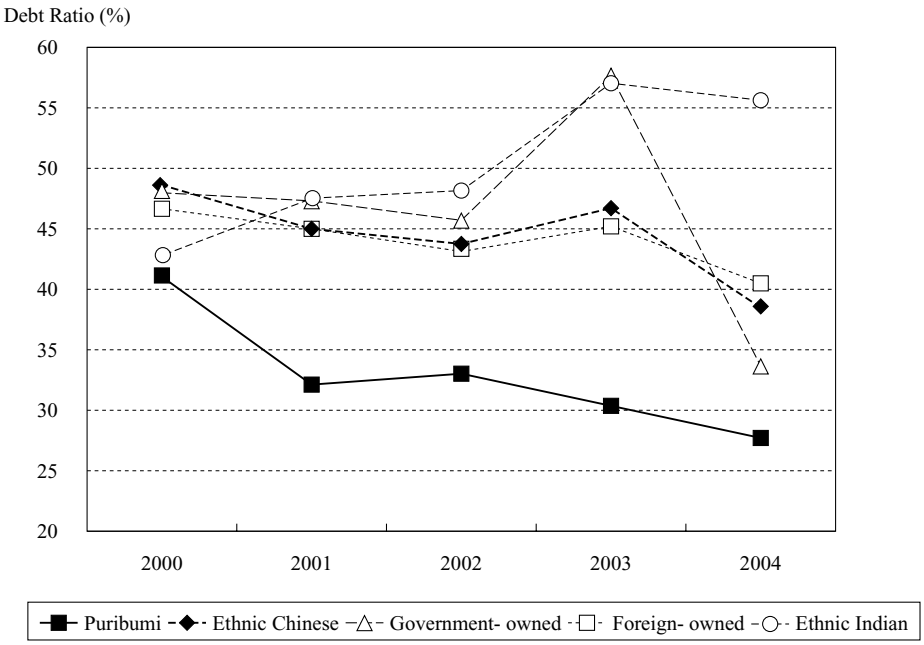
16 Indonesian banks offer long-term loans, but long-term loans are not included in the bank debts in this analysis due to restrictions on the available data.

Figure 9 Classification of Listed Companies by Corporate Attribute

		CorporateAttribute								
		Puribumi	Ethnic Chinese	Government owned	Foreign owned	Ethnic Indian	Core	Non-core	Restructured	Non-restructured
Number of Companies		21	151	9	48	4	86	154	180	60
Share of Industry (%)	Agriculture,Forestry,Fishing, Animal Feed and Husbandry	14	3	0	10	0	6	5	5	5
	Construction	5	0	0	2	0	1	1	1	0
	Communication	0	0	11	0	0	1	0	1	0
	Hotel&Travel	5	2	0	2	0	2	2	2	2
	Manufacturing	29	60	67	77	75	65	56	58	63
	Miningand Mining Services	10	1	11	4	0	3	3	2	5
	Transportation Services	10	3	0	2	0	1	5	4	0
	Wholesale and Retail Trade	5	8	0	0	25	7	5	7	3
	Real Estate	19	20	11	0	0	9	18	17	8
	Others	5	3	0	2	0	3	6	3	13

Note: The approach specified in Chapter 3 is used for the classification of corporate attributes.
Source: JBIC compiled the data from ECFIN ed. (2004)

Figure 10 Debt Ratios by Corporate Attribute



Note: The approach specified in Chapter 3 is used for the classification of corporate attributes. Only the data of non-financial firms and non-negative retained earnings are included.
Sources: Compiled from ECFIN (various years), and the data for the year 2004 obtained from the Jakarta Stock Exchange.

used as a proxy variable of social visibility. When the social visibility is higher, the asymmetric postulate of information is lower. Then, the agency cost is reduced and the company can easily increase its debts. The variance of operating profit ratios[17] is used as a proxy variable of the business risks of each company. A company with higher business risks carries bankruptcy risks increased by its debts, which would easily diminish the profit-earning opportunities of shareholders. Accordingly, the company decreases its debts.

②Corporate Attribute Dummies

As dummy variables of corporate attribute, Chinese company dummies, government-linked company dummies, foreign company dummies, and Indian company dummies are used. When the company falls under any category the variable is 1; if not, the

17 The profit-ratio variance of the previous year is calculated based on the operating profit ratios from 2000 through 2003 for avoidance of restrictions on available data and impacts of the financial crisis.

variable is 0. As described in Chapter 3, these companies are considered to be different from non-Chinese local companies in agency cost of external borrowings due to the characteristics of corporate ownership attributes. Particularly, ethnic Chinese companies can borrow money from Chinese banks at a low cost, while government-linked companies and foreign companies can borrow, respectively, from government-financed banks and parent companies in their home country or from foreign institutions. This has been said to be a factor in pushing up the debt ratio.

As dummy variables that indicate a company's position in the business group, core-business dummies and operative-force dummies are used. Since the core businesses of key industries in the business group have a long business relationship with banks and partners, and the agency cost is low, it is apparently easy to increase their debts. Where a company has control over other companies in the same group, the agency cost is considered to be low as well. By taking advantage of such credit capabilities, these companies may function to conduct financial activities on behalf of other companies in the same group. Hence, it is expected that there would be some difference in long-term financing activities.

A restructured dummy stands for the effects of large-scale business reconstruction experience. During the course of changing a business group, debt reductions and debt equity swaps are executed, which would lower a company's debt ratio compared to other companies.

③Industry & Annual Dummies

Together with variables at the corporate level, industry dummies are added for controlling the effects on financing activities peculiar to each industry. For instance, as legal regulations and degrees of information disclosure are different from industry to industry, there is some difference in debt agency cost as well. For controlling the impact of macro economic changes, annual dummies are added. Where the corporate capital structure has drastically changed due to the effects of macro economy or system reforms after the crisis, the significance of time dummies is recognized. In other words, if time dummies do not have any significance at all, such effects on the capital structure are not recognized.

(3) Used Data and Estimate Method

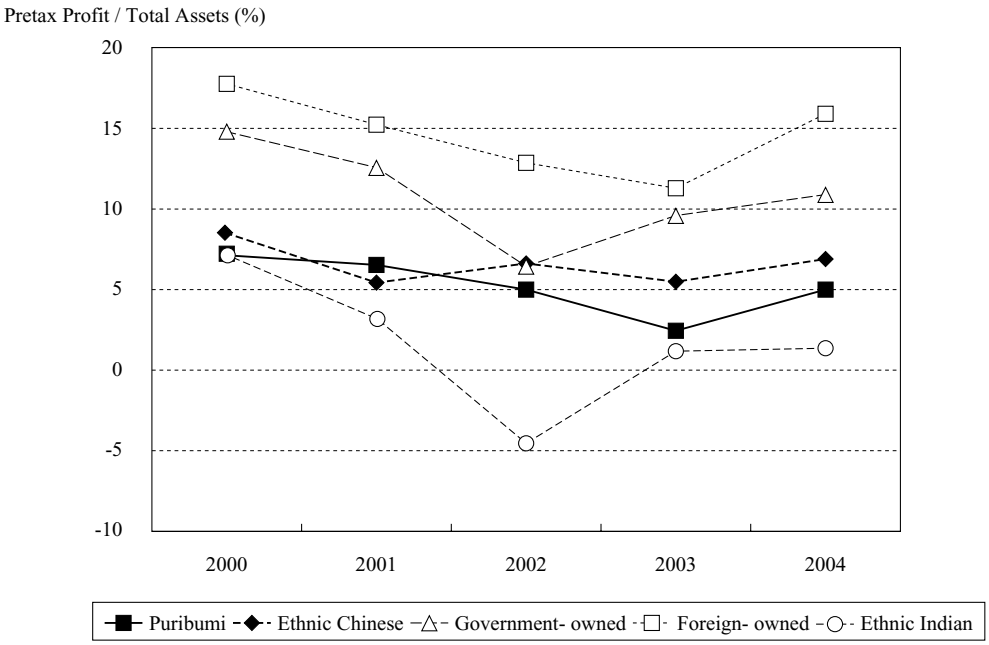
The financial data of listed companies are collected from the Indonesia Financial Market Directory (2003 and 2004 editions) issued by ECFIN. The date for 2004 were obtained from the the Jakarta Stock Exchange[18]. The Chinese dummy, the government-linked dummy, the foreign-financed dummy, the Indian dummy, the core-business dummy, the operative-force dummy, and the restructured dummy, are based on the classification of corporate attributes described in the Chapter 4.[19] With financing structures different from those of general companies, banks and other financial institutions are eliminated from the sample. Companies with negative retained earnings are also excluded from the sample. This is because many companies with negative retained earnings have excessive debts and are considered to fall under the category of bankruptcy or delisting generally. Such companies are apparently not involved in the financing activities which are assumed in the adjusted MM theory.

The estimates of each ratio are pooled in the data from 2001 through 2003 and are processed by OLS. As Indonesia's economy started to noticeably recover in the wake of investment increase in 2003, there may have been a change in corporate behavior around that time. For consideration of this possibility, dummies for 2003-2004 are created and the cross terms of other dummy variables are added to the estimate as cross dummies. The sample data for 2003-2004 are counted as 1, while other sample data are counted as 0.

18 We thank Mr.Verdi Ikhwan and Ms. Pery Barwiantini for their kind assistance in collecting the 2004 financial data of listed companies.

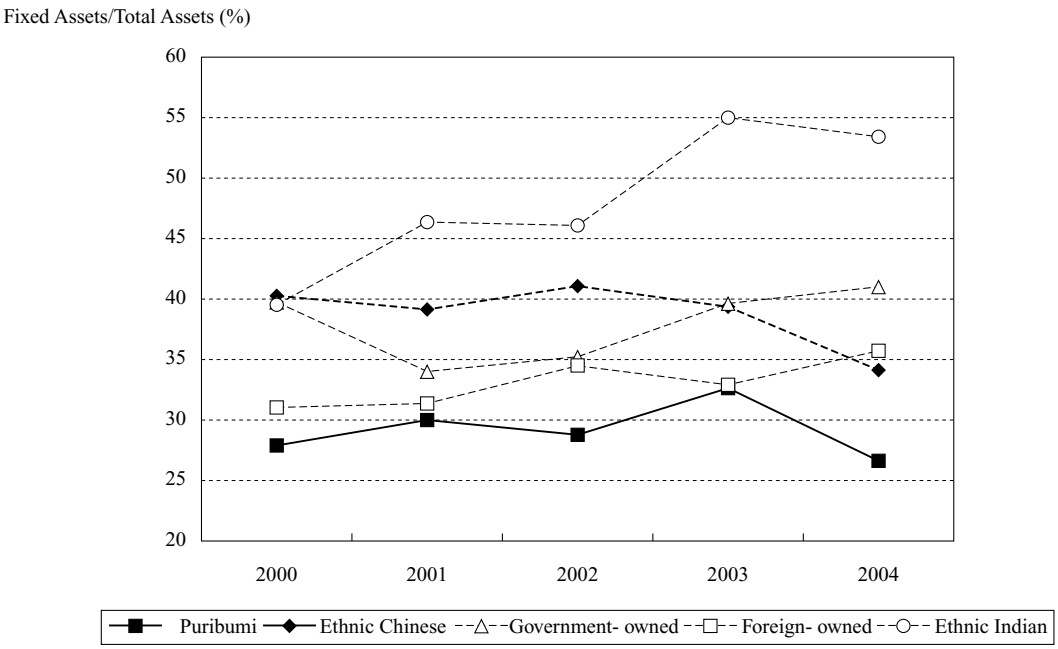
19 The detailed information on corporate classification in this paper will be provided by individual request, for the purpose of academic research only.

Figure 11 Profit-Earning Ratios Corporate Attribute



Note: The approach specified in Chapter 3 is used for the classification of corporate attributes. Only the data of non-financial firms and non-negative retained earnings are included.
Sources: Compiled from ECFIN (various years), and the data for the year 2004 provided obtained from the Jakarta Stock Exchange.

Figure 12 Fixed Asset Ratios by Corporate Attribute



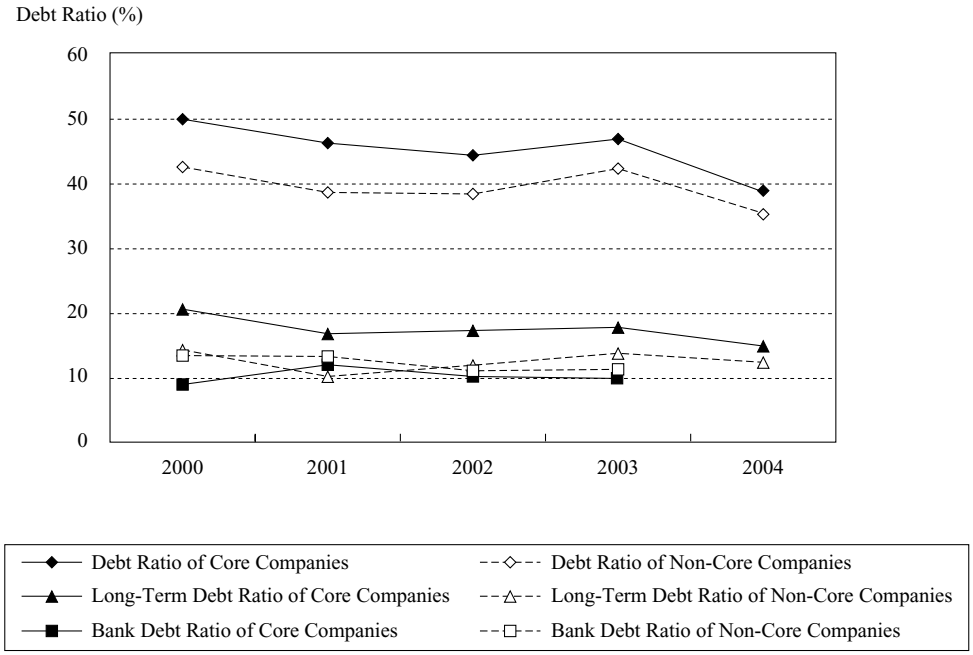
Note: The approach specified in Chapter 3 is used for the classification of corporate attributes. Only the data of non-financial firms and non-negative retained earnings are included.
Sources: Compiled from ECFIN (various years), and the data for the year 2004 obtained from the Jakarta Stock Exchange.

2. Estimate Results and their Interpretation

(1) Estimate Results

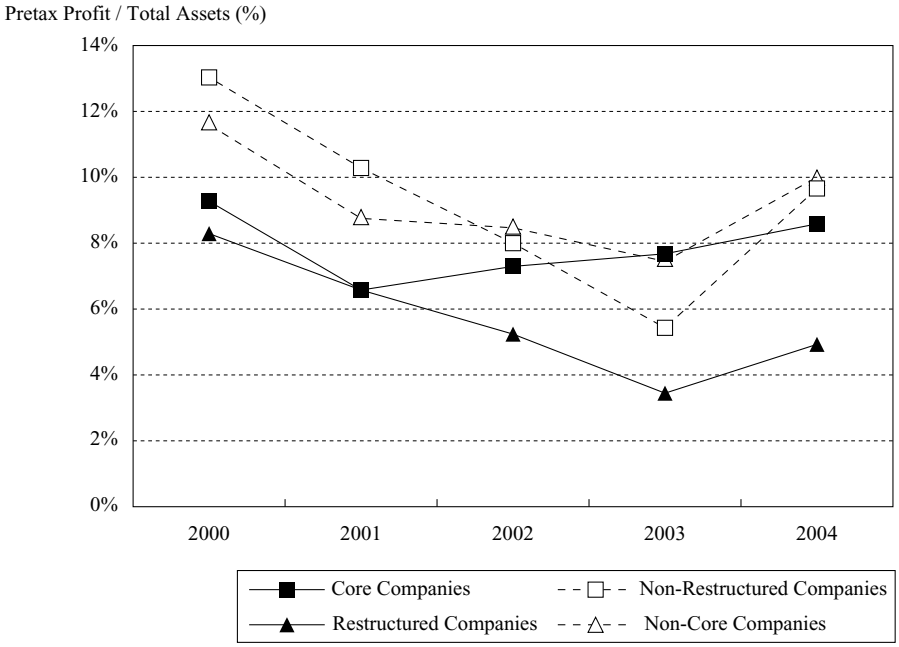
Table 2 shows that every estimate result of debt ratio, long-term debt ratio and short-term bank debt ratio is just about favorable. The persuasive power of the estimate formula is above the level of advanced researches for Southeast Asian countries. Many of the major explaining variables agree with the theoretically expected signs, which support the statistical significance of the data. Although no

Figure 13 Comparison of Debt Ratios between Core Companies and Non-Core Companies



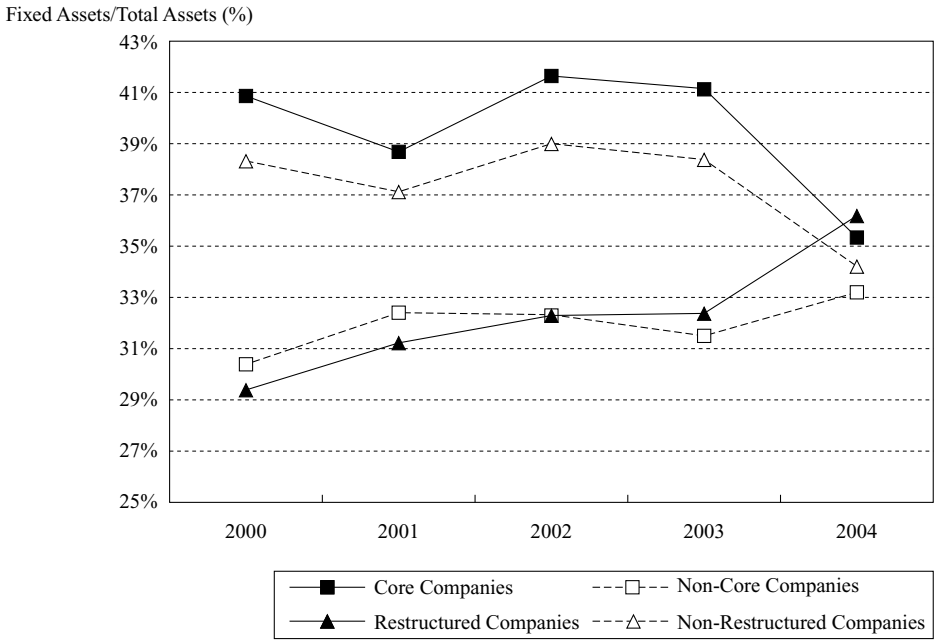
Note: The approach specified in Chapter 3 is used for the classification of corporate attributes. Only the data of non-financial firms and non-negative retained earnings are included.
Sources: Compiled from ECFIN (various years), and the data for the year 2004 obtained from the Jakarta Stock Exchange.

Figure 14 Comparison of Profit-Earning Ratios between Core, Non-Core, Restructured and Non-Restructured Companies.



Note: The approach specified in Chapter 3 is used for the classification of corporate attributes. Only the data of non-financial firms and non-negative retained earnings are included.
Sources: compiled from ECFIN (various years) and the data for the year 2004 provided from the Jakarta Stock Exchange

Figure 15 Comparison of Fixed Asset Ratios between Core, Non-Core, Restructured and Non-Restructured Companies.



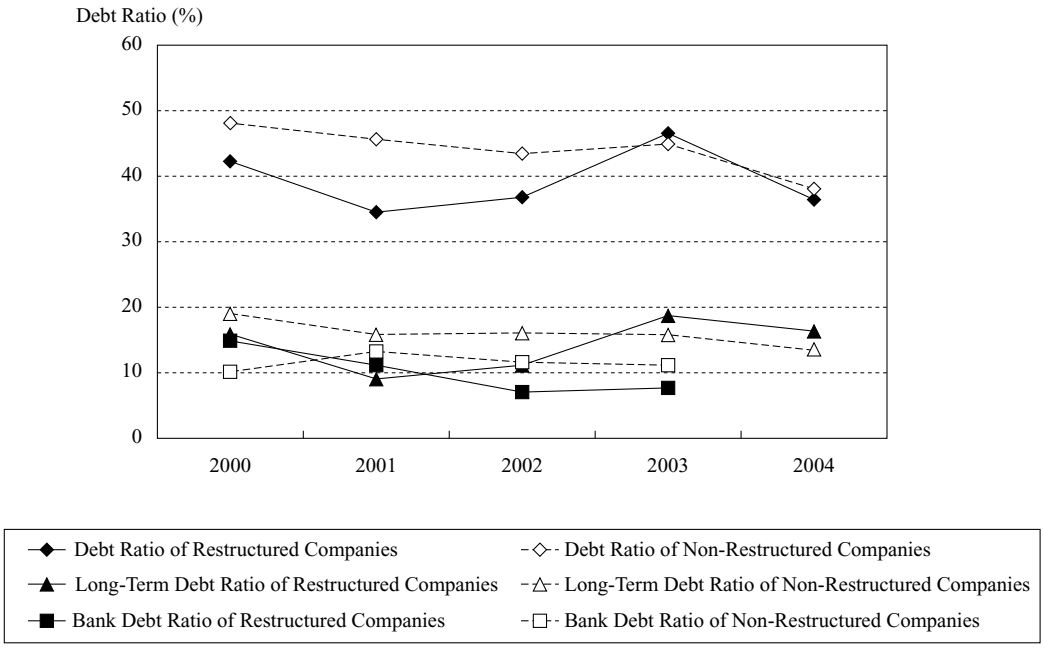
Note: The approach specified in Chapter 3 is used for the classification of corporate attributes.
Sources: compiled from ECFIN (various years) and the data of year 2004 provided from the Jakarta Stock Exchange.

impact of corporate attributes is found on the debt ratio, the difference between the long-term debt ratio and the bank debt ratio (Table 3) in some part shows that the estimate results are not basically changed even by taking account of the effects of economic recovery after 2003, with some exceptions in foreign joint venture companies.

The estimate results of debt ratio show that the coefficient of retained earnings of the previous year is a statistically significantly negative, and that companies with abundant cash flows are decreasing their debt ratio. The coefficient of income tax rates of the previous year is statistically significantly positive, contrary to the theoretical expectation. This may be because companies, when they expect profits, tend to improve their capital adequacy ratio by repaying their debts rather to increase their debts for fixing the tax amount. The coefficient of fixed asset ratios of the previous year, which is a proxy variable of collaterals, is not statistically significant. This may be because companies' collateral capacity has no significant impact on judgment of short-term content in the debts. The coefficient of corporate scales of the previous year used as a proxy variable of market visibility is positive, and statistically significant. It shows that the debt agency cost of companies with high visibility is low and that the debt ratio is high, as was expected theoretically. The variance of operating profit ratios of the previous year as a proxy variable of business risks is contrary to the theoretical expectation. As the stock market of Indonesia is underdeveloped, the asymmetry postulate of information between minor shareholders and the company is considered to be higher than that between banks and the company. Companies earning unstable profits can hardly raise funds from the capital markets, so they are predicted to depend on borrowings from banks.

With regard to the effects of corporate attributes peculiar to Indonesia, restructured dummies are negative while core-business dummies are positive, both of which are statistically significant. The former may be due to the effects of debt reduction policy after the financial crisis, the latter to high market visibility of the core business in the enterprise group and to the low agency cost that arises in the relationship between creditors, leading to easy borrowing. It is found in some industry dummies that industrial attributes have an impact on financing activities.

Figure 16 Comparison of Debt Ratio between Restructured Companies and Non-Restructured Companies



Note: The approach specified in Chapter 3 is used for the classification of corporate attributes.
Sources: Compiled from ECFIN (various years), and the data for the year 2004 obtained from the Jakarta Stock Exchange.

The estimate results of long-term debt ratio are similar to those of debt ratio. What is different from the debt ratio is that the fixed asset ratio of the previous year is significantly positive. This shows that fixed assets are assessed as collaterals in financing long-term funds in which the assessment of business risks is difficult. On the other hand, the variance of operating profit ratios is losing its significance. Those companies with strong influence over an enterprise group tend to have a high long-term debt ratio. Although industry dummies show some significant results, the significance is recognized in the industries which are different from those of the debt ratio results. In the estimate including cross terms of the dummies for 2003, foreign-financed dummies are significant.

Being significant, the short-term bank debt ratio comes out in the estimate results with a lower fit index compared to the debt ratio and the long-term debt ratio.[20] In comparison to the debt ratio, it has less significance in the retained earnings of the previous year, which shows that bank loan volume is determined regardless of cash flows. The fixed asset ratio of the previous year, as a proxy variable of collaterals, does not work significantly. The coefficient of corporate scales of the previous year, as a proxy variable of publicity, changed from positive to negative. In corporate-attribute dummies, ethnic Chinese companies show a significant tendency to be negative. Companies with strong operative forces also tend to be significantly negative. In industry dummies, the manufacturing industry shows a tendency toward lower bank debts.

(2) Interpretation of Estimate Results

It appears that the estimate results show the following. First of all, as control variables are mostly applicable, rational corporate conduct is recognized in the data from Indonesia. Above all, there is a tendency that the theory of agency cost is valid. The effects of corporate-tax reduction and bankruptcy risks on financing activities are limited, and the difference in agency cost is considered to have a central impact on the selection of fund raising

20 This may be because the sample is relatively small owing to limited availability of the data source.

methods.

The difference in estimate results by debt type shows that the fit index of long-term debt is the most favorable. In the long-term debt ratio, there is no impact of business risks such as is found in the debt ratio and the bank debt ratio. Instead, the effect of collateral capacity is conspicuous. As the uncertainty and the asymmetry postulate of information are high in the case of long-term debts, unlike short-term debts, lenders are unable to produce sufficient information solely from analysis of business risks. Therefore, the agency cost issue is not solved. Since companies with enough fixed assets and substantial collateral capacity are able to resolve the asymmetry postulate of information to a certain degree, collateral capacity is considered to have a significant impact on the long-term debt ratio.

The data of long-term debt ratio and debt ratio turn out to prove that the funding cost of internal funds is lower than that of debts. However, in the case of the bank debt ratio, screening devices such as collateral capacity to reduce the agency cost are eventually not effectively significant enough to produce the result that the funding cost of internal funds is lower than that of debts. One of the reasons why the estimate results of debt ratio are different from those of bank debt ratio is that the banks of Indonesia are still extremely risk averse, and that they have not recovered their original risk tolerance.[21] Another reason is that the regulations setting upper limits of bank loans for group companies became strict as a result of the reforms after the Asian crisis, which is said to be an impediment to banks' lending activities.[22]

Secondly, the estimate results prove that difference in corporate attributes may have some influence on companies' financing activities. Although it does not show any difference between the debt ratio and the long-term debt ratio, the comparison between ethnic Chinese companies and non-Chinese local companies demonstrates that the short-term bank debt is low. It is said that ethnic Chinese companies borrowed a great deal of money from Chinese banks before the Asian crisis. Even after the financial crisis, the average debt ratio of ethnic Chinese companies has been higher than that of non-Chinese local companies, as described in Chapter 3. However, the estimate results show the opposite of these views. The reason is that the bank reform caused Chinese banks to be nationalized, the former owners to resign, and the traditional relationship with specific banks to be resolved. The asymmetry postulate of information between ethnic Chinese companies and non-Chinese banks is more likely to be high, possibly having caused ethnic Chinese companies to reduce dependency on bank loans. Another reason may be that ethnic Chinese companies are reducing dependency on banks by leveraging business trust among ethnic Chinese companies or working through their own overseas financial channels. It is said that Chinese-origin residents in Indonesia own a considerable portion of their assets overseas and that the assets that they sheltered overseas during the Asian crisis are being returned to the country as the economy recovers.

The characteristics of foreign companies are not recognized in the simple estimate by pooling, but there is apparently a tendency that their long-term debt ratio is higher than those of non-Chinese local companies and ethnic Chinese companies when the cross terms with economic-recovery dummies during the period of 2003-2004 are used. It is interpreted as showing that foreign companies were actively committed to financing investments more promptly than other companies by leveraging close connections with their parent companies or foreign financial institutions when the economy was expected to recover soon.

Thirdly, companies with strong influence over the core business or other companies in the same group tend to prefer long-term debts and borrowings from sources other than banks. In other words, companies with weak influence over the non-core business or other companies in the group tend to

21 Due to the Asian financial crisis, many of the major companies fell into debt overhang. This experience is said to be the reason why banks are cautious about loans for major companies.

22 A deeper analysis of the banking sector is necessary for judging whether it is a voluntary credit restriction by banks or an impediment to credits which is involuntary and due to legal regulations.

Table 2 Estimated Results : Debt Ratio

	Debt Ratio Retained earnings≧0		Long-Term Debt Ratio Retained earnings≧0		Short-Term Bank Debt Ratio Retained earnings≧0	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Intercept	-0.436	-3.132***	-0.608	-6.252***	0.589	4.943***
Retained earnings for the Previous Year	-0.316	-6.939***	-0.196	-6.127***	0.007	0.124
Income Tax Rate for the Previous Year	-1.294	-3.700***	-0.684	-2.640***	-0.797	-1.906 **
Fixed Asset Ratio for the Previous Year	-0.055	-1.358	0.103	2.974***	0.048	0.405
Corporate Scale for the Previous Year	0.150	9.762***	0.120	10.926***	-0.046	-2.377 **
Variance of Operating Profit Ratios	1.776	2.638***	0.624	0.813	4.965	1.753 **
Ethnic Chinese Dummy	0.020	0.130	0.047	0.640	-0.127	-2.660***
Government-owned Dummy	0.110	1.309	0.063	1.016	-0.024	-0.459
Foreign-owned Dummy	0.125	1.356	-0.000	-0.105	-0.043	-0.140
Ethnic Indian Dummy	0.154	1.732 *	0.069	1.061	NA	
Restructured Dummy	-0.043	-1.619 *	0.001	0.083	-0.073	-2.262 **
Effect Level to Enterprise Group Dummy	0.027	0.992	0.031	1.634 *	-0.054	-1.965 *
Core Business of Enterprise Group Dummy	0.027	1.810 *	0.022	2.109 **	-0.020	-1.584
Time Dummy (Year 2002)	-0.027	-1.331	-0.009	-0.628	-0.018	-0.949
Time Dummy (Year 2003)	0.007	0.283	0.008	0.485	-0.013	-0.617
Agriculture,Forestry,Fishing,Animal Feed and Husbandry	-0.021	-0.304	0.022	0.527	-0.140	-1.615 *
Construction	-0.173	-1.493	-0.072	-0.894	NA	
Communication	-0.015	-0.161	0.039	0.574	NA	
Hotel & Travel	0.043	0.615	0.093	1.793 *	-0.128	-1.409
Manufacturing	0.013	0.242	0.011	0.299	-0.162	-2.276 **
Mining and Mining Services	-0.123	-1.787 *	0.019	0.388	-0.194	-1.576
Transportation Services	0.048	0.754	0.092	1.935 *	-0.108	-1.155
Wholesale and Retail Trade	-0.027	-0.447	-0.092	-2.162 **	-0.079	-1.007
Real Estate	-0.115	-2.093 **	-0.102	-2.578 **	-0.093	-1.476
Number of Observations	391		380		205	
Adjusted R-Squared	0.398		0.472		0.091	
F (Zero Slopes)	0.000		0.000		0.012	

NA:Not Available
*,**,and***,significant at the10,5,and1percent level,respectively.

prefer borrowings from banks. The estimate results show that there is no significant difference in the bank debt ratio of core business in groups. However, the debt ratio and the long-term debt ratio tend to be higher than those of other companies. For companies with strong influence over the group, there is a tendency that the long-term debt ratio is higher while the short-term bank debt ratio is lower than that of other companies. This tendency is explained by the facts that core businesses with rich business experience and a long history, or companies with strong influence over the group, raise long-term funds by taking advantage of relatively low agency cost, and that other companies in the same group raise short-term funds from banks. In developing countries where the asymmetric postulate of information is high, and financial and legal systems are underdeveloped, it is rational that a core business in the group, with high market visibility, abundant business experience, and low asymmetry postulate of information, raises long-term funds and allocates them in the internal capital markets. The result that the long-term debt ratio of core business is high is one of the keys to support such an estimate.

Chapter 5: Conclusion: Political Implications

Consolidation of corporate finance is one of the keys for Indonesia to maintain its economic growth. We would like to conclude this thesis by describing the political implications of the estimate results on what is required for consolidation of corporate finance.

Positive Results of Financial and Corporate Reforms

With regard to the established corporate finance of Indonesia, people have pointed out several structural problems such as corporate structures intensively dominated by specific families, collusion between banks and enterprise groups, prudential regulations of financial institutions and underdeveloped corporate law and bankruptcy law. Therefore, a series of reforms after the Asian crisis implemented improvement of banks' prudential regulations, along with development of legal regulations, dissolution of ownership structures of companies and banks, and reinforcement and development of legal systems related to corporate governance.

As far as the estimate results in the previous

Table 3 Estimated Results : Debt Ratioin Consideration of Economic Recovery Impacts

	Debt Ratio Retained earnings≧0			Long-Term Debt Ratio Retained earnings≧0			Short-Term Bank Debt Ratio Retained earnings≧0		
	Coefficient	t-value		Coefficient	t-value		Coefficient	t-value	
Intercept	-0.440	-3.122***		-0.612	-6.254***		0.587	4.823***	
Retained earnings for the Previous Year	-0.315	-6.742***		-0.191	-5.895***		0.006	0.083	
Income Tax Rate for the Previous Year	-1.275	-3.610***		-0.669	-2.579***		-0.817	-1.936	**
Fixed Asset Ratio for the Previous Year	-0.058	-1.413		0.100	2.879***		0.044	0.347	
Corporate Scale for the Previous Year	0.149	9.616***		0.120	10.929***		-0.047	-2.451	**
Variance of Operating Profit Ratios	1.794	2.609***		0.642	0.832		4.740	1.602	**
Ethnic Chinese Dummy	0.030	0.234		0.038	0.482		-0.121	-2.195	**
Government-owned Dummy	0.103	1.187		0.053	0.827		-0.025	-0.511	
Foreign-owned Dummy	0.099	1.025		-0.051	-0.851		-0.026	0.218	
EthnicIndian Dummy	0.144	1.585	*	0.060	0.912		NA		
Restructured Dummy	-0.053	-1.682	*	-0.006	-0.277		-0.071	-1.876	*
Effect Level to Enterprise Group Dummy	0.034	1.041		0.049	2.186	**	-0.055	-1.722	*
Core Business of Enterprise Group Dummy	0.028	1.645	*	0.027	2.288	**	-0.019	-1.401	
Year 2003*Ethnic Chinese Dummy	-0.028	-0.389		0.036	0.688		-0.027	-0.365	
Year 2003*Government-owned Dummy	0.030	0.546		0.045	1.168		0.008	0.090	
Year 2003*Foreign-owned Dummy	0.091	0.888		0.174	2.473	**	-0.075	-0.823	
Year 2003*Ethnic Indian Dummy	0.033	0.681		0.034	0.966		0.010	0.124	
Year 2003*Restructured Dummy	0.026	-0.361		0.022	-1.484		-0.014	0.039	
Year 2003*Effect Level to Enterprise Group Dummy	-0.019	0.534		-0.054	0.623		0.002	-0.257	
Year 2003*Core Business of Enterprise Group	-0.006	-0.226		-0.018	-0.947		-0.004	-0.045	
Agriculture,Forestry,Fishing,Animal Feed and Husbandry	-0.018	-0.247		0.022	0.539		-0.137	-1.522	
Construction	-0.170	-1.456		-0.073	-0.905		NA		
Communication	-0.007	-0.080		0.040	0.588		NA		
Hotel & Travel	0.046	0.649		0.093	1.786	*	-0.121	-1.286	
Manufacturing	0.016	0.293		0.010	0.287		-0.157	-2.142	**
Mining and Mining Services	-0.120	-1.714	*	0.020	0.403		-0.187	-1.370	
Transportation Services	0.052	0.812		0.092	1.936	*	-0.102	-1.042	
Wholesale and Retail Trade	-0.026	-0.432		-0.096	-2.247	**	-0.073	-0.883	
Real Estate	-0.111	-2.012	*	-0.103	-2.593	**	-0.087	-1.333	
Number of Observations	391			380			205		
Adjusted R-Squared	0.389			0.473			0.065		
F (Zero Slopes)	0.000			0.000			0.060		

NA:Not Available
*,**,and***,significant at the10,5,and1percent level,respectively.

chapter show, the financing activities of listed companies are explainable by economic rationality. Any particular skew or constraint peculiar to Indonesia is not recognized in the major explaining variables such as corporate profit-earning ratio, collateral capacity, or corporate tax effects. Any difference in financing activities caused by differences in the corporate attributes of ethnic Chinese companies, non-Chinese local companies, and government-linked companies, or in the scale of enterprise groups, is not found in the estimate results for debt ratio. These facts show that the financial activities of listed companies in Indonesia are becoming basically rational under the post-crisis systems, and that there is no excessive borrowing by companies with particularly specific attributes.[23] Sound management of banks, consolidation of corporate governance, and further expansion of reform effects, are expected from now on.

Improvement of Corporate Information Disclosure and Disposal of Collaterals

In spite of financial and corporate reforms after the Asian crisis, the analysis results in the previous chapter illustrate that there are still several policy tasks. One of them is that the agency cost issue based on the asymmetry postulate of information is a critical determinant in companies' financing activities, and that collateral capacity and visibility may in particular become impediments to financing

23 Excessive borrowings of ethnic Chinese companies, which is a popular topic of the news, has not been found at all. On the contrary, it is found that the bank debt ratio of ethnic Chinese companies is significantly lower than that of other companies. Several interpretations of this are possible. For example, ethnic Chinese companies with strong economic potential in Indonesia are able to support each other with short-term debts through the networks, which make them independent of borrowing from banks. Alternatively, non-Chinese local companies and government-linked companies are able to borrow necessary funds from regional banks, while foreign joint venture companies can borrow from banks in the home country. After the Asian crisis, however, as they cannot count on Chinese banks, it may be difficult for ethnic Chinese companies to continue their flexible financing activities.

activities.

According to the estimate results, market visibility and collateral capacity have a significant impact on companies' borrowing. This fact shows that the asymmetry postulate of information between listed companies and external lenders is still high, and that poor collateral capacity and low market visibility would become serious constraints on a company's borrowing even though other corporate attributes were equal to those of other companies. Such impediments to borrowing would be more serious when a company's asymmetry postulate of information is higher and a country's legal systems concerning disposal of collaterals are underdeveloped.

For the solution of such constraint issues, it is necessary to promote corporate information disclosure. Although focus of the corporate reforms after the Asian crisis has been placed on reinforcement of internal audits, it is said that information disclosure to external investors and creditors still leaves much to be desired (Sato [2004]). In future, it is necessary to recognize that inadequacy of corporate information disclosure is a serious constraint on financing activities, and that a company's information should be released in an open way. For promotion of corporation information disclosure, policies for reinforcement of the duty of disclosure are to be implemented by the government.

In Indonesia's current corporate finance structure, collateral capacity has a significant impact on borrowing of funds. It is essential, in debt liquidation, to implement disposal of collaterals smoothly and speedily so that they would mitigate the asymmetry postulate of information. After the Asian crisis, the bankruptcy law and the corporate law were revised for the liquidation and reconstruction of failed companies, and commercial courts were established for facilitating the necessary procedures. However, despite such political measures, it is said that there are many problems in the disposal process of bankruptcy and collaterals (Sato [2004a]). As Indonesia's current corporate finance structure is built upon the implementation of legal disposal of collaterals, solving these problems is the most urgent task.

Delayed Recovery of Bank Loans

In developing countries where systems are underdeveloped, it is said that an information production function of banks based on their close business relationship with companies is essential as a measure to overcome the corporate asymmetry postulate of information (Allen and Gale [2000]). However, the estimate results of short-term bank debt ratio show that the credit activities of banks are insufficient. In addition to insufficient persuasive power of the estimate formula, there is an issue of incomplete function of collateral and of profit-earning capacity, which are generally supposed to affect borrowing of funds from banks. Such situations indicate that the Indonesian banks do not properly bear risks at levels that meet the profitability of borrowers.

The issue of risk-bearing function is caused by several factors. One of them is that corporate information disclosure is still insufficient and the processes of collateral disposal and liquidation are not smoothly implemented, although banks are tightening their credit policies by strict regulations established after the Asian crisis. Since it is difficult for them to conduct risk assessment for each company, banks may be diversifying their risks by allocating credits broadly to many companies.

Some people point out as a bottleneck factor for banks that the lending-limit regulations are restricting their loan ceiling when the average bank scale is small.[24] When the lending upper limit is low, a bank will allocate the maximum credit to many companies. When a company borrows up to the limit, high profitability or collateral capacity would be meaningless for increasing bank loans. In order to raise a bank's lending limit, it is necessary to expand the bank scale or to leverage the syndication more effectively. The former requires capital increase or merger and acquisition. To implement such measures,

24 This is based on the local field survey. As the reforms after the crisis set lending limits not for individual borrowers but for the enterprise group to which the borrower belongs, the bank loan regulations are far stricter than before. Since 2003, investment demand has been rising due to the economic recovery, and this is aggravating the issues, especially for major companies.

it is desirable that the government be actively committed to policies such as raising the minimum capitalization requirements. Bank Indonesia had drawn up a blueprint for integrating 152 commercial banks in 1999 and another 35-80 banks in the coming 10-15 years, and of creating 5-8 new megabanks. The authorities should be actively committed to the process of mergers of commercial banks.

For Improvement of Long-Term Capital Markets

The estimate results show that collateral capacity has the most significant impact on determinants of long-term debt ratio, and that the asymmetry postulate of information is more strictly constraining long-term borrowing. It is also found that the long-term debt ratio of a core business in an enterprise group is higher than that of other companies. The analysis results lead to the conclusion that only companies with high collateral capacity are able to borrow long-term external funds, and that the core business of each enterprise group is responsible for borrowing long-term external funds.

As described earlier, the reasons for difficulty in borrowing long-term funds are considered to be insufficient corporate information disclosure, constraints on the credit capacity of banks, the country's underdeveloped systems, and lack of companies' executive ability to dispose of collaterals and failed companies. In tandem with solution of these problems, expansion of funding methods in substitute for bank loans is required, although this proposal may deviate from the original subject. It is essential to develop capital markets such as stock and debenture markets to meet the demand of large-scale long-term debts.

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Rebuilding the Indonesian Banking Sector -Economic Analysis of Bank Consolidation and Efficiency-

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Abstract

This paper examines the soundness of the Indonesian banking sector by describing its transition and current status. In particular, we focus on the government-led bank consolidation after the Asian currency crisis and provide a qualitative prospect of the role of the consolidation in bank restructuring. On that basis, we estimate a nonparameric frontier function that does not specify any functional form, and analyze efficiency with a quantitative measure.

The conclusion of the paper is summarized as follows. First, performance of the Indonesian banking sector has seen gradual recovery, in real terms. Second, privatization of state banks (sales of government-owned shares to the private sector) has not always brought subsequent improved business performances and market valuations. Third, given the estimation result of DEA with measures the level of inefficiency and total factor productivity, the Indonesian banking sector is confirmed to be on a recovery trend.

Contents

Introduction
Chapter 1 Overview of the Indonesian banking sector
1. Structural change
2. Banking supervision structure
Chapter 2 Transition of the banking sector
1. Overview of consolidations
2. Individual bank's consolidation
Chapter 3 Analysis of efficiency
1. The analysis method
2. Estimation model
3. Analysis period and data
4. Estimated results
Conclusion

Introduction

Indonesia suffered the most economic damage during the Asian currency crisis of 1997-1998. The country, which experienced a sharper drop of the currency than any other country involved in the crisis, injected a huge amount of capital into its banks. Political and economic shocks, including the sharp drop in the currency, bank runs, and the collapse of the Suharto regime inspired by the political instability, deteriorated the balance sheets of leading banks. Capital injections conducted in 1999 to re-establish banks employed an extremely generous set of capital adequacy ratio criteria; 4% or higher for healthy banks, - 25% to 4% for banks that required capital injections, and - 25% or lower for banks that were to be immediately shut down. The banking sector had deteriorated that far.

However, the subsequent effort by the Indonesian government and rearrangement of the banking supervision structure enabled Indonesia eventually to exit the IMF program and the Indonesian Banking Restructuring Agency (IBRA) was dissolved after completing its task. In 2004, President Yudhoyono, who won Indonesia's first direct presidential election, took office. From the political and economic point of view, Indonesia seems to have overcome the damage from the Asian currency crisis to set out on another path of growth.

Indeed, the Indonesian banking sector or the general macro economy has restored its confidence rapidly. As far as published data shows, macro data on recent bank performance, the financial data of individual banks, and individual bank's stock prices, suggest recovery of the management of banks.

Although the banking sector apparently has regained its stability, concerns still remain. For

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instance, a final disposal (privatization) of banks that were put under state control during the Asian currency crisis has not been completed yet. Among state banks, Bank Mandiri is recognized as being in an extremely poor financial condition, which does not appear on its balance sheet or income statement (based on a survey by the authors). Following the IBRA's dissolution, the Financial Supervisory Agency, which was scheduled to be established by 2002, has not yet been set up. In fact, the country is returning to the pre-crisis situation that the central bank supervises banks. In addition, Indonesia suffers from macro economic issues such as relatively high inflation rates compared with those of other Asian countries.

In this paper, we examine the soundness of the Indonesian banking sector by describing its transition and current status. In particular, we focus on the government-led bank consolidation after the Asian currency crisis and provide a qualitative prospect of the role of consolidation in bank restructuring. Regarding recovery of the banking sector, macro performance has apparently recovered its stability in nominal terms. We, however, intend to confirm whether the situation is robust against adjusting for inflation-usually in real terms-or whether it is merely a false recovery. We also estimate nonparametric frontier function that does not specify any functional form and analyze efficiency with a quantitative measure.

The conclusion of the paper is summarized as follows. First, performance of the Indonesian banking sector has seen gradual recovery in real terms. Second, privatization of state-controlled banks (sales of government-owned shares to the private sector) has not always brought subsequent improved performances and market valuations. Third, given the estimation results of DEA, which measures the level of inefficiency and total factor productivity, the Indonesian banking sector is confirmed to be on a recovery trend.

The overall structure of the paper is as follows. In Chapter 1, we review aspects of the banking sector during the period of the Asian currency crisis in 1997, based on macro data and institutional framework. We provide an outline of the characteristics of the banking supervision structure before the crisis, the IMF/IBRA structure immediately after the crisis, and the recent transition into the central bank structure. In Chapter 2, we focus on individual banks and summarize its restructuring. In Chapter 3, we evaluate the efficiency of management of banks by the envelope analysis.

Chapter 1: Overall view of the Indonesian banking sector[1]

1. Structural change

Table 1 shows the number of banks which reached 239 in pre-crisis 1996, came down to 151 in 2000 and even to 138 at the end of 2003, after the end of the crisis. There has been a slight change in the number of state banks, regional development banks, foreign banks, and joint venture banks, but the number of

Table 1 Transition of the number of banks and branches

	1996	1998	2000	2001	2002	2003
State banks	7	7	5	5	5	5
Number of branches	1,379	1,602	1,506	1,807	1,885	2,072
Regional development banks	27	27	26	26	26	26
Number of branches	490	555	550	857	909	1,003
Domestic private banks*	164	130	81	80	76	76
Number of branches	3,964	3,976	3,228	6,765	7,001	7,730
Foreign banks/Joint venture banks	41	44	39	34	34	31
Number of branches	86	121	95	113	114	126
Total number of banks	239	208	151	145	141	138
Number of branches	5,919	6,254	5,379	6,765	7,001	7,730

＊Domestic private banks include Private National Forex Banks and Private National Non-Forex Banks.
Source：Bank Indonesia, Annual Report1998, 2000, 2003

1 The macro-based transition of the Indonesian banking sector is detailed in Bank Indonesia (2004a, 2004b), Indonesian Chamber of Commerce (2005), Nasution, and Santoso (2005) and Sato (2004).

Figure 1. Macro indicators of the banking sector in nominal terms

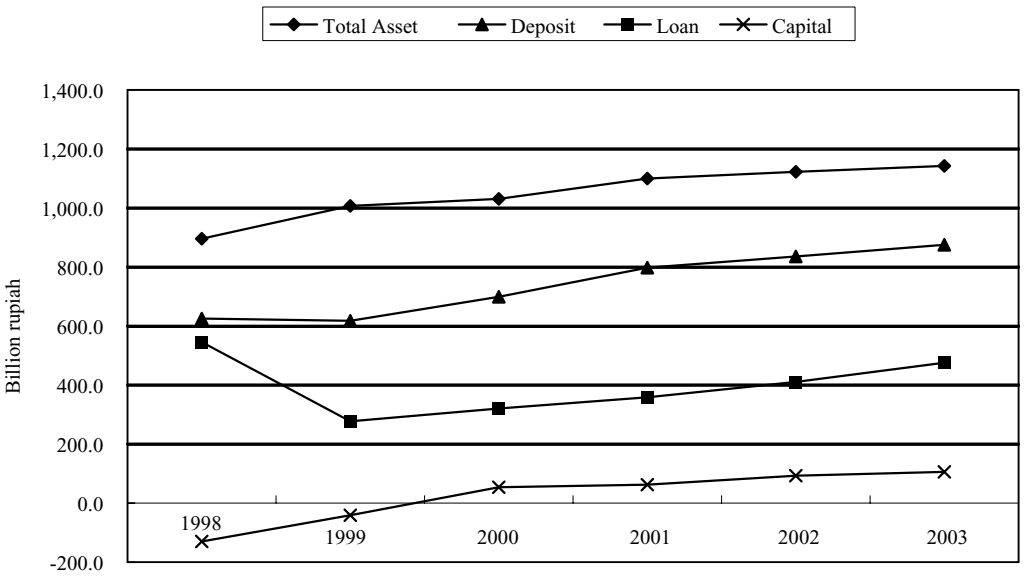
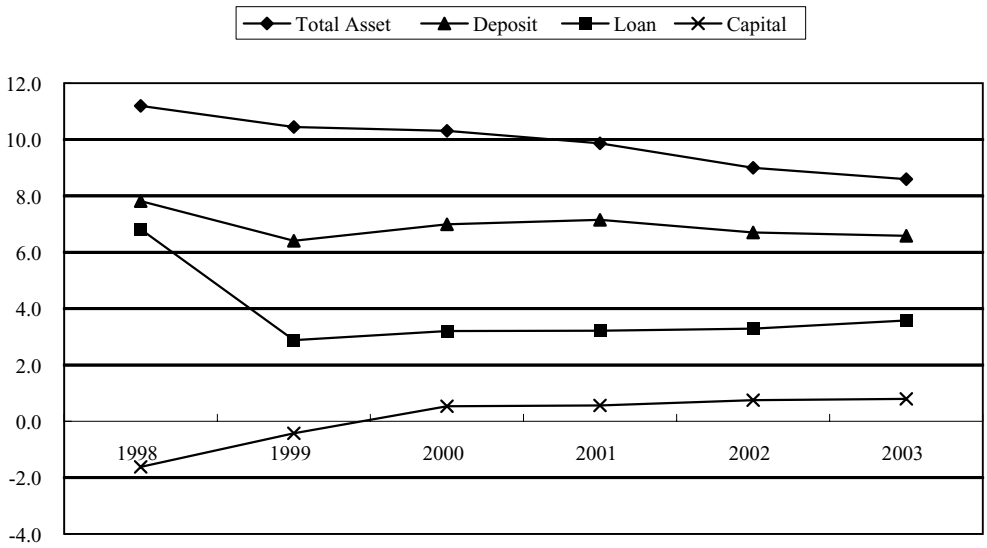


Figure 2. Macro indicators of the banking sector in real terms



domestic private banks has decreased by nearly 54% to 76 (in 2003) from 161 (in 1998).

On the other hand, the total number of branches has increased to 7,730 in 2003 from 5,919 in 1996. All state banks, regional development banks, foreign banks, and joint venture banks, have added to the number of their branches.

However, in the Indonesian banking sector, the top 5 banks represent 61% of the total assets of the banking sector as a whole, and the rate reaches 90% of the total assets when it comes to the top 23 banks (Indonesian Chamber of Commerce (2005)). In addition, the Indonesian government promoted consolidation and restructuring by closing relatively small banks and injecting capital into large banks after the Asian currency crisis. Taking these factors into account, changes in the number of banks and branches merely provide a clue toward our judgment and analysis.

Therefore, we use macro data, such as total assets, deposits, loans, and capital, as management indicators of the banking sector as a whole (Figure

Table 2 Macro Indicators

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Monetary base	34,405	46,085.9	75,120.3	101,790	125,615	127,796	138,250	166,474	199,446
Monetary base real growth rate	—	23.2%	2.9%	11.7%	17.4%	-9.2%	-3.4%	12.2%	12.0%
M1	64,089	78,343	101,197	124,633	162,186	177,731	191,939	223,799	253,818
M1real growth rate	—	14.0%	-20.4%	2.2%	22.7%	-1.7%	-3.5%	9.0%	6.5%
M2	288,632	355,643	577,381	646,205	747,028	844,053	883,908	955,692	1,033,530
M2 real growth rate	—	14.8%	2.5%	-7.4%	10.8%	1.3%	-6.6%	1.4%	1.8%
Consumer price index	47.6	50.5	80.0	96.4	100.0	111.5	124.7	133.0	141.3
Price growth rate	—	6.04%	45.99%	18.64%	3.65%	10.89%	11.22%	6.38%	6.06%

Source：International Monetary Fund, International Financial Statistics

1/Figure 2). Figure 1 shows the nominal transition of each indicator, and Figure 2 shows the real figure of each indicator that is calculated by dividing the nominal figure by the consumer price index. On the basis of nominal figures, lending is the only loser after the currency crisis, while total assets, capital, and deposits, enjoy an upward trend in the sector as a whole. A glance at Figure 1 provides the fact that total assets and capital are increasing and the number of banks has decreased significantly.

With relatively high inflation rates in Indonesia, we have observed the following facts from the transition of real figures that deduce price growth rates. First, total assets have been decreasing as a whole. Considering the large number of banks overall, or overbanking, in Indonesia, decline in the real total assets could be a good sign. The drastic decline in real loans in 1999 does not ensure an outbreak of credit crunch because of the succeeding marginal rise in following years. Considering a slight increase in real capital, we can observe stabilizing performances of the banking sector as a whole, even based on real figures.

Indonesia's price growth rate, which remained high at 45.99% (in 1998) and 18.64% (in 1999) immediately after the currency crisis, has stabilized at a relatively high level within the 6% range at 6.38% in 2003 and 6.06% in 2004, compared to other Asian developing countries that have eased the Asian currency crisis confusion (Table 2).

2. Banking supervision structure

The banking sector played a major role in the currency crisis encountered by Indonesia. This is a commonly accepted theory in written reports on the Asian currency crisis (Cf. Enoch et al. (2001)). It is also true that the banking crisis, which was provoked by the currency crisis, further escalated the currency crisis to bring the "twin crises" to Indonesia.

The banking sector had already been facing problems even before the currency crisis. It was highly vulnerable to any shock due to its low business transparency caused by incomplete financial disclosure and by inadequate distance from group companies, for which banks act as financing agencies. Management inefficiency had been another problem for large state banks. Since the mid-1980s, the government, which had control over state banks, had endeavored to develop the banking business with a focus on private banks through deregulation and liberalization of activities. Coexistence of state banks and private banks suggests that banking supervision was not the only task of the government.

In addition, various sectors including the banking sector had retained the inherent problems such as corruption, which were prevalent throughout the industrial, political and financial landscape. After the currency crisis, KKN (corruption, accretion and favorable treatment of blood relatives) issues, which came under closer scrutiny, may have delayed the crisis settlement. However, nobody pointed out that these issues had adversely affected economic growth before the crisis.

The early liberalization of capital accounts in Indonesia has enabled not only banks but also general companies in the country to conduct free overseas loans and foreign currency transfers to foreign banks. Economic development theory and IMF guidelines suggest that liberalization of capital accounts establishes strong financial systems.

Considering the fact that most developing countries share the problems of a fragile banking system, state banks, and currency risks, Indonesia's banking sector may not be remarkably weak. Bank

Indonesia (the central bank of Indonesia) even realized risks on a net open position of foreign currencies and concentrated loans to certain corporate groups. However, the country, where regulations are not fully complied with, encountered the currency crisis with vulnerability still remaining. When the currency crisis struck, the banking sector contributed to the escalation of economic difficulty by creating the "twin crises" alongside the currency crisis.

(1)Break of the crisis

In the context of the first IMF program agreed at the end of October 1997, decisions were made to close 16 fragile banks immediately and to give no protection to amounts that exceeded the designated upper limit (20 million rupiah) for deposit payback. At the end of October there was no serious foreign reserve shortage, though the currency has dropped (no large-scale intervention of buying rupiah and selling US dollars to make the transition to floating exchange rates). The closure of banks was intended to prevent capital outflow and currency depreciation and to restore confidence in announcements by the government and the IMF of serious measures towards repairing the long-standing structural problem. The government, which was forced to make a politically difficult decision, chose closure of banks. Ironically, these closures resulted in acceleration of the banking crisis.

The IMF program at the end of October addressed the following problems. First, depositors had become suspicious of the possibility of other fragile banks to be closed following the closure of 16 banks. Closure of the 16 banks had left the impression of over-hastiness because it was done without due diligence and disclosure of bank balance sheets and a restructuring of the banking sector. Secondly, a lack of full protection of all deposits created the growing fear that (a part of) deposits might be lost. Frequent runs on deposits further diffused the bank crisis. In January 1998, the government was forced to come out with full guaranty of bank deposits.

Those who consider the IMF's involvement to be a failure think that the closure of 16 banks without sufficient preparation had caused the problem between the IMF and the Indonesian Soeharto government. On the other hand, those who support the IMF claim that the closure of 16 banks was part of a well-prepared plan, of which the Indonesian government approved. However, the fact that one of the banks was owned by the president's son and survived by changing its name through acquisition of another bank, sparked distrust. The defenders accuse Indonesia of activities that raised questions about implementation of the agreed program, scaring away investors.

The Indonesian rupiah, which was worth 2,500 to the US dollar just before the Thai baht crash in 1997, had depreciated to 14,000 rupiah against the dollar, a sixth of its original value, in January 1998. Under these circumstances, the economic crisis had escalated to where the majority of companies fell into negative net worth. Non-performing loans as a percentage of total loans surged sharply to 50%. The currency crisis, which had triggered the economic and banking crisis, raised Indonesia's country risks and provoked depreciation of the currency, had spread synergistically

In the early part of 1998, the Indonesian government and the IMF took some measures. They agreed on 15 January to revise the program to raise the structural issues again, and the Indonesian government agreed to implement a revolutionary list that included as many as 50 items. The IMF Managing Director, Michel Camdessus, went all the way to Jakarta to attend the signing ceremony. However, after the notorious picture of Camdessus looking down at President Suharto signing the contract appeared in the media, the Indonesian rebellion against the IMF strengthened while President Suharto lost his support.

Based on the IMF program, the government instituted blanket protection of all deposits with the aim of calming a run of withdrawals, and set up IBRA to manage the restructure of the banking system. The IBRA introduced more rigid classification of non-performing loans, a temporary moratorium on capital adequacy rules, a moratorium on foreign debts (and negotiation with debtors), and a mechanism to promote restructuring of the system that created the bank crisis (Jakarta Initiative).

All deposits (and loans) in 212 banks that

existed at the end of January were fully protected in whatever currency. However, the banking sector is thought to have already withdrawn more than half of its deposits before then. This situation might persuade the IMF to change its strategy of introducing blanket protection of all deposits.

The IBRA, which was established on 27 January 1998, set out to build a bank restructuring mechanism.

(2) IBRA structure

Immediately after its establishment, the IBRA introduced restructuring measures such as successive takeovers of ill-performing banks and gaining full control over banks by changing management.[2] On the other hand, it supplied liquidity to prospective banks and promoted business restructuring.

As there was no sign of settlement of the crisis, even by 14 February when 54 banks (including 4 state banks) were placed under IBRA control, it is said that mutual suspicion among the IMF, the Indonesian government and Bank Indonesia and President Suharto deepened. After the president dismissed the Bank Indonesia governor, Djiwandono, on 23 February, the first chairman of the IBRA was dismissed at the end of the month.

Following the release on 27 February of new classification criteria for non-performing loans, 7 heavily supported banks (which accounted for 16% of the banking sector assets and 75% of injected liquidity to the banking sector) came under IBRA control in April 1998. These banks' shareholders' rights were suspended and management was reshuffled, but they still stayed in business. In addition, 7 other small banks (with a capital adequacy ratio of 5% or lower and a received liquidity of 2 trillion rupiah or more, which represents 75% of the total assets) were closed. The restructuring based on these clear criteria was generally favorably received. The IBRA closed these 7 banks to place them under its control. However, 3 out of the 7 banks closed later, in August.

President Suharto, who was re-elected on 11 March under the deepening political crisis during January-April 1998, resigned in May due to his failure to restore political stability. To that end, a massive amount of deposits ran out of Bank Central Asia, in which Suharto's family had a major stake. The bank, which had received liquidity from Bank Indonesia and state banks, was placed under the authority of the IBRA where it suffered suspension of shareholders' rights and a management reshuffle.

In June, a group of international creditors and Indonesian companies agreed on a policy for how to treat corporate debts.

Three of the 7 banks over which the IBRA gained full control were closed on 21 August, and the state bank Expor Impor Indonesia (Indonesia Export and Import Bank) was merged with other state banks. Of the remaining 3 banks, 2 were merged with Bank Danamon, which had received an injection of public funds. Since then, Bank Danamon, though its financial condition has deteriorated, has acted as a bridge bank that incorporates small banks with relatively healthy assets.

The IBRA, which was established as an integrated agency to tackle the bank restructuring, could not be empowered for legal authority and endowed with enough budget. Under IMF guidance, the IBRA created a bank restructuring mechanism independent of the government and Bank Indonesia, but it failed to get full cooperation from the government and resulted in undermining its authority. There may have been concern about scrutiny of the balance sheets of banks and their corporate borrowers, and the dismissal of the first chairman a month after his accession to office provides support for that view.

Under the October 1988 revision of the Banking Law, in February 1999 the IBRA (which was initially unable to conduct sufficient reorganizational activities due to its limited budget) gained full access to all assets of banks that were under its control (the rupiah eventually recovered to 7,000 from 11,000 rupiah against the dollar in this period).

In March, a banking system restructuring program was revealed which classified banks into 3 categories based on their capital adequacy ratio; A

2 The description of the bank restructuring and IBRA following this chapter referred to Takayasu (2003), Enoch et al. (2001) and IMF (2003).

(4% or higher), B (-25% to 4%) and C (-25% or lower). The 72 banks that fell into category A were recognized as healthy banks and were allowed to stay in business without any intervention by the government. Any bank that fell into criteria B was obliged to submit a business plan, and the owner shareholders and government were to jointly set up a scheme to boost the bank's capital adequacy ratio after the business plan was approved. Nine such banks obtained approval for their business plans and 7 out of those 9 were successful in raising new capital by the deadline of 20 April, at the same time receiving shareholders' equity from the government as promised. Two banks (Bank Bali and Bank Niaga), which failed to raise new capital, were put under state control by the IBRA. Of category B banks that failed to access the recapitalization program, 7 large banks were put under state control while 21 small banks were closed. 17 category C banks were also closed (38 banks were closed on 13 March). However, 7 state banks which fell into category C escaped closure and made a fresh start, as did Bank Mandiri upon the merger of 4 banks in August.

The Indonesian government has raised new capital for banks by granting government bonds totaling 430 trillion rupiah (43 billion dollars when calculated on 10,000 rupiah = 1 US dollar or 4.3 trillion yen). This was done 12 times in total, starting with Bank Central Asia on May 1999 and ending with Bank Tanbungan Negara in November 2000. This huge capital injection represented approximately 30% of the Indonesian GDP in 2000. In this way, non-performing loans of the banking sector were turned into government finances.

Between the instigation of the program at the end of October 1997 and the banking restructurings and consolidations during 1999, both the Indonesian government and the IMF constantly reviewed their strategy in accordance with the transition of economic conditions and of the banking sector. This may also be attributable to the unpredictable financial status at the initial stage and deterioration of the banks' financial state over the period. Closure of 16 banks in October 1997 without any financial scrutiny was a policy failure, but after a process of crisis management, a long-term strategy was set up in March 1999 to cope with the crisis.

Category B covered a wide range of banks with a capital adequacy ratio of -25% to 4%. The situation was unusual. As the IMF's position is to close banks having negative net worth, the application of this "generous" standard was itself a great surprise. However, the financial system could have collapsed under a situation in which no large bank would have survived if all banks with a negative capital adequacy ratio were closed. We may presume that these criteria were applied in recognition of the extremely poor economic conditions in Indonesia at the time.

There were radical changes in the position of the IMF and the government on the injection of public funds. At first, the Indonesian government is said to have shown little appetite for the use of public funds, which involves an added fiscal burden. In fact, this policy was abandoned when it become apparent that most banks might collapse due to negative net worth unless they were to receive such funds. The government accordingly decided to inject a large amount of capital in line with the IMF proposal.

State banks have been privileged in the context of the restructuring. The government, which strongly resisted any closure of state banks, insisted on consolidating such banks without modification. The current biggest state bank in terms of asset size is Bank Mandiri, which was established through the merger of several other state banks. According to the authors' survey in Jakarta, many people are suspicious of financial figures published by Bank Mandiri.

As of end of 2000, most of the shares of 4 state banks and 7 re-capitalized banks were under the control of the IBRA. During 2001, the main emphasis shifted to sales to the private sector of bank assets controlled by the IBRA. Full-scale sales of the IBRA-owned shares and assets started in 2002. The IBRA's asset management department was also responsible for administration and sale of the (non-performing and healthy) loans of closed banks, the irrecoverable loans of recapitalized banks, state banks, and nationalized banks. The total amount of assets placed under the authority was 275 trillion rupiah. As non-performing loans may be sold under large discounts, there were guidelines to avoid their sale to the original business owner. However, as assets were rapidly sold during 2003, it was difficult to scrutinize

full details of the sales. In February 2004, the IBRA was dissolved after completing the sale of its assets. Unsold assets are placed under the authority of the Ministry of Finance.

(3) Banking supervision structure in peacetime

Bank Indonesia made two financial reforms in the 1980s, including open-market operations through the market mechanism and liberalization of interest rates. In the 1990s, the bank aimed for enhanced financial health by adopting the Basel (BIS) standard as its capital adequacy rule, and set a target for individual banks to achieve this standard by the end of 1993. For international or off-shore borrowings, the bank also stipulated regulations to make transactions subject to a certain equity capital ratio.

Under the Suharto administration (1968-1998), individual banks were guided or supervised by Bank Indonesia, while banking business licenses were issued or revoked by the Ministry of Finance and the Currency Committee's Secretariat Division. Regardless of these regulations and supervision, the liberalization of interest rates boosted the number of banks (private banks increased sharply to 164 in 1996 from 66 in 1988) and the amount of loans. Whereas risks were on a steadily rising trend, there still remained 7 poorly business restructured state banks and private banks that had failed to meet the Basel standard (22 out of 240 banks as of the end of 1995). In 1996, 52 out of 239 banks violated the upper lending limit because loans to a given company group exceeded 20%.

As already mentioned in the preceding two subsections, the IBRA, which took over authority for supervision and reconstruction of banks, was the key agency for banking sector reform during the currency crisis.

In 2003, the Indonesian government made a political decision to terminate policy management based on loans and advice from the IMF. Exit from the IMF program meant receiving no further loans from the fund. Thereafter, the government became responsible for implementing economic policy without any input from the IMF. While the IMF's guidance is still partly effective under Article IV, consultation with the IMF (surveillance) and post-program monitoring, the government restored its autonomy in establishing economic policy.

With the dissolution of the IBRA in February 2004, the Indonesian banking sector may be back to normal. Since the dissolution of the IBRA, Bank Indonesia has supervised banks. Although the new Central Banking Law (2004) stipulates detachment of banking supervision authority from Bank Indonesia and the setting up of an independent banking supervising agency, opposition from the central bank has prevented its implementation.

In general terms, there is no standard answer to which is more suitable to supervise banks - an independent banking supervision agency or the central bank. Every country has a different situation. In Indonesia, the concerns are to what extent an independent banking supervision agency can keep its independence, and whether the central bank, if it supervises other banks, can separate the supervision arm and the financial policy arm. Whatever the ideal structure, it is undeniable that a banking supervision structure able to provide guidance in preventing the banking sector from becoming fragile will be required to prevent another currency or banking crisis.

Chapter 2: Transition of the banking sector [3] [4]

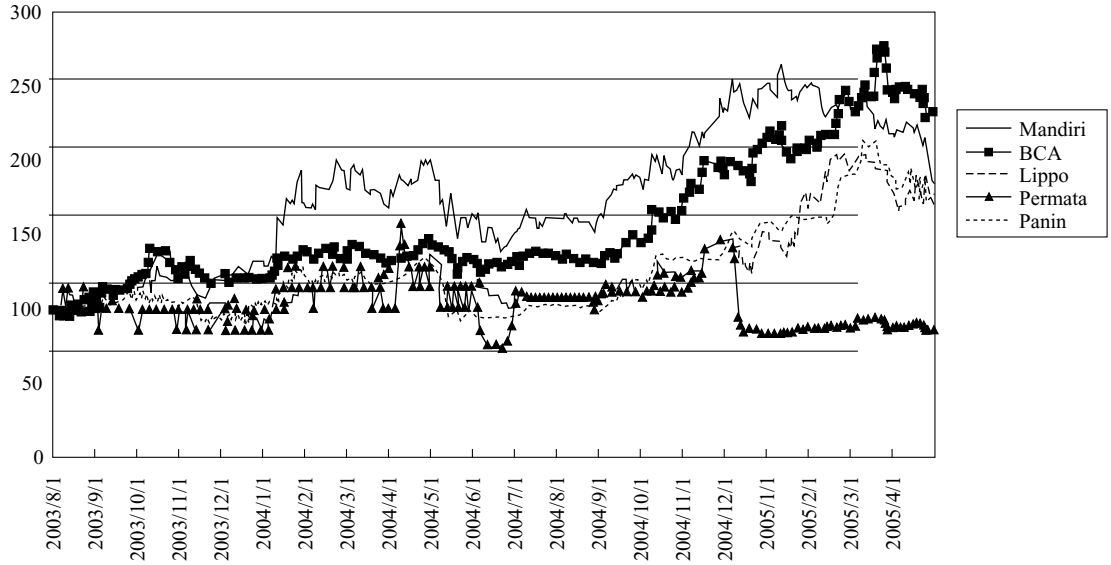
1. Overview of consolidations

In 1999, banks were classified into 3 categories in order to inject public funds and rehabilitate them. The 3 categories are healthy banks in category A (capital adequacy ratio of 4% or higher), banks requiring capital injection in category B (capital adequacy ratio of -25% to 4%) and banks subject to closure in category C (capital adequacy ratio of -25% or lower) for restructuring.[5]

3 The financial sector experienced deregulation a few years before the Asian currency crisis. The related law revisions include the Banking Law revision. This law revision is translated into Japanese by the Indonesian Economic Act Report as the "Banking Law 1992 Act No. 7" (published on 25 March 1992).

4 The banking sector restructuring policy published in 1998 revealed a public fund injection program to the banking sector. Usui (2001) details the mechanism of the issuance of government bonds by the Indonesian government to inject funds into banks.

Figure 3. Stock prices since August 2003



Not only category C banks but also 21 of the 37 category B banks were closed. While most category A banks were medium- and small-sized banks, exclusion of the closed 21 category B banks made the number of surviving banks 16. Seven of these 16 banks, which were relatively small, were put under state control (6 of the 7 banks merged to form Bank Danamon, and the only remaining bank merged with Bank Central Asia). The remaining 9 banks out of the 16, which were entitled to receive 80% of funds from the government if 20% could be self-financed, extracted a promise regarding eligibility to stay in business with management rights remaining. Of these 9 banks, Bank Bali (currently Bank Permata) and Bank Niaga, which failed to raise the 20% capital, came under control of the IBRA.

Briefly, category A banks got back on their feet by themselves. On the other hand, category B banks split into four: closed banks, banks merged after being put under state control, banks successful in raising capital to receive support from the government but not giving up management control, and banks that failed to raise capital and came under the control of the IBRA.

Not all category C banks, which were subject to closure, were actually closed. All 7 large state banks fell into category C. The government may have been of the opinion that they were "too big to fail", since it saved large state banks and chose to inject more capital for their restructuring. These include 4 banks, which later merged to become Bank Mandiri.

Therefore, the top 10 banks in terms of asset size include 2 types of banks; state banks that received public funds (banks originally classified as category C banks) and private banks that got back on their feet through the government's support (category B banks, which could be sub-classified further by with or without management rights In other words, to varied degrees the top banks could not revitalize without the government's support.

In this paper, we trace the transition of 11 individual banks including 9 of the 10 top banks in terms of asset size (due to unavailability of financial statements of the ninth) and 2 semi-large banks that did not receive support from the government. On this occasion, we classify banks into 4 prominent categories. Group A consists of state banks that received public funds and still have a high percentage of share ownership by the government. This group includes 3 banks: Bank Mandiri, Bank Negara

5 Bank consolidations in Indonesia after the Asian currency Crisis are examined in Bank Indonesia (2000, 2004a), Daiwa Institute of Research Singapore (1998), Komatsu (2001), Takayasu (2003) and others. Other related documents are Daiwa Bank Research Institute (1998a, 1998b, 1998c).

Indonesia, and Bank Rakyat Indonesia. Group B includes private banks that received public funds. Based on management rights, we classify this group further into 2 sub-groups; group B2 that gave up management rights and group B1 that still holds management rights. 4 banks: Bank Central Asia, Bank Danamon, Lippo Bank, and Bank International Indonesia belong to group B1, and 2 banks: Bank Permata and Bank Niaga are in group B2. 2 banks, Bank NISP and Bank Pan Indonesia, fall into group C, a group of healthy banks that did not receive public funds.

Figure 3 shows selected stock prices from the 4 groups within the limited period since summer 2003. Due to different stock price levels, we put the closing price as of 1 August 2003 as 100 in order to make a successive comparison of stock price trends. We confirmed that all stocks except for one in group B2 (Bank Permata) are on an upward trend (please refer to the box in the Appendix for the stock price trend that also covers the period around the Asian currency crisis). Market valuations have also provided evidence of the banking sector's recovery.

Next, we compared profitability indicators based

Table 3 Personnel expenses (labor cost/total expense)

Name of bank	1996	1997	1998	1999	2000	2001	2002	2003	2004
BANK MANDIRI TBK	—	—	—	0.027	0.225	0.373	0.310	0.307	n.a.
BANK CENTRAL ASIA TBK	0.422	0.343	0.027	0.309	0.443	0.465	0.482	0.479	0.559
BANK NEGARA INDONESIA TBK	0.398	0.344	0.020	0.420	0.446	0.448	0.436	0.415	n.a.
BANK RAKYAT INDONESIA TBK	—	—	—	1.027	0.642	0.578	0.677	0.651	n.a.
BANK DANAMON TBK	0.264	0.186	0.011	0.119	0.263	0.284	0.344	0.404	0.406
BANK INTERNATIONAL INDONESIA TBK	0.291	0.169	0.015	0.138	0.275	0.213	0.254	0.326	0.349
BANK PERMATA TBK	—	—	—	—	—	0.383	0.248	0.442	n.a.
BANK LIPPO TBK	0.297	0.273	0.019	0.268	0.387	0.369	0.338	0.323	0.357
BANK NIAGA TBK	0.361	0.279	0.041	0.026	0.234	0.298	0.283	0.390	0.364
BANK PANIN TBK	0.280	0.144	0.087	0.098	0.286	0.265	0.254	0.218	0.209
BANK NISP TBK	0.480	0.302	0.193	0.251	0.387	0.346	0.481	0.367	0.441

Source：Financial statements of the banks

Table 4 Loan-deposit ratio

Name of bank	1996	1997	1998	1999	2000	2001	2002	2003	2004
BANK MANDIRI TBK	—	—	—	14.64	18.36	21.69	29.58	36.48	n.a.
BANK CENTRAL ASIA TBK	73.13	89.36	69.15	4.31	9.00	15.32	19.95	24.10	26.37
BANK NEGARA INDONESIA TBK	91.38	99.72	41.47	26.38	30.51	30.04	37.05	41.47	n.a.
BANK RAKYAT INDONESIA TBK	—	—	—	52.14	48.49	50.55	50.92	56.68	n.a.
BANK DANAMON TBK	95.83	171.42	97.07	12.34	16.57	24.60	47.58	45.55	56.16
BANK INTERNATIONAL INDONESIA TBK	83.42	106.19	34.13	35.69	57.37	18.33	17.50	32.99	39.56
BANK PERMATA TBK	—	—	—	—	—	38.03	33.00	36.37	n.a.
BANK LIPPO TBK	85.45	90.83	24.34	16.70	18.29	17.97	19.55	16.93	17.32
BANK NIAGA TBK	105.00	120.00	92.00	30.00	36.50	42.45	62.14	70.78	76.19
BANK PANIN TBK	102.43	99.76	71.57	49.43	110.31	46.66	80.63	66.01	62.08
BANK NISP TBK	93.98	126.73	52.57	46.49	26.38	30.51	30.04	37.05	41.47

Source：Financial statements of the banks

Table 5 ROA

Name of bank	1996	1997	1998	1999	2000	2001	2002	2003	2004
BANK MANDIRI TBK	—	—	—	(11.92)	9.70	1.00	1.44	1.31	n.a.
BANK CENTRAL ASIA TBK	0.68	0.43	(43.83)	0.24	1.45	3.03	2.17	1.80	1.06
BANK NEGARA INDONESIA TBK	1.34	0.82	(82.38)	(12.73)	0.14	1.26	2.00	0.32	n.a.
BANK RAKYAT INDONESIA TBK	—	—	—	(5.48)	0.52	1.41	1.77	2.64	n.a.
BANK DANAMON TBK	1.27	0.12	(122.54)	(13.12)	0.54	1.37	2.02	2.90	1.81
BANK INTERNATIONAL INDONESIA TBK	2.16	1.54	(37.78)	(5.73)	0.73	(13.56)	0.37	0.89	1.05
BANK PERMATA TBK	—	—	—	—	—	0.50	(3.25)	1.93	n.a.
BANK LIPPO TBK	1.58	1.32	(57.95)	(7.69)	1.08	1.14	(2.01)	(1.95)	0.37
BANK NIAGA TBK	2.00	1.00	(32.00)	(85.00)	0.35	(0.20)	1.50	1.72	1.20
BANK PANIN TBK	20.14	14.20	0.42	1.31	0.07	0.01	0.63	2.22	1.21
BANK NISP TBK	2.15	1.99	1.31	0.62	(12.73)	0.14	1.26	2.00	0.32

Source：Financial statements of the banks

Table 6 Capital adequacy ratio

Unit：%

Name of bank	1996	1997	1998	1999	2000	2001	2002	2003	2004
BANK MANDIRI TBK	—	—	—	15.93	31.29	26.44	23.39	27.72	n.a.
BANK CENTRAL ASIA TBK	—	—	—	—	33.84	32.64	32.19	27.95	28.65
BANK NEGARA INDONESIA TBK	—	—	—	(10.28)	13.31	14.20	15.94	18.16	n.a.
BANK RAKYAT INDONESIA TBK	—	—	—	31.30	14.35	13.32	12.62	20.87	n.a.
BANK DANAMON TBK	—	—	—	—	57.97	35.49	25.33	26.84	33.27
BANK INTERNATIONAL INDONESIA TBK	—	—	—	—	7.57	(47.41)	33.21	22.02	21.97
BANK PERMATA TBK	—	—	—	—	—	—	10.40	10.80	n.a.
BANK LIPPO TBK	—	—	—	—	21.08	23.70	26.15	17.86	18.26
BANK NIAGA TBK	—	—	—	—	21.34	20.33	18.24	11.58	11.61
BANK PANIN TBK	—	—	—	—	45.13	36.07	32.91	42.35	40.26
BANK NISP TBK	—	—	—	—	(10.28)	13.31	14.20	15.94	18.16

Source：Financial statements of the banks

Table 7 Liquidity (loan/asset)

Name of bank	1996	1997	1998	1999	2000	2001	2002	2003	2004
BANK MANDIRI TBK	—	—	—	9.61	44.97	15.75	21.82	26.14	n.a.
BANK CENTRAL ASIA TBK	64.21	74.31	58.81	3.89	8.08	13.46	17.66	21.39	23.00
BANK NEGARA INDONESIA TBK	65.71	68.85	51.69	20.38	22.95	23.46	28.63	33.15	n.a.
BANK RAKYAT INDONESIA TBK	—	—	—	70.29	36.29	38.52	41.06	45.62	n.a.
BANK DANAMON TBK	76.48	86.23	54.44	12.08	8.17	18.59	35.38	34.33	38.76
BANK INTERNATIONAL INDONESIA TBK	64.34	65.72	29.46	24.02	44.82	15.02	14.12	27.26	30.11
BANK PERMATA TBK	—	—	—	—	—	—	32.18	25.86	29.54
BANK LIPPO TBK	73.24	78.60	31.32	12.70	14.96	15.10	17.12	15.22	15.45
BANK NIAGA TBK	75.88	83.38	77.92	56.76	27.92	32.11	48.97	57.98	62.77
BANK PANIN TBK	58.53	52.49	43.65	28.66	71.67	34.54	55.64	40.63	41.24
BANK NISP TBK	72.30	67.66	33.61	31.51	20.38	22.95	23.46	28.63	33.15

Source：Financial statements of the banks

on financial statements. Table 3 shows the percentage of labor costs in other operating expenses, Table 4 the percentage of loans in deposits, Table 5 the ROA (return on assets), Table 6 capital adequacy ratios, and Table 7 the percentage of loans in the total assets (liquidity).

First, ROA, which represents the percentage of profits in assets, is an indicator by which to measure the efficiency of assets or financial soundness. For example, banks with low ROA present low ratios of lending to deposits, or low liquidity as banks tend to restrict lending under poor financial conditions (credit contraction/credit squeeze). This shows high correlations of the 2 indicators. All banks except for 2 in group C had negative ROA during the post Asian currency crisis period in 1998 and 1999, followed by a recovery to positive ROA (Table 5). Judging from the result that 3 banks: Bank Mandiri, Bank NISP and Bank Panin, presented a relatively strong correlation between ROA and liquidity (Table 8 and Figure 4), it is difficult to evidence Indonesian banks' reluctance to lend new money.

Public funds, which were injected to banks in the form of recap bonds, are listed as assets in balance sheets. For this reason, Indonesian banks post extremely high capital adequacy ratios compared to those of other countries, as shown in Table 6.[6] Labor costs remain relatively stable with the exception of Bank Rakyat (Table 3).

2. Individual bank's consolidation [7]

We provide the history and current state of restructuring by focusing on individual banks. Almost all the large Indonesian banks which received

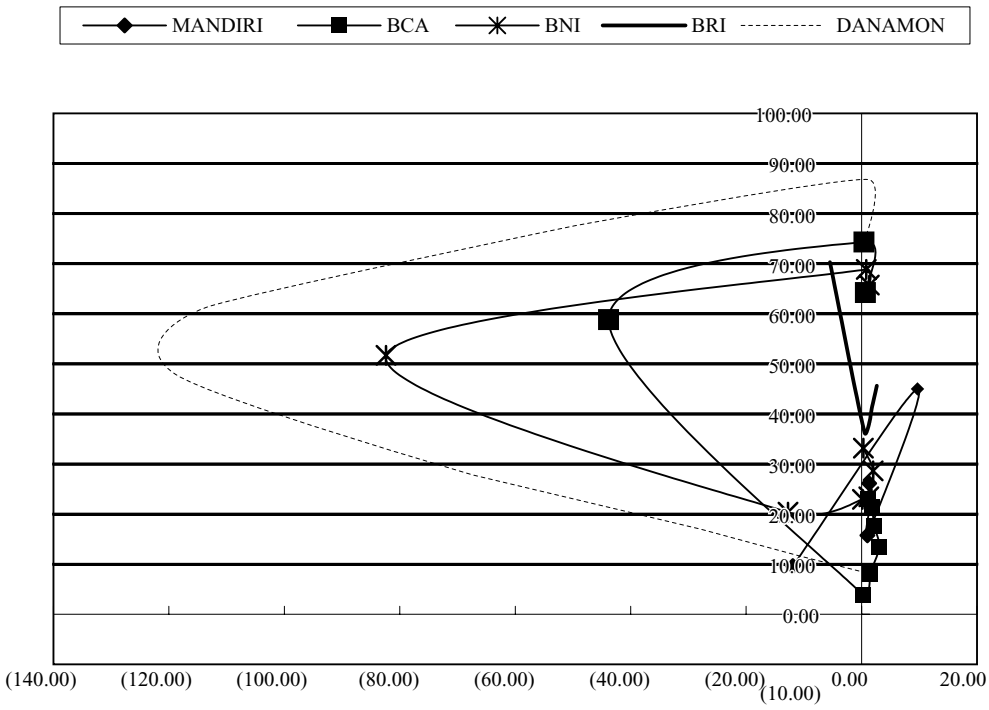
6 Among public funds injected in 1998 and 1999 in Japan, funds issued as preferred stocks are included in capital (capital or excess capital) and those issued as subordinated bonds in liabilities (corporate bonds in corporate liabilities) in the balance sheet. That is to say, public funds are not recognized as assets.

7 We referred to documents from P.T. Nomura Indonesia, documents from the Bank of Tokyo-Mitsubishi Jakarta Branch, Fitch (2004, 2005), Bank Indonesia (2004a, 2004b) and Takayasu (2003) for the history and current state of restructuring of individual banks.

Table 8. Correlation between ROA and Liquidity

Name of bank	Correlation
BANK MANDIRI TBK	0.87944
BANK CENTRAL ASIA TBK	-0.40649
BANK NEGARA INDONESIA TBK	-0.18790
BANK RAKYAT INDONESIA TBK	-0.88362
BANK DANAMON TBK	-0.15201
BANK INTERNATIONAL INDONESIA TBK	0.31722
BANK LIPPO TBK	0.05685
BANK NIAGA TBK	-0.10097
BANK PANIN TBK	0.32077
BANK NISP TBK	0.41854

Figure 4. ROA and Liquidity



capital injections were temporarily placed under the control of the government. Therefore, we also clarify the changes in individual banks and the involvement of the Indonesian government, privatization through the sales of government-owned shares, and the percentage of private capital. We make a comparison of whether large banks that received capital injections had improved their corporate earnings until they were sold. We also compare whether banks with a higher percentage of share ownership by private or foreign investors enjoy higher market valuations.

The following are data on the top 9 banks in terms of asset size in the middle of June 2004, and on another 2 semi-large banks (all figures are as of the end of 2003 except for the asset size). As mentioned, we added 2 banks as an example of non-government capital recipients because all the top 9 banks received capital injection from the government. (We excluded a ninth because its financial data was unavailable.)

We identify state banks and private banks by the "type".We classify banks with majority shareholdings by private investors as private banks, and those that still have a majority share ownership by the government as state banks. The forms of the banks during three different periods is abbreviated in brackets; at or before March 1999 (state or private), when the banking system restructuring program was implemented in March 1999 (state or private), and as of the end of 2003 (state or private). The "listing code" represents the security code at the Jakarta

Stock Exchange.

We provided "transition", "basic financial figures" (based on financial statements of the banks), and "stock price" charts (based on the daily closing price at the stock exchange) separately in the Appendix as detailed in Chapter 2, 2. (Please refer to each box in the Appendix).

Bank Mandiri (First in asset size)
Assets: 234,686 (billion rupiah)
Number of branches: 683 (domestic) 3 (overseas)
Number of employees: 17,735
Type: State bank(State→state→state)The Indonesian government is the majority shareholder, private investors hold a 30% stake.
Listing code: BMRI

Of state banks in operation as of March 1999, 4 large-scale category C banks merged to create Bank Mandiri in August 1999. The merger of 4 negative net worth banks created a banking giant that enjoys the premier position in terms of asset size through a huge amount of capital injection.

The number of employees has been cut drastically to 18,000 from 26,000, the ROA and the capital adequacy ratio (CAR) have seen year-on-year recovery, and the percentage of loans in deposits has been on an upward trend. However, as the capital adequacy ratio of Bank Mandiri covers substantial government bonds, it is hard to sum up its strong earnings recovery.

As a whole, the stock has been on an upward trend since its listing in April 2003, though it is sometimes volatile.

Bank Central Asia (BCA) (Second in asset size)
Assets: 141,738 (billion rupiah)
Number of branches: 778 (domestic), 2 (overseas)
Number of employees: 21,358
Type: Private bank(Private→state→private)
Listing code: BBCA

Since the government sold its Bank Central Asia (hereafter BCA) shares to Farallon Capital Management, which centered on US hedge funds in 2002, Farallon Capital Management has been the majority shareholder.

BCA was the first bank to be covered by the recapitalization program in 1999 and its government-owned stocks were the first to be sold after nationalization.

Djarum Group, the third tobacco company in Indonesia, holds 10% of the private capital and participates in BCA management as a major shareholder.

From an improvement in ROA since its nationalization in 2000, we may say that the IBRA contributed to adding more equity capital and further removing non-performing loans. The bank has increased lending after the nationalization through adjustment of the loan-to-deposit rate and further removal of non-performing loans. The stock price strongly rebounded to 3,125 rupiah at the end of April 2005 from 350 rupiah at the end of May 2000.

Bank Negara Indonesia (BNI) (Third in asset size)
Assets: 128,618 (billion rupiah)
Number of branches: 685 (domestic), 6 (overseas)
Number of employees: 13,483
Type: State bank(State→state→state)
Listing code: BBNI

Bank Negara Indonesia (hereafter BNI) is a state bank that received public funds in 2000. Following a management reshuffle at the time of the public funds injection, there was another entire reshuffle due to the scandal uncovered in 2003.

While the stocks are scheduled to be sold to private investors in 2005, the stock price has been suffering from a persistent slump since its collapse in the latter half of 1997. In the period around the currency crisis, the stock price hit a 26,625 rupiah high on 13 February 1997 and fell to a 975 rupiah low on 26 April 2001. Closing price on 28 April 2005 was 1,610 rupiah.

After the injection of public funds, ROA and the capital adequacy ratio have been recovering in tandem with the state banks without any significant improvement in valuation in the stock market.

Bank Rakyat Indonesia (BRI) (Fourth in asset size)
Assets: 99,287 (billion rupiah)
Number of branches: 324 (domestic), 2 (overseas)
Number of employees: 34,719
Type: State bank(State→state→state)
Listing code: BBRI

Bank Rakyat Indonesia (hereafter BRI), which is a state bank, got back on its feet by accepting public funds in 2000, as did other large state banks.

BRI is characterized by its strong regional network. Besides 324 main branches, the bank owns 148 small branches and 3,900 subordinate

organizations (hereafter BRI Unit). Another feature is its immunity to urban competition due to a community- and regional-oriented customer base. However, cost issues such as those of labor still remain in a bank with as many as 35,000 employees.

Upon its listing on the Jakarta Stock Exchange in October 2003, 40% of the government-owned stocks were sold to private investors. Currently the stocks are on an upward trend. The stock hit a 3,275 rupiah high in 2005 (3 days, including 28 February, 8 March and 16 March), up from 975 rupiah on 10 November 2003 (although listing was in October, stock prices before that date are unavailable).

The bank's ROA has rebounded sharply since becoming positive after the public funds injection in 2000. The ROA hit 2.64% in 2003, which is the highest figure among those of state banks. There has been a slight upturn in lending after a contraction caused by the public funds injection and bad loan disposals in 2000. However, it has still not regained its level of late 1990.

Bank Danamon (Fifth in asset size)
Assets: 53,149 (billion rupiah)
Number of branches: 479
Number of employees: 13,203
Type: Private bank (Private→state→private)
Listing code: BDMN

Bank Danamon is one of 4 banks that were placed under the authority of the IBRA in April 1998. The IBRA utilized the bank as a bridging bank after injecting public funds, and merged it with PDFCI Bank upon its acquisition in December 1999. This was followed by the acquisition and consolidation of 8 banks (Bank Duta, Bank Tamara, Bank Tiara Asia, Bank Nusa National, Bank Rama, Bank Pos Nusantara, Bank Jaya International and Bank Risyad Salim International) in May 2000.

After sale of the government-owned shares to private investors in June 2003, Asia Financial Indonesia holds more than 60% of the shares. Asia Financial Indonesia is an investment company in which Temasek, a Singaporean government-affiliated investment company, has an 85% stake and Deutsche Bank has a 15% stake.

The stock price is apparently sluggish. After it hit a 147,500 rupiah high on 13 February 1997 before the Asian currency crisis, it went down to 800 rupiah on 31 January 2003. However, observing stock prices since the sale of shares to private investors on 16 June 2003 (please refer to the box in the Appendix), we see a decent level of subsequent performance. The stock is on an upward trend, closing at 1,600 rupiah on 16 June 2003 after the sale of shares to private investors, and at 4,650 rupiah on 28 April 2005. The stock market put confidence in Danamon Bank getting back on its feet, while the ROA provides evidence of the same kind. Its ROA is the highest among those of top-ranked banks (2.90% in 2003 and 1.81% in 2004). The loan-to-deposit ratio has also improved since 2000.

Bank International Indonesia (Sixth in asset size)
Assets: 35,085 (billion rupiah)
Number of branches: 250 (domestic)
Number of employees: 7,562
Type: Private bank(Private→state→private)
Listing code: BNII

Bank International Indonesia (hereafter BII), which was classified as a category B bank in March 1999, is a recapitalized bank that raised its own new capital. Since the recapitalization in 1999, its shareholder structure has changed dramatically.

Currently, Sorak Financial Holding Company is the majority shareholder. Sorak Financial Holding Company is an investment company in which Temasek has a 50% stake, Korean Kookmin Bank a 25% stake, Barclays Bank a 20% stake and ICB Financial Holdings the remaining 5%. Fifty-one percent of voting rights in Sorak Financial Holding Company is held by Kookmin Bank, which has a 25% stake (Fitch (2005)).

BII falls behind the above-mentioned Bank Danamon, whose shares are also held by Temasek, in terms of the stock price and the capital adequacy ratio. The stock hit an 18,125 rupiah high on 16 June 1997 and then fell to a 30 rupiah low on 6 May 1999. It closed at 180 rupiah on 28 April 2005.

Bank Permata (Seventh in asset size)
Assets: 30,456 (billion rupiah)
Number of branches: 306 (domestic)
Number of employees: 6,222
Type: Private bank (Private→state→private)
Listing code: BNLI

Bank Permata was established by consolidation of Bank Bali, which was established in 1954, and

other banks. Bank Bali, which was classified as a category B bank in March 1999, was not only placed under authority of the IBRA but also lost its management rights to the agency due to failure to recapitalize. It asked Standard Chartered Bank (SCB) for an injection of new equity capital, but failed to achieve this because a scandal between the central bank and Bank Bali was uncovered (Takayasu (2003)). In 2002, 4 private banks that had received capital injections consolidated with Bank Bali to create Bank Permata.

In the current capital structure of Bank Permata, the equally-owned joint venture between SCB and PT Astra International (the biggest automobile manufacturer in Indonesia) has a majority stake.

The bank had negative ROA in 2002 when it merged with other 4 banks, but saw a recovery to 1.93% in 2003. The capital adequacy ratio has remained low by comparison with other banks.

The stock, which hit a 31,953 rupiah high on 24 July 1997, has fallen sharply to 3000 rupiah. It recovered to 20,949 rupiah (14 July) in 1999, remained sluggish even under the IBRA (750 rupiah on 30 September 2002) and despite sales of shares to private investors (1,000 rupiah on 11 November 2004).

Bank Lippo (Eighth in asset size)
Assets: 27,272 (billion rupiah)
Number of branches: 359 (domestic)
Number of employees: 6,236
Type: Private bank (Private→state→private)
Listing code: LPBN

Bank Lippo, which was fully owned by the Muchtar Riady family before the Asian Currency Crisis, was classified as category B due to faltering business. The bank, which succeeded in recapitalization through co-funding with the government, became a private bank whose shares were sold to private investors after the nationalization.

Currently, Swissasia Global is the majority shareholder. Swissasia Global is a joint venture established by Swiss and Austrian small banks.

ROA had remained negative until government-held stocks were sold to private investors, while the loan-to-deposit ratio is lower than that of other banks. The stock price level is also low. Although the stock is rising, at 625 rupiah on 25 February 2004 and 940 rupiah on 28 April 2005, there is no significant correlation between sales of shares to private investors and the stock price.

Bank Niaga (Tenth in asset size)
Asset: 25,377 (billion rupiah)
Number of branches: 52 (domestic)
Number of employees: 4,115
Type: Private bank (Private→state→private)
Listing code: BNGA

Bank Niaga, which was classified as category B together with Bali Bank in March 1999, failed in raising new capital and was placed under the supervision of the IBRA.

Since November 2002, CAHB (Commerce Asset Holding Berhad Malaysia), a Malaysian holding company, has held a majority of shares. CAHB is a business unit, in which Bumiputra Commerce Bank, the second largest bank in Malaysia, has a 99% stake. Bank Niaga is one of the few "non-overseas Chinese" banks among leading banks.

The stock price has hovered sluggishly within the range of 300 to 500 rupiah, even after 2002 when the shares were sold to private investors.

Chapter 3: Analysis of efficiency

1. The analysis method

In this chapter, we outline methods for analysis of the efficiency of bank management and the consolidation effect. There are a number of methods to verify whether there is any improvement in a bank's financial condition, any enhancement to management efficiency, and any consolidation effect.

The main analysis examined consolidation effectiveness including event studies of stock price responses and performance analysis using financial statements. The event study, which identifies the consolidation announcement date as an event, monitors the trend of the prices during two periods before and after the announcement. Considering government-led bank consolidation, this analysis does not suit Indonesia, where a number of events include announcement dates on policy or capital-raising plans and other public funds-related events other than the consolidation announcement date.

Case studies (case study analysis method), which examine the background of the progress to consolidation, is an analysis method that uses financial statements. However, this method also does not suit Indonesia, where banks were consolidated involuntary.

There is an analysis method to estimate the cost function for the purpose of establishing economies of scale or economies of scope in a bank consolidation.[8] However, the Indonesian government, which had consolidated insolvent state banks, may have been more concerned with "too big to fail".

Given this factor, we make an analysis based on the idea of inefficiency that is defined by deviation from the production frontier.

2 .Estimation model [9]

(1) Efficiency measurement concept and DEA

Data Envelope Analysis (hereafter referred to as DEA) is widely used in the empirical estimation of financial institution efficiency. There are two types of approaches for estimating frontier function: a parametric approach and a nonparametric approach. DEA, initially an idea from Farrell (1957), is a nonparametric approach. As DEA can avoid technical problems that occur when estimating a parametric approach, Berger and Humphrey (1997) point out that more studies use DEA to estimate inefficiency.

DEA is a nonparametric approach to solve linear programming problems (hereafter LP) to find a set of best-practice frontier observations. DEA defines efficiency as 1 when on the frontier and measures the level of inefficiency by the distance from the frontier. It is difficult to parametrically specify and estimate a production function for the banking business because deregulation and advances in technology have brought many outputs other than loans. DEA requires no explicit specification of functional form. Another advantage is its capability to derive explicit efficiency for an individual bank.[10]

A bank is efficiency consists of 2 components: technical efficiency and allocative inefficiency. Technical efficiency refers to the ability of a bank to obtain maximal output from a given set of inputs, while allocative efficiency represents the ability of a bank to use the inputs in optimal proportions, given their respective prices. These two measures of efficiency are combined and described as overall efficiency.

Two axes in Figure 5 show two inputs (X1 and X2), an output (Y), production frontier or isoquant (UU') and the input price ratio (PP'). This isoquant is estimated from observations and a point on the isoquant is 1 when the production function is homogeneous.

When a production activity is performed at point A, this point is not only technically efficient but also allocatively efficient. As all points on the line that connects the original point and point A represents an identical combination of inputs, it is possible to produce output B where requires fewer inputs without changing the input mix. This distance AB represents additional cost attributing to overspent inputs, or the technical inefficiency. Producing outputs at point B can reduce the cost at a rate of OB/OA.

Even in the case of production on the production frontier through dissolution of technical inefficiency, a bank can shift production activities to point C by modifying the input mix of (slope of) OC. Point C is the most effective production activity point in terms of technical efficiency and allocative efficiency. This suggests that we can produce outputs with the same cost injected to inputs shown at point D. Producing outputs at point C can reduce the cost at a rate of OD/OB.

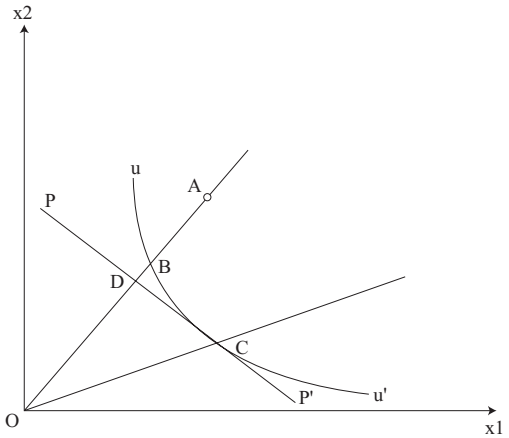
A combination of technical inefficiency, which is represented by BA/OA, and allocative inefficiency (DB/OA) makes DA/OA = (BA/OA + DB/OA). Multiplication of respective inefficiency scale (reducible costs), OD/OA = (OB/OA×OD/OB), is interpreted as inefficiency of production volume.

8 Okuda (1999) estimates the log-liner cost function through the use of the financial data of 54 Indonesian local banks.

9 Introduction of models in this chapter is based on Harada (2004).

10 DEA estimation, which has no estimated error on deviation from the frontier, can be fully explained by inefficiency. A criticism of DEA is its lack of assumption of estimated error and its assumption of residual error against the frontier as zero. Advantages and disadvantages related to each frontier function are detailed in Greene (1997), Torii (2001), Hori (1998) and others.

Figure 5.



UU' is isoquant under the assumption of constant return to scale.
PP' is input price ratio.
x1、x2 are input
x1=（X1/Y）、x2=(X2/Y)。

(2) DEA Model

Assumption of constant return to scale (hereafter CRS) gives the following linear programming (binary) problem of the DEA model;

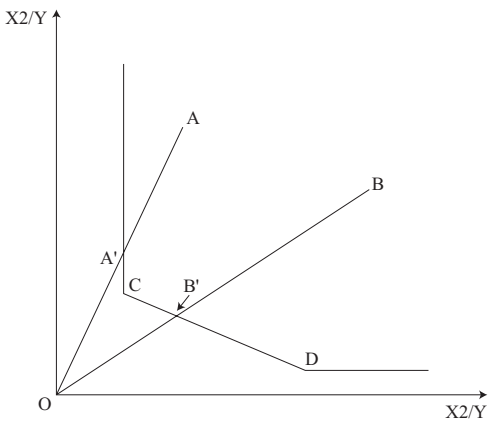
$$\begin{aligned} &\min_{\lambda,\theta} \ \theta \\ s.t. \quad &-y_i + Y\lambda \geq 0, \\ &\theta x_i + X\lambda \geq 0, \\ &\lambda \geq 0, \end{aligned} \tag{1}$$

θ stands for a scalar that represents technical inefficiency, which satisfies $\theta \leqq 1$. In the case of $\theta = 1$, outputs are produced on the production frontier. X stands for the vector of input Y for the vector of output, y_i for the production volume of i bank and λ for a $N \times 1$ column vector. This linear programming must be solved successively for each bank and θ, the efficiency score of each bank is obtained.

Efficiency measures by this DEA model assume that there is a production function of the fully efficient firm (Farrell (1957)). In empirical estimation, partially linear LP faces a problem as the efficient isoquant must be estimated from the sample data (Coelli et al. (1996)). Figure 6, which assumes the same framework as Figure 5, shows an estimated production function.

Based on the idea in the preceding paragraphs, points A and B are inefficient production points whereas A' and B' do not always provide efficient production points. This is because reduction of a product by CA' at point A' enables production at point C. CA' represents a status that enables more cutback of 2 items, i.e. slacks. DEA tends to recognize inefficiency caused by slacks as allocative inefficiency (Koopmans (1951)). A product that contains slacks does not contain technical efficiency

Figure 6.



level in the sense that no higher efficiency is attainable without changing any technology. Therefore, more strict efficient points are estimated by multistage DEA where a sequence of LP problem is conducted to eliminate slacks and a more accurate result is obtained (Coelli et al. (1996)).

DEA with variable returns to scale (hereafter VRS, which means increasing or decreasing return) is given in a similar form to that of constant returns. The constant rerurns to scale linear programming problem is easily modified by adding a constraint: the total sum of each factor of λ as 1.

$$\begin{aligned} &\min_{\lambda,\theta} \ \theta \\ s.t. \quad &-y_i + Y\lambda \geq 0, \\ &\theta x_i + X\lambda \geq 0, \\ &N1' \lambda = 0, \\ &\lambda \geq 0, \end{aligned} \tag{2}$$

This method solves the slacks problem. Technical inefficiency deduced from VRS, which is a purely technical inefficiency, is identical or closer to 1 relative to technical inefficiency deduced from the DEA of the CRS model. Dividing the technical inefficiency of VRS by those of CRS produces technical inefficiency that excludes the part affected by allocative inefficiency. When this figure comes out as 1, the bank is considered to be conducting optimal production.

3. The data and period[11][12]

Our analysis covers 5 years of the post Asian currency crisis period of 1999-2003. Non-consolidated financial figures are used for the nonparametric frontier approach explained in the previous section. We did not include the period around the Asian currency crisis when bank consolidation was going on.

The selection of appropriate inputs and outputs is the most important in using the DEA, and flow figures are preferable to stock variables. For example, outstanding loans , which is a stock variable, may include non-performing loans. This point should be taken care of when analyzing the period after the currency crisis where disposals of bad loans took place. Berger and Humphrey (1997) recommend the Intermediation Approach (IA) to measure management efficiency on an entire bank level. The IA is an approach that uses labor, capital, interest payments, and other expenses as inputs and interest income and non-interest income as banks' outputs.

In this paper, supposing that banks produce outputs by the input of labor and funds, personnel expenses (a proxy variable of the number of employees), general and administrative expenses, and interest payments (total interest expenses) are chosen as inputs.[13] We took interest income (total interest income) and commission income as outputs.[14]

4. Estimation results

Table 9 and 10 show the results calculated by inserting the data of 10 Indonesian banks into the equations (1) and (2). The 10 banks include the top 8 banks in terms of asset size, excluding the seventh-ranked Bank Permata and the ninth-ranked Bank Tabungan Negara, and 2 banks that did not receive public funds: Bank Panin and Bank Nisp. Bank Permata, a new bank established by Bank Bali's merger with other 4 medium-sized banks, was left out of our list as the bank is new and its financial data is

11 When obtaining financial data, Mr. Peter Chandra of P.T. Nomura Indonesia helped us and provided the data. We gratefully acknowledge his contribution.

12 Due to limited use of financial data, we have to say that analysis in this paper is still in a period of transition. First, there are still no data available for the ninth bank in terms of asset size. Second, we found an error in the financial statements data provided (part of financial figures in different banks was the same). We may later make minor adjustments due to data problems.

13 Financial data released by the Indonesian government are, unlike Japanese banking financial data, limited in number of items. Due to lack of data on personal expenses and real estate related funds, inputs and capital-related factors were excluded.

14 There are two prominent types of outputs; interest income and non-interest income (total other operating income). While banks in developed countries including Japan have a high percentage of commission income in total non-interest income, we observed that Indonesian banks have a higher percent of "other income" than commission income. Income from foreign exchange trading is under another detailed item. The "other income" whose details are unknown at this time might include interest payments on the bonds injected by the government. As these are not outputs of banks, we adopt interest income as income from lending operations and commission income as income from non-lending operations.

insufficient. Financial data from Bank Tabungan Negara were unavailable.

Table 9 and 10 show the result of the DEA panel data analysis 5-year panel data for 10 banks covering 1999-2003. The estimated DEA is in line with the definition in T. Fare et al. (1994).

Fare et al. (1994) calculate the technical efficiency distance between terms t-1 and t+1 to measure total factor productivity of company i at term t whereas Table 9 carries only the values of efficiency at period t. Table 10 shows TFP (Total Factor Productivity). TFP is an indicator of the relationship between outputs and the aggregated volume of all inputs. Subtracting weighted-average input growth from output volume growth gives TFP growth. Table 9 and 10 show the result of the DEA panel data analysis using 5-year panel data for 10 banks covering 1999-2003. The estimated DEA results are in line with the definition in T. Fare et al. (1994).

Namely TFP growth is prdoctivity growth that is not explained by increases in factor (capital and labor) inputs. In the short term, we can construe that it represents improved operation rates of fixed equipment and the technical level of laborers. TFP growth is measured as a difference from TFP in term t-1 to TFP in term t .Table 10 shows results of total factor productivity (TFP) as an overall efficiency figure (other items such as technological change or change in scale economy are not shown in the paper).[15]

First, Table 9 gives an overview on pure efficiency movements throughout 5 years.[16] As an overall feature, the banking sector is on a recovery trend as shown by the average efficiency scores, which have been recovering since it bottomed out at an average of 0.80 in 1999, remaining at an average of more than 0.9 since 2000.[17] The transition of TFP average in Table 10 also provides similar evidence. We observe constant yearly recovery of productivity, which rose by 1.289 on a year-on-year basis in 2000 against 1999 and showed successive year-on-year rises of 1.08, 1.061, 1.019 and 1.108.

Regarding individual banks, Table 9 shows that Bank Panin and Bank Nisp, which belong to group C of non-recipients of public funds, had retained an efficiency of 1.00 throughout almost the whole period. In this context, we can conclude that banks that had not received public funds ran their business efficiently. (The efficiency of Bank Niaga slightly slowed during 2000-2002).[18] Secondly, Bank Mandiri, Bank Negara Indonesia, and Bank Rakyat Indonesia, which had received a huge amount of public funds, saw a significant deterioration in efficiency in 1999 compared to other banks (0.55, 0.58 and 0.84 respectively). These banks have recovered their performance to bring the efficiency up to approximately 1.00. From this perspective, we can conclude that the state banks in group A have become efficient. Private banks that did not receive public funds enjoy rising stock prices, but this is not necessarily the case for state banks. That is to say, analysis results with the use of financial data do not accord with the valuation in the stock market of state banks. This issue remains to be resolved.

Performance of each bank in group B1 is varied. Although Bank Danamon's efficiency figures have recovered sharply to 0.88, 0.90 and 1.00 after bottoming out at 0.55 in 1999, the figure of Bank International Indonesia deteriorated from 1.00 in 1999 to 0.68 in 2003. Bank Niaga, the only bank in group B2, turned out to be on average the most inefficient of the banks analyzed, with efficiency indicators of 0.51, 0.60, 0.72, 0.75 and 0.92 in 1999 - 2003.

Table 10 shows almost the same results. Year-on-year efficiency, which remained just above 1.00, and the result of DEA, confirmed positive recovery

15 The methodology of Fare et al. (1994) is not explained in this paper.

16 It was found that banks with large assets had relatively large interest income and commission income when 2 outputs were plotted. Therefore, constant returns to scale (CRS) technique are assumed as a functional form in this paper.

17 We use panel data in the paper to estimate DEA scores. The advantage of panel analysis is the availability of yearly comparison. A yearly-based DEA analysis gives only relative positions during the year and relative comparison in a year might cause misleading of results because a bank might happen to perform well in a particular year, and it could downgrade the efficiencies of other banks. This paper has avoided this kind of problem.

18 Bank Panin was named in 2005 as the healthiest bank that did not receive public funds (category: the best non-recap bank with assets under Rp 10 to Rp 50 trillion).

Table 9 Result of DEA panel analysis (CRS technical efficiency)

	1999	2000	2001	2002	2003
BANK MANDIRI TBK	0.55	0.86	0.90	0.96	1.00
BANK CENTRAL ASIA TBK	1.00	1.00	1.00	1.00	1.00
BANK NEGARA INDONESIA TBK	0.58	1.00	0.82	0.88	0.87
BANK RAKYAT INDONESIA TBK	0.84	1.00	1.00	1.00	0.96
BANK DANAMON TBK	0.55	0.88	0.90	1.00	1.00
BANK INTERNATIONAL INDONESIA TBK	1.00	1.00	0.66	0.61	0.68
BANK LIPPO TBK	1.00	1.00	1.00	1.00	1.00
BANK NIAGA TBK	0.51	0.60	0.72	0.75	0.92
BANK PANIN TBK	1.00	1.00	1.00	1.00	1.00
BANK NISP TBK	1.00	0.96	0.92	0.98	1.00
Average	0.80	0.93	0.89	0.92	0.94

Table 10 TFP transactions over the previous year

	2000	2001	2002	2003	Average
BANK MANDIRI TBK	1.60	1.18	1.01	0.83	1.12
BANK CENTRAL ASIA TBK	0.91	1.27	0.97	0.97	1.02
BANK NEGARA INDONESIA TBK	2.13	1.00	1.05	0.98	1.22
BANK RAKYAT INDONESIA TBK	1.38	1.16	1.01	1.14	1.16
BANK DANAMON TBK	1.71	1.02	1.31	0.96	1.22
BANK INTERNATIONAL INDONESIA TBK	1.00	0.75	0.97	1.22	0.97
BANK LIPPO TBK	1.41	1.14	1.25	1.39	1.30
BANK NIAGA TBK	1.18	1.17	1.10	1.17	1.15
BANK PANIN TBK	0.97	1.26	0.96	0.84	1.00
BANK NISP TBK	1.08	0.98	1.04	0.85	0.98
Average	1.289	1.08	1.061	1.019	1.108

trend of the Indonesian banking sector.

Conclusion

In this paper, we analyzed whether capital injection to rebuild the Indonesian banking sector, and the government-led bank consolidation, contributed to improving the management efficiency of banks. Referring to the banking supervision structure and macro environments, we made a quantitative review by clarifying the backgrounds to the consolidation of individual banks and their current state. We estimated production frontier functions with using DEA, a non-parametric analysis measure that has never before, as far as the authors know, been used in analyzing the Indonesian banking business.

The results of the analysis made clear that the efficiency of the banking sector has on average been on a recovery trend since the public funds injection of 1999. Above all, we concluded that the efficiency of private banks that had not received public funds after the Asian currency crisis performed well throughout the period analyzed. The result shows that performance of the state banks had recovered. However, the stock prices had remained sluggish. Efficiency scores were mixed across private banks taken under state control temporarily. Our estimation results confirmed the Indonesian banking sector's rebound.

Additionally, we found that the Indonesian banking sector has been recovering slowly but steadily in real terms and that privatization of state banks (sales of government-owned shares to the private sector) has not always brought improved business performances and market valuations.

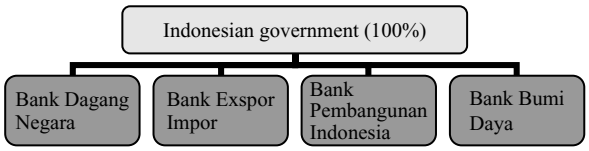
As shown by some analysis results in this paper, the Indonesian banking sector is proven to be on a recovery trend. However, outstanding environment issues still remain; the bank supervision structure is still weak due to the continuing absence of the Financial Supervising Agency, and inflation rates remain relatively high compared with those of other Asian countries. Sales of state banks to private investors are another outstanding issue. In order to maintain and further enhance the health of the banking sector, macro economic issues and institutional issues such as that of the banking supervising structure require early solution. We eagerly await the country's future financial system reforms.

Appendix table 1 Bank Mandiri (1st in asset size)

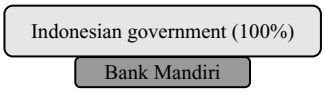
Number of branches: 683 (domestic), 3 (overseas),
Number of employees: 17,735
Type : State (State→State→State)
Listing code : BMRI
Established on 2 October 1998 through a merger of 4 state banks

Transition of bank ownership structure

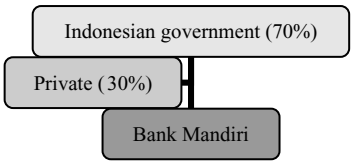
Before 2 October 1998



Since 2 October 1998

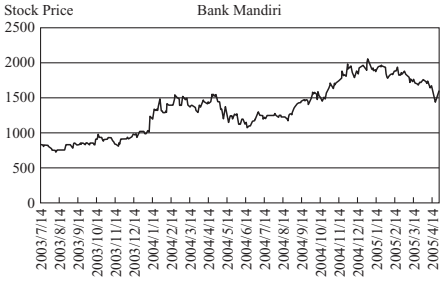


Since 14 July 2003 (As of end 2003)



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	(11.92)	9.70	1.00	1.44	1.31	n.a.
CAR	15.93	31.29	26.44	23.39	27.72	n.a.
Loan/deposit	9.61	44.97	15.75	21.82	26.14	n.a.

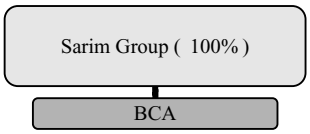


Appendix table 2 Bank Central Asia (BCA)(2nd in asset size)

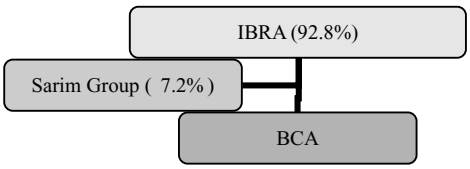
Number of branches: 778 (domestic), 2 (overseas)
Number of employees: 21,358
Type : Private (Private→State→Private)
Listing code : BBCA
Established on 10 August 1955 through a merger of 4 state banks

Transition of bank ownership structure

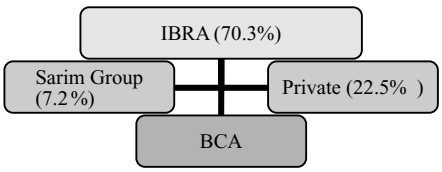
Before 27 April 1999



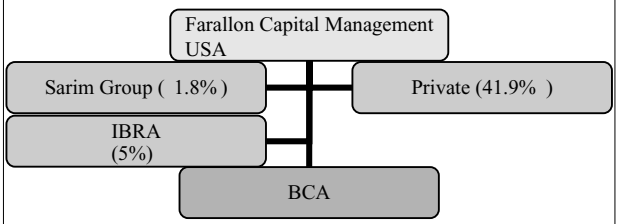
Since 27 October 1999



Since May 2000

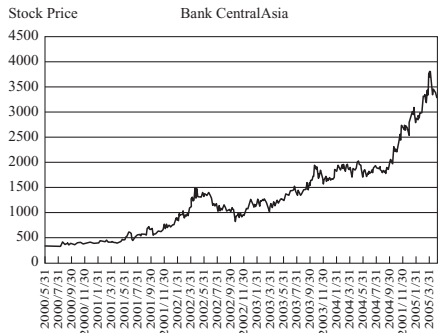


Since March 2002



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	0.24	1.45	3.03	2.17	1.80	1.06
CAR	—	33.84	32.64	32.19	27.95	28.65
Loan/depositt	3.89	8.08	13.46	17.66	21.39	23.00

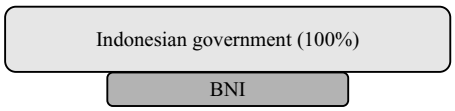


Appendix table 3 Bank Negara Indonesia (BNI) (3rd in asset size)

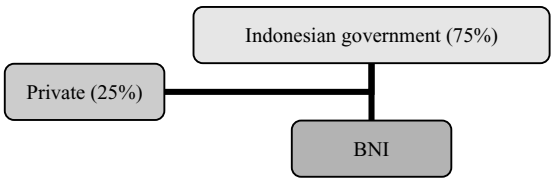
Number of branches: 685 (domestic), 6 (overseas),
Number of employees: 13,483
Type : State (State→State→State)
Listing code : BBNI
Established on 5 July 1946 through a merger of 4 state banks

Transition of bank ownership structure

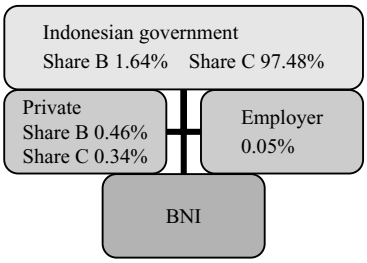
Before 25 November 1996



Since 25 November 1996



As of December 2003



Basic financial statement

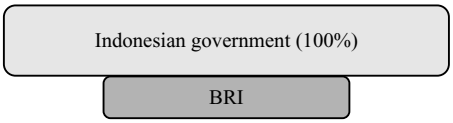
	1999	2000	2001	2002	2003	2004
ROA	(12.73)	0.14	1.26	2.00	0.32	n.a.
CAR	(10.28)	13.31	14.20	15.94	18.16	n.a.
Loan/deposit	20.38	22.95	23.46	28.63	33.15	n.a.

Appendix table 4 Bank Rakyat Indonesia (BRI) (4th in asset size)

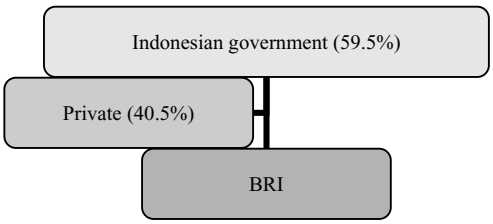
Number of branches: 324 (domestic), 2 (overseas),
Number of employees: 34,719
Type : State (State→State→State)
Listing code : BBRI
Established on 16 December 1895 through a merger of 4 state banks

Transition of bank ownership structure

Before 16 October 2003



As of December 2003



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	(5.48)	0.52	1.41	1.77	2.64	n.a.
CAR	31.30	14.35	13.32	12.62	20.87	n.a.
Loan/deposit	70.29	36.29	38.52	41.06	45.62	n.a.

Appendix table 5 Bank Danamon (5th in asset size)

Number of branches: 479 (domestic)

Number of employees: 13,203

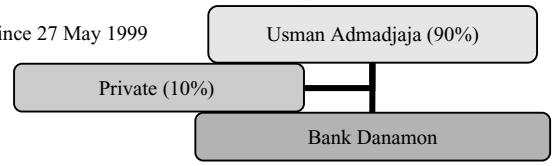
Type : Private (Private→State→Private)

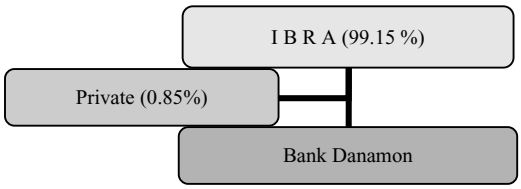
Listing code : BDMN

Established on 16 June 1956 through a merger of 4 state banks

Transition of bank ownership structure

Since 27 May 1999

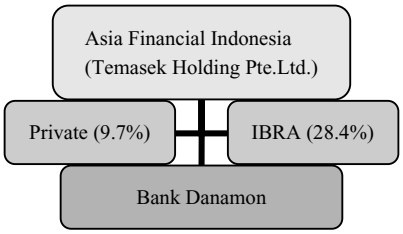




20 December 1999 Bank Danamon took over PDFCI

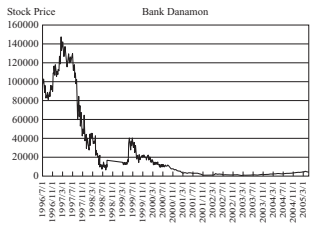
17 May 2000 Bank Danamon took over 8 banks

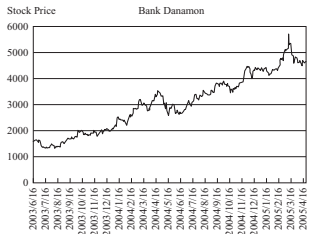
Since 16 June 2003



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	(13.12)	0.54	1.37	2.02	2.90	1.81
CAR	—	57.97	35.49	25.33	26.84	33.27
Loan/depositt	12.08	8.17	18.59	35.38	34.33	38.76





Appendix table 6 Bank International Indonesia (BII) (6th in asset size)

Number of branches: 250 (domestic)

Number of employees: 7,562

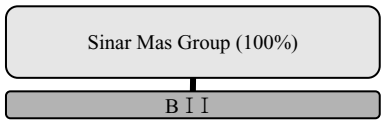
Type : Private (Private→State→Private)

Listing code : BNII

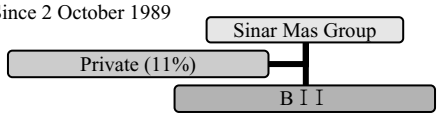
Established on 15 May 1959 through a merger of 4 state banks

Transition of bank ownership structure

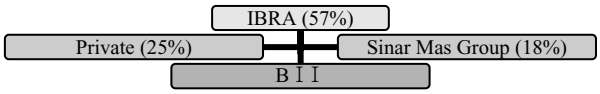
Before 2 October 1989



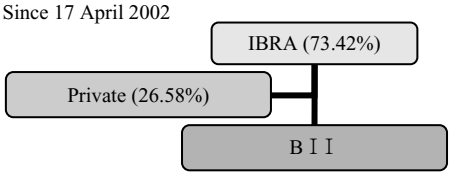
Since 2 October 1989



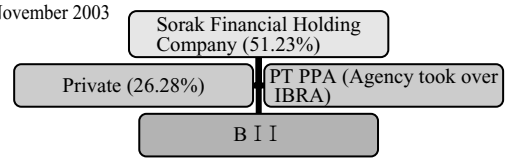
Since March 1999



Since 17 April 2002



Since 20 November 2003



Basic financial statement

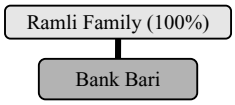
	1999	2000	2001	2002	2003	2004
ROA	(5.73)	0.73	(13.56)	0.37	0.89	1.05
CAR	—	7.57	(47.41)	33.21	22.02	21.97
Loan/depositt	24.02	44.82	15.02	14.12	27.26	30.11

Appendix table 7 Bank Permata (7th in asset size)

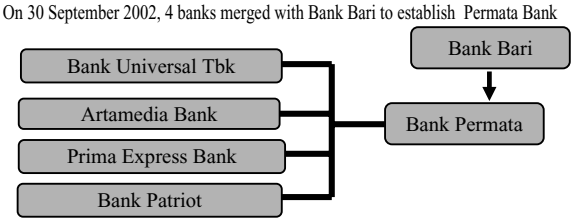
Number of branches: 306 (domestic), 2 (overseas),
Number of employees: 6.222
Type : Private (Private→State→Private)
Listing code : BNLI
Established on 15 January 1954 through a merger of 4 state banks

Transition of bank ownership structure

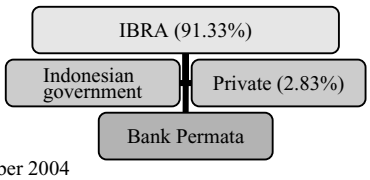
Bank Bari period



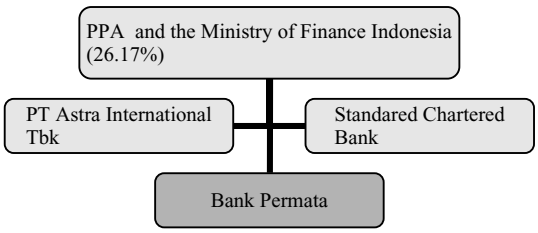
On 30 September 2002, 4 banks merged with Bank Bari to establish Permata Bank



Since 14 July 2003 (As of end of 2003)

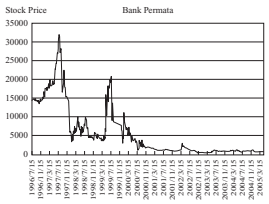


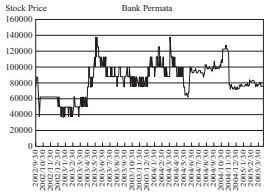
Since 11 November 2004



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	—	—	0.50	(3.25)	1.93	n.a.
CAR	—	—	—	10.40	10.80	n.a.
Loan/depositt	—	—	—	32.18	25.86	29.54



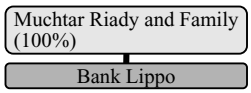


Appendix table 8 Bank Lippo (8th in asset size)

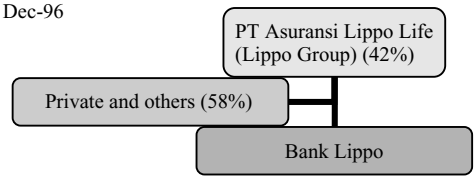
Number of branches: 359 (domestic)
Number of employees: 6,236
Type : Private (Private→State→Private)
Listing code : LPBN
Established on 11 March 1948 through a merger of 4 state banks

Transition of bank ownership structure

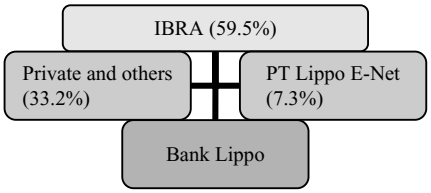
Before 10 November 1989



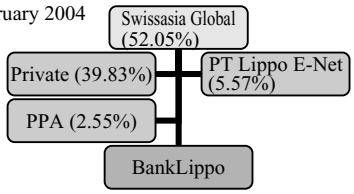
Dec-96



Since 14 July 1999

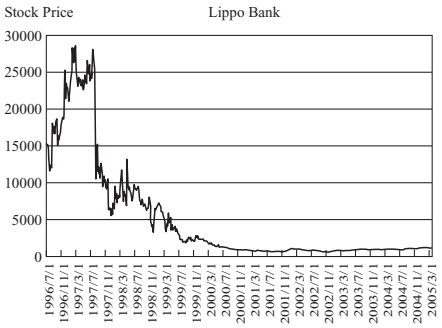


Since 25 February 2004



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	(7.69)	1.08	1.14	(2.01)	(1.95)	0.37
CAR	—	21.08	23.70	26.15	17.86	18.26
Loan/depositt	12.70	14.96	15.10	17.12	15.22	15.45



Appendix table 9 Bank Niaga (10th in asset size)

Number of branches: 52 (domestic)

Number of employees: 4,115

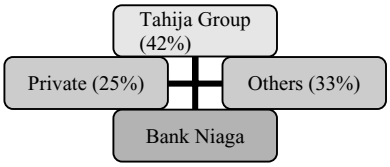
Type : Private (Private→State→Private)

Listing code : BNGA

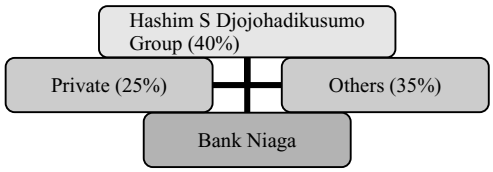
Established on 1 March 1955 through a merger of 4 state banks

Transition of bank ownership structure

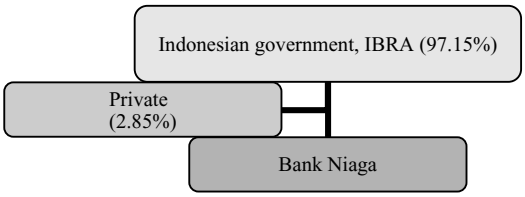
As of 1996



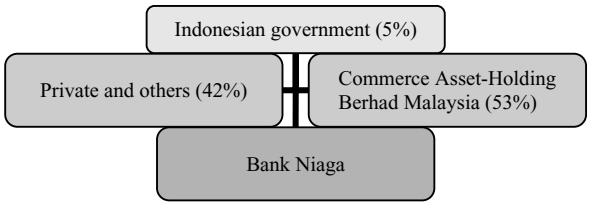
Since 27 July 1997



Since July 1999

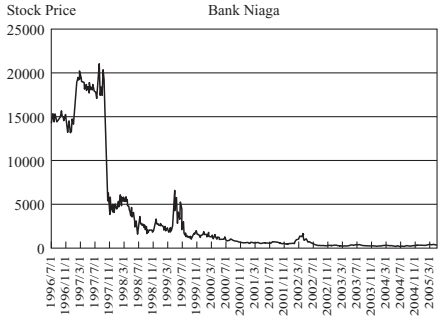


Since 22 November 2002



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	(85.00)	0.35	(0.20)	1.50	1.72	1.20
CAR	—	21.34	20.33	18.24	11.58	11.61
Loan/depositt	56.76	27.92	32.11	48.97	57.98	62.77



Appendix table 10 Bank Pan Indonesia (Bank Panin) (Asset size un-known)

Number of branches: 125 (domestic)

Number of employees: 2527

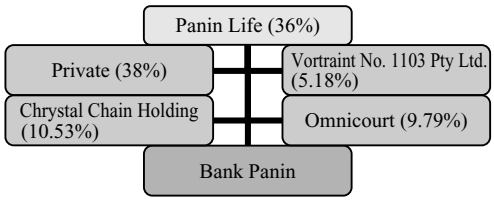
Type : Private (Private→Private→Private)

Listing code : PNBN

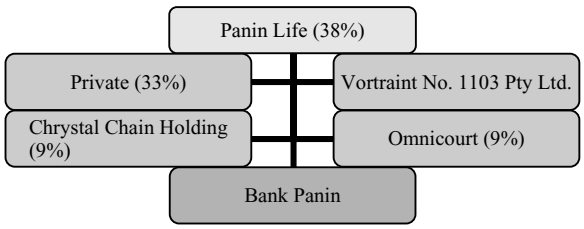
Established on 17 August 1971 through a merger of 4 state banks

Transition of bank ownership structure

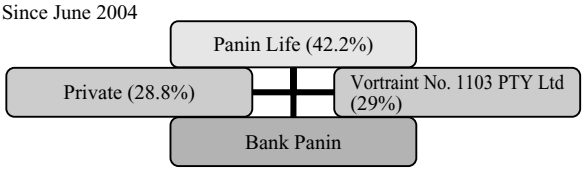
December 1999



Since December 2002

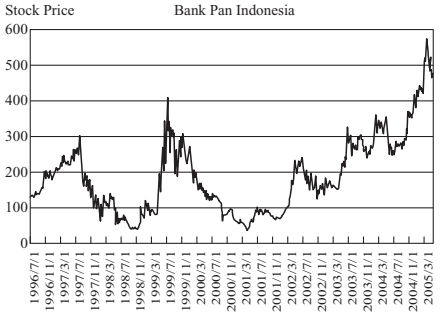


Since June 2004



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	1.31	0.07	0.01	0.63	2.22	1.21
CAR	—	45.13	36.07	32.91	42.35	40.26
Loan/depositt	28.66	71.67	34.54	55.64	40.63	41.24



Appendix table 11 Bank NISP (Asset size un-known)

Number of branches: 119 (domestic)

Number of employees: 2,901

Type : Private (Private→Private→Private)

Listing code : NISP

Established on 2 October 1998 through a merger of 4 state banks

Transition of bank ownership structure

Since 20 October 1994

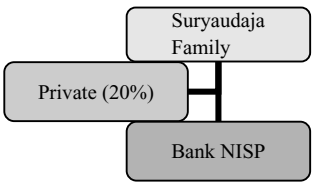
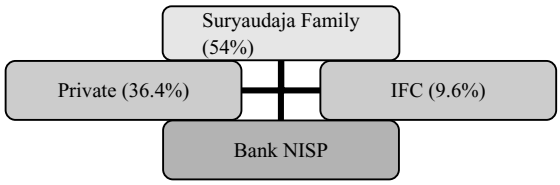
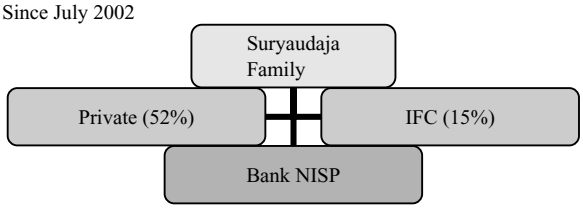


Table 10 TFP transactions over the previous year

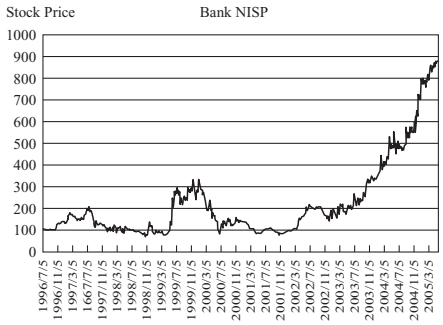


Since July 2002



Basic financial statement

	1999	2000	2001	2002	2003	2004
ROA	0.62	(12.73)	0.14	1.26	2.00	0.32
CAR	—	(10.28)	13.31	14.20	15.94	18.16
Loan/depositt	31.51	20.38	22.95	23.46	28.63	33.15



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Indonesia's Medium-term Development Plan and Public Debt Sustainability

Sumio Ishikawa*

Abstract

Indonesia has passed through the stage overcoming the difficulties that resulted from the financial and currency crisis of 1997 and is now in the process of the transition toward a new stage looking for further prosperity. In politics, a general election was held in 2004, bringing major changes in the power balance among the political parties in Indonesia. Furthermore, for the first time in Indonesian history, a direct presidential election was carried out in the same year, whereupon Mr. Yudhoyono, who was considered likely to eradicate corruption, was elected president. In economics, growth surged to more than 5% in 2004, and investment also showed the highest increase in recent years, which had until then been stagnant. Banks' lending, which had decreased in the aftermath of the financial and currency crisis, expanded in 2004, especially in the consumer lending. In fiscal policy, the primary surplus has been maintained, and outstanding public debt has been declining.

The new administration announced a Medium-term Development Plan (2004-2009). Under this plan, the government will aim at building an economically and socially prosperous nation and changing the high-cost economic structure by improving the investment climate. Since export growth remains sluggish, it is necessary to enhance industrial competitiveness; therefore, the government's plan would appear to be appropriate. In order to implement the plan steadily, it is essential to secure public support and fiscal resources. In order to obtain public support, the government must demonstrate achievements in a visible way and should institute specific and practical policies in each annual plan. To secure fiscal resources for the plan, while fiscal discipline is still needed, the government can flexibly approach the objective of achieving a balanced budget in 2009 to accomplish the goals set in the plan.

This paper examines the recent macroeconomic development in Indonesia, which is under the process of transition toward a new stage, and reviews Indonesia's Medium-term Development Plan (2004-2009) with its impact on the public debt sustainability. According to the estimates given in this paper, even if the fiscal deficit continues at just under 1% of GDP each year and a balanced budget will not be achieved by 2009, public debt will fall by about 20 percentage points of GDP by 2009. While fiscal financing will depend more on government securities than it did, government securities holders have been diversified to a certain degree. It is important to continue fostering the secondary market for government securities, and the government is expected to make further efforts to that end.

Introduction

Indonesia has passed through the stage overcoming the difficulties that resulted from the financial and currency crisis of 1997 and is now in the process of the transition toward a new stage looking for further prosperity. In politics, a general election was held in April 2004, the Indonesian Democratic Party-Struggle, the ruling party before the election, lost a tremendous number of seats, while the Democratic Party, a newly founded party led by Yudhoyono, a former coordinating minister for political and security affairs, made gains. As a result, there were major changes in the power balance among the

* Director, Division 1, Country Economic Analysis Department, JBIC. This paper does not represent any official position of the Country Economic Analysis Department or the Japan Bank for International Cooperation, but contains the author's personal opinions.

1 The number of seats gained by each party is the Indonesian Democratic Party-Struggle (from 153 to 109), the Golkar Party (from 120 to 128), Democratic Party (new party, 57), and the Welfare Party (from 7 to 45).

political parties in Indonesia.[1] Furthermore, for the first time in Indonesian history, a direct presidential election was carried out in July the same year, and Mr. Yudhoyono, with political support from the population desiring the eradication of corruption, defeated Megawati (the incumbent president) in the runoff election implemented in September. Mr. Yudhoyono assumed the presidency in October.

In economics, the real GDP growth rate increased to more than 5% in 2004 and investment, which had until then been stagnant, showed the highest increase in recent years. Bank lending, which had decreased in the aftermath of the financial and currency crisis, expanded in 2004, especially in consumer lending, and the stock market began to grow at a healthy pace. Though the outstanding public debt exceeded GDP immediately after the financial and currency crisis, it has declined in recent years thanks to Indonesia's improved fiscal balance, and thus public debt sustainability has improved.

The Yudhoyono administration announced the Medium-term Development Plan (2004-2009) (MTDP) in January 2005. According to the MTDP, the government set the creation of a prosperous Indonesia through economic and social sector development as one of its three agendas, and it lays out policy directions for changing the high-cost economic structure by improving the investment climate and enhancing industrial competitiveness. Although, as described above, Indonesia has recovered economic stability and has shown some signs of growth, further investment expansion is an urgent issue since the investment/GDP ratio has not yet recovered to the 1997 level, and export growth has remained sluggish.

This paper discusses the recent macroeconomic development in Indonesia, which, as mentioned above, is under the process of transition to a new stage, and reviews the country's MTDP with its impact on public debt sustainability. The Indonesian government requested the rescheduling of its debt from its Paris Club creditors after the financial and currency crisis, and while the consolidation period of the rescheduling was terminated at the end of 2003, there have basically been no subsequent problems servicing its external debt.[2] Meanwhile, according to the MTDP, the government aims to decrease the public debt outstanding by further reduction of the fiscal deficit that will allow the country to weather any future external shocks. However, government expenditures may increase over the medium term since the government needs to secure financial resources to actively carry out the MTDP. The administration is recommended to pursue a balanced fiscal polic, aiming at effective implementation of the MTDP while maintaining public debt sustainability.

Chapter 1 overviews the recent macroeconomic development in Indonesia, Chapter 2 describes the outlines of the MTDP, Chapter 3 discusses public debt sustainability, and finally Chapter 4 concludes the paper.

Chapter 1: Recent Macroeconomic Development

1. Growth

Real GDP growth rate was 5.1% in 2004, which was the highest since the 1997 financial and currency

Table 1. Gross Domestic Products

	2001	2002	2003	2004
		(%)		
Real GDP growth rate	3.8	4.4	4.9	5.1
Demand 1/				
Consumption	2.6	3.2	3.1	3.1
Private	2.2	2.4	2.4	3.0
Public	0.5	0.9	0.7	0.1
Gross fixed capital formation	1.3	1.0	0.2	3.1
Inventory increase/decrease	0.5	-2.0	-1.2	2.8
Net exports	-1.0	0.8	2.3	-3.6
Export	0.3	-0.5	3.1	3.3
Import	-1.3	1.3	-0.8	-6.9
Statistical discrepancy	0.4	1.4	0.4	-0.4
Production 1/				
Agriculture	0.6	0.5	0.7	0.6
Mining	0.0	0.1	-0.1	-0.5
Manufacturing	0.9	1.5	1.5	1.7
Electricity/gas/water	0.0	0.1	0.0	0.0
Construction	0.3	0.3	0.4	0.5
Trade/hotels/restaurants	0.7	0.6	0.9	0.9
Transportation/communications	0.4	0.4	0.6	0.7
Financing	0.5	0.5	0.6	0.7
Services	0.3	0.3	0.4	0.4

1/ Rates of contribution of each item to the real GDP growth rate.
Source: BPS

2 In 2005, Indonesia decided to accept the moratorium that the Paris Club creditors offered relating to the 2004 Indian Ocean earthquake and tsunami, but this was granted on an exceptional basis as humanitarian and reconstruction assistance.

crisis (see Table 1). Consumption continued to play a leading role in economic growth with a contribution rate of 3.1%, and the contribution rate for fixed capital formation (investment) was also 3.1%, the highest in recent years. However, the methodology of reporting foreign trade data was changed in 2004, which resulted in overestimation of the growth rate of exports and imports in 2004.[3] Since investment is estimated partially by using the data on the import of capital goods, its change may also be overestimated. It is quite difficult to identify the extent to which such overestimations are made. However, as described later, it appears that, after such overestimations are corrected, investment has grown, while exports (especially non-oil/gas export) have not grown in 2004. With regard to industrial production, the contribution of the manufacturing industries (especially the transportation equipment and chemical product industries) to economic growth was high, and that of trade, hotels, restaurants, transportation, communications, and finance, follow them.

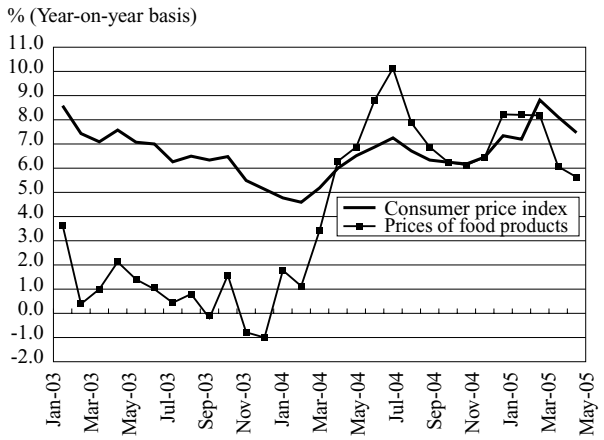
2. Inflation and monetary policy

The change in the consumer price index (CPI) increased from a little less than 5% in February 2004 compared to the same month in the previous year to a little more than 7% in July 2004 (see Figure 1). Although it decreased slightly after that, it once again increased to a little more than 7% in January 2005. Especially food products such as cereals, meat, spices, etc., contributed to these price increases. The prices of fuel products were raised by an average of 29% on March 1, 2005,[4] which helped to lift the change in the CPI in March to 8.8%. However, "second-round effects," such as wage increases resulting from price increases, have not been observed so far, and the change in the CPI for April was 8.1% and went down to 7.4% in both May and June.

The government's monetary policy was somewhat eased between the end of 2003 and early 2004, but it was slightly tightened again in June 2004 by raising the reserve requirement from 5% to 8%. The interest rate of one-month SBIs (Sertificat Bank Indonesia, or central bank bills) fell to 7.34% in April 2004, but after that it bottomed out. Deposit interest rates also showed a downward trend until March 2004, but after that they rose slightly[5] (see Figure 2). Lending interest rates continued to fall through late 2004. It is pointed out that this happened because bank lending expanded in late 2004, and competition among banks was intensified.

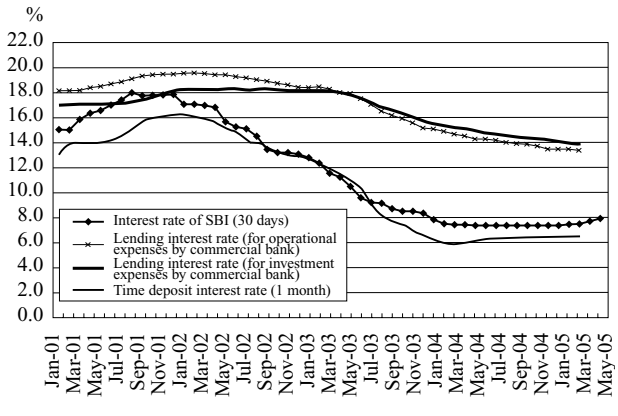
In May 2004, the rupiah rapidly declined against

Figure 1. Inflation Rate



Source: CEIC

Figure 2. Interest Rate



Source: CEIC

3 More precisely, the export and import data used to be reported with hard copy, but data have been reported with electronic files since January 2004 as for import, and since May 2004 as for export. This has resulted in the expansion of the coverage of export and import data.

4 The administration raised the prices of fuel products (marine fuel oil, industrial fuel oil, gasoline, etc.), excluding kerosene for home use, in order to reduce the fuel subsidy.

the US dollar along with other Asian currencies. However, it began to appreciate in early July as the outcome of the first presidential election became clear, afterward hovering between 9,000 and 9,400 to the dollar (see Figure 3). Since the volume of transactions in the Indonesian foreign exchange market is not large, the rupiah fluctuates more widely than the currencies of its neighboring countries. The rupiah has weakened since March 2005, reaching 9,700 to the dollar at the end of April. The weakening of the rupiah was pointed out to be triggered by the worsening of inflation and increased oil imports by Pertamina, Indonesia's state oil firm, in March. With the currency weakening and the rising of interest rates in the United States, Bank Indonesia increased the number of auctions for SBI (bills) from twice a month to once a week to absorb liquidity in the market and raised the interest rate of one-month SBIs to 8.44% in early July. The rupiah, after slightly strengthened, depreciated to around 9,800 to the dollar in early July.

Stock prices steadily rose in 2003 and also saw a similar trend in 2004. Even after the Indian Ocean earthquake, they have continued rising (see Figure 4). Stocks actively traded are those of financial institutions (especially banks), companies related to infrastructure (especially communications companies), etc., and the total market capitalization of all listed stocks almost tripled from 231 trillion rupiahs in January 2003 (a little more than 10% of GDP) to 730 trillion rupiahs at the end of 2004 (about 30% of GDP).

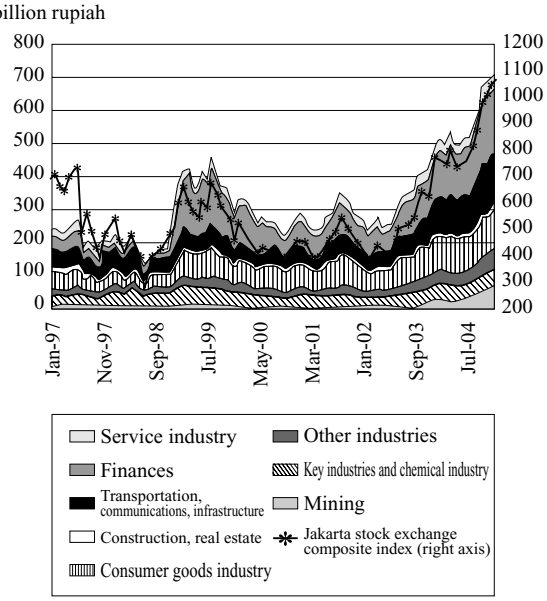
3. Fiscal Policy

In 2004, government revenue increased more than government expenditures, the budget deficit declined from 1.8% of GDP in 2003 to 1.2% of GDP in 2004 (see Table 2). Total revenue increased from 16.7% of GDP in 2003 to 17.7% of GDP in 2004, thanks to an increase in oil and gas related revenues resulting from the upsurge in oil prices in 2004. Current expenditures increased from 9.3% of GDP in 2003 to 10.3% of GDP in 2004 due to the increase in the fuel subsidy resulting from the oil price surge, which offset the reduction of interest payments entailed by the decline of interest rates. Even so, overall expenditures grew to 18.9% of GDP, up only by 0.4%

Figure 3 Nominal Exchange Rate

Source: Bloomberg

Figure 4. Total Market Value of Listed Stocks and Stock Exchange index



Source: Bloomberg

35 The decline in the lending interest rates was slower than that in the deposit interest rates in 2003, which may be reflected by the following factors. At that time, there was a strong incentive for banks to maintain high interest spreads as it would allow them to improve their financial positions such as increase their capital. Also there was less competition among banks to cut lending interest rates since banks did nothing, but kept a large volume of government securities on their own, which means there were not many opportunities to expand new credits.

Table 2. Government Operations

	2001	2002	2003	2004 Amended budget
	(in percent of GDP)			
Total revenues	16.1	16.7	17.9	18.7
Oil/gas revenue	4.1	3.9	4.7	5.6
Non-oil/gas revenue	11.9	12.7	13.0	12.9
Tax revenue	10.4	10.9	11.2	11.5
Nontax revenue	1.6	1.8	1.8	1.4
Grant	0.0	0.0	0.0	0.3
Total expenditures	17.6	18.5	18.9	19.5
Central government expenditures	12.3	12.6	13.3	13.9
Current expenditures	10.2	9.3	10.3	12.0
Personnel/material expenses	2.8	3.1	3.1	3.7
Subsidies	2.1	2.1	3.7	3.7
Interest payment	4.8	3.4	2.7	2.2
Others	0.4	0.7	0.9	2.4
Expenditures related to Aceh	—	—	—	0.5
Capital expenditure	2.2	3.3	3.0	1.9
Transfer to local governments	5.3	5.9	5.6	5.6
Primary balance	3.3	1.5	1.5	1.5
Fiscal balance	-1.5	-1.8	-1.2	-0.8
Finances	1.5	1.8	1.2	0.8
Domestic finances	1.1	1.7	1.9	1.1
External finances	0.4	0.2	-0.6	-0.3

Source: Indonesian Government, the author estimates

from the previous year because the capital expenditures and the transfer to local governments were reduced.

The amendments to the budget for 2005, which were approved by the parliament in June 2005, aimed to curtail the budget deficit to 0.8% of GDP as the original budget did.[6] The amended budget has incorporated the reduction of the fuel subsidy resulting from the increase in fuel prices. However, the assumption of the oil price was raised from 24 dollars per barrel indicated in the original budget to 45 dollars per barrel, thus the subsidy in the amended budget has been 3.6% of GDP, which is slightly less than the subsidy in the original budget. Moreover, the amended budget allocated 0.5% of GDP for the reconstruction from the earthquake and tsunami disaster and incorporated the assistance from the donor community pledged in January 2005, as well as the moratorium that the Paris Club creditors offered with respect to the tsunami damage. With those amendments, government revenues and expenditures are expected to be 18.6% and 19.3% of GDP, respectively.

4. External Sector

The trade surplus recorded 21.2 billion (8.2% of GDP) in 2004. The trade surplus was smaller in 2004 than in 2003, while it may be difficult to accurately compare 2004 with the previous year as the data reporting methodology for export and import data has been changed as mentioned above (see Table 3). The trade surplus was underestimated as the data reporting methodology was changed for exports and subsequently changed for imports. Though, statistically, exports were larger than that in 2003 by 12% (oil/gas export and non-oil/gas export increases over the previous year of 15.9% and 10.7%, respectively), and imports in 2004 were larger than that in 2003 by 27.8% (oil/gas import and non-oil/gas import increases of over the previous year of 24.2% and 42.7%, respectively), exports may have shown no actual growth from the previous year considering the

Table 3. Balance of Payments

	2003	2004	2005 Forecast
	(US $ billion)		
Current account	8.11	2.88	2.97
Trade balance	24.56	21.23	21.93
Export	64.11	71.78	80.65
Oil/gas	15.23	17.66	22.69
Non-oil/gas	48.88	54.13	57.96
Import	39.55	50.55	58.72
Oil/gas	7.82	11.17	14.98
Non-oil/gas	31.72	39.39	43.75
Services balance	-11.73	-11.20	-11.97
Income balance	-6.22	-8.33	-8.64
Current transfers	1.49	1.18	1.66
Capital balance	-3.18	2.24	2.75
Direct investment	-0.60	1.04	1.27
Portfolio investment	2.25	2.79	2.74
Others	-4.83	-1.60	-1.26
Government borrowing	1.84	2.38	2.90
Government repayment	-5.27	-5.19	-4.57
Others	-1.40	1.21	0.40
Errors and omissions	-4.33	-3.90	-2.75
Overall balance	0.60	1.21	2.97
Financing	-0.60	-1.21	-2.97
Change in gross foreign reserves (-:increase)	-4.26	-0.02	0.21
Reference:			
Gross foreign reserves (US $ billion)	36.3	36.3	36.1
(in months of import)	7.7	5.6	5.0
Current account/GDP	3.4	1.1	1.1
Trade balance/GDP	10.3	8.2	8.0
Capital balance/GDP	-3.1	-0.6	0.0
Debt services ratio(cash basis)	32.0	30.0	20.5

Source: Indonesian Government, the author estimates.

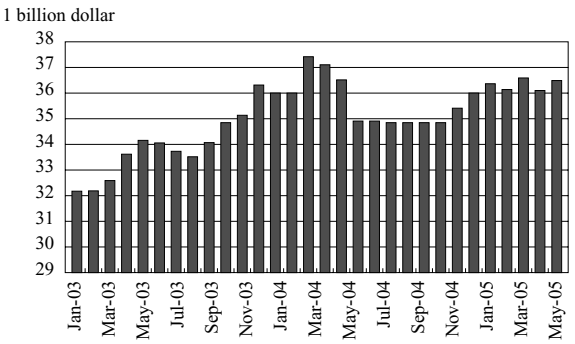
6 Under the former administration, the original budget for 2005 was approved by the parliament in September 2004.

10%-20% expansion of data coverage resulting from the change in the data reporting methodology.

The current account surplus shrank from 8.1 billion dollars in 2003 (3.4% of the GDP) to 2.9 billion dollars (1.1% of the GDP) in 2004 as a result of the smaller trade surplus mentioned above and the deteriorating income balance. The income balance was deteriorated because, as a result of the upsurge of oil prices, profit remittance relating to the development of oil sites by foreign capital increased. However, the trade surplus was underestimated due to the changes in the data reporting methodology mentioned above, and the current account surplus also seems to have been underestimated.

The capital account improved from a deficit of 3.2 billion dollars in 2003 to a surplus of 2.2 billion dollars in 2004 because of the increase in the government borrowing, and an inflow of portfolio investment, even though public debt repayment began as a consequence of the ending of the Paris Club rescheduling at the end of 2003. The foreign reserves declined slightly due to an intervention in the exchange market when the exchange rate depreciated in May 2004, but since then they have showed a gradual recovery and reached 36.4 billion dollars (equivalent to imports for 5.6 months) in May 2005 (see Figure 5).

Figure 5. Grass Foreign Reserves



Source: CEIC

Chapter 2: Medium-term Development Plan

1. Outline of the Medium-term Development Plan

The Yudhoyono administration announced the MTDP (2004-2009) in January 2005. While the MTDP appreciated what the previous five-year plan (PROPENAS 1999-2004) had achieved, it spells out that further reform would be needed for (i) "establishing democracy and justice for all," (ii) "creating an Indonesia that is safe and peaceful," and (iii) "improving prosperity" economically and socially, and thus it set those three goals as main agendas for the MTDP. More specifically, first of all, to establish democracy and justice in Indonesia, the MTDP aims at intensifying efforts to improve the judicial systems, establish the rule of law, and eliminate corruption, and thus to establish government trusted by the people. Secondly, to create a safe and peaceful society, the administration aims at eradicating regional conflicts, conventional crimes, smuggling, and terrorism; fostering public awareness to protect the safety and peace of civil society; and strengthening state institutions maintaining law and order such as the police and military forces. Finally, to build an economically and socially prosperous country, the MTDP aims at further expansion of investment and exports, which have been sluggish so far, and of economic growth together with job creation and poverty reduction. As an issue commonly associated with these three agendas in the MTDP, the administration intends to strengthen the role of civil society (the private sector) in politics, the policy-making processes, and economic activities.

Particularly in the third agenda, that of building an economically and socially prosperous country, the government will decisively implement policies for macroeconomic stability, including the reduction of the fiscal deficit, while it will also strengthen industrial competitiveness and promote investment and exports, in order to achieve economic growth with enough job creation. The government, considering that economic growth must be accompanied by poverty reduction, will also implement measures to reduce poverty over the medium and long term. The MTDP, with these policy

targets, aims at achieving an annual economic growth rate of 6% to 7% and reducing the unemployment rate and poverty rate from their respective current 10% and 16% to 5% and 8% in 2009. To achieve these goals, the economic policies in the MTDP focus on (i) macro-economic stability, (ii) the improvement of the business climate, and (iii) the revitalization of the agriculture, forestry, and fisheries industry, while enhancing social policies in the area of education and health.

More specific goals for the economic policies, especially for macro-economic stability and the improvement of the business climate, are as follows:

(1) Macro-economic Stability

(i) Inflation: to stay at around 5%
(ii) Fiscal policy: to achieve a balanced budget by 2009 and reduce the public debt to 32% of GDP by 2009
(iii) Reform of the financial sector: to establish a prudential supervisory agency (OJK) and a deposit insurance scheme and to foster non-bank financial institutions (e.g., mutual funds, pensions, and insurance companies)

(2) Improvement of business climate

(i) The reduction in the transaction costs for doing business and barriers to entry (including a reduction in the number of business permits/licenses, simplification and transparency of procedures related to the tax administration, and early enactment of a new investment law)
(ii) To reduce the time period for duty and VAT rebates with a view to promoting exports
(iii) To foster small/medium-sized enterprises (e.g., improve access of small/medium-sized enterprises to credit and technical assistance)
(iv) Labor market reform (e.g., the improvement of costly labor regulations and the improvement of regulations related to labor disputes)
(v) The development of infrastructure (e.g., water supplies, transportation (roads, railroads, ports, and airports), and energy supplies)

(3) Revitalization of the agriculture, forestry, and fisheries industry

(i) Support for farmers: to facilitate access to financial resources
(ii) Development of rural infrastructure: roads, irrigation, etc.
(iii) Development of agro-business: removal of entry barriers

2. Effectiveness and Feasibility of the Medium-term Development Plan

(1) Effectiveness of the Agendas in the MTDP

For Indonesia's economy to grow further, government policy should focus on (i) strengthening industrial competitiveness and expanding exports (especially non-oil/gas exports) over the medium and long-term future; (ii) creating job opportunities and reducing poverty by achieving a high level of economic growth; and (iii) easing the debt service burden by reducing the public debt and shifting the government's spending toward poverty reduction measures, etc. To strengthen industrial competitiveness, investment expansion is essential, and improving the investment climate, as well as the effectiveness of governance, is needed. The budget deficit needs to be reduced further by boosting tax revenues, and the expenditure policy needs to be reviewed, such as cutting down the fuel subsidy, etc. The MTDP adequately points out the critical economic challenge that Indonesia faces, thus the agendas set in the MTDP are appropriate. Nevertheless, some criticize that there is nothing new in the MTDP as many of the policy directions in the MTDP were also addressed in the previous five-year plans.

In terms of the business climate, as indicated in the World Bank's "Doing Business in 2004," Indonesia is ranked lower than other countries in the region with regard to the number of procedures, the time and the cost of investment applications, as well as the employment climate index, etc. As the donor community and investors have often underscored the importance of the agendas and specific objectives mentioned above, these agendas and objectives seem proper. As for labor market reform, the labor cost has been increasing along with an increase in wages in recent years, and thus the competitiveness of various

industries, especially that of labor-intensive industries, has been weakened. After the fall of the Suharto administration, Indonesia shifted policies toward worker protection: enacting a new trade unions law in 2000, promoting the independence of trade unions; and enacting a new labor law in 2003, focusing on the protection of workers. However, the labor market is now rigid due to the strengthening of workers' rights, and thus labor market reform, shown in the MTDP, is critical especially through deregulation.

(2) The Macroeconomic Framework

The MTDP aims at raising the real GDP growth rate to 7.6% by 2009. To achieve this target, investment is expected to increase from 19% of GDP in 2004 to 29% of GDP in 2009, and exports are expected to increase by 6% to 10% each year (see Table 4). However, because it is anticipated that the exchange rate will rise to 8,700 rupiahs to the dollar on a nominal basis by 2009, and that, even on a real basis, it will appreciate about 15% in those five years, competitiveness needs to be strengthened to a considerable extent by reducing production costs, etc., so that the export growth mentioned above can be achieved. Though the government assumes the increase of non-traditional exports, such as machinery and chemical products, as well as the increase of traditional labor-intensive exports, such as textiles and footwear, further direct investment needs to be attracted from abroad by improving the business climate to a considerable extent so that new industries can be more competitive. Since improving the business climate requires judicial reform, elimination of corruption, etc., which will take time to be accomplished, considerable effort will be needed to realize the macro framework mentioned above.

The government aims to improve the fiscal balance, from a deficit of 0.7% of GDP in 2005 to a surplus of 0.3% in 2009, by increasing revenue by 1.6 percentage points from 2005 to 2009 mainly through improvement of the tax administration and by containing expenditure expansion up to 0.6 percentage points on a net basis through cutting

Table 4. Macroeconomic Framework in the Medium-term Development Plan

	2005	2006	2007	2008	2009
	(annual percentage change, unless otherwise indicated)				
Real GDP growth rate	5.5	6.1	6.7	7.2	7.6
Consumption	4.1	5.2	5	5.8	6.3
Investment	14.6	17.8	16.3	14.3	12.8
Export	5.7	6	6.4	7.4	10.1
Import	10.3	8.6	10.2	10.8	11
Inflation rate	7	5.5	5	4	3
Nominal exchange rate (rupiah/U.S.dollar)	8900	8800	8800	8700	8700
Change in real exchange rate (-: appreciation)	-4.5	-4.3	-2.8	-2.9	-0.9
			(in percent of GDP)		
Investment	21	23.1	25.3	27.1	28.5
Public	3.4	3.6	3.6	3.8	4.1
Private	17.6	19.5	21.7	23.3	24.4
Savings	22.7	23.6	25.5	27	28
Savings-investment gap	1.6	0.6	0.1	-0.2	-0.5
Revenue	14.5	14.9	14.9	15.3	16.1
Tax revenue	11.4	11.6	11.9	12.6	13.6
Others	3.1	3.3	2.9	2.6	2.4
Expenditures	15.2	15.5	15.2	15.3	15.8
Central government	10.2	10.1	9.8	9.6	9.6
Transfer to local governments	5	5.4	5.4	5.7	6.2
Fiscal balance	-0.7	-0.6	-0.3	0	0.3
Finance	0.7	0.6	0.3	0	-0.3
Domestic	1.4	1.1	0.8	0.4	0.1
Foreign	-0.8	-0.5	-0.5	-0.4	-0.4
Public debt	48	43.9	39.5	35.4	31.8
Foreign	21.6	19.3	16.7	14.4	12.6
Domestic	26.3	24.6	22.8	21	19.2

Source: Inclonesin's government

central government expenditures (0.6% of GDP) and the expanding transfer to local governments (1.2% of GDP). However, this revenue and expenditure outlook, which is based on the assumed oil price of 28 dollars per barrel, will vary in accordance with actual oil price developments. Moreover, the challenge is to achieve such a level of revenue expansion (2.2% of GDP with regard to tax revenues) only by improving the tax administration. Since the tax reform laws drafted under the former government, which the present government is reviewing, focuses on raising the personal taxable income threshold, introduction of a tax amnesty, gradual reduction of customs duties, etc., tax revenues can decline at least in the short term. The government intends to make tax collection more effective by simplifying the corporate income tax, improving the VAT refund procedure, etc. However, these measures alone may not likely generate the increase in tax revenues as mentioned above. Expenditures may be cut to a certain degree through the reduction of the fuel subsidy if oil prices go down as assumed in the MTDP, but implementation of the MTDP will require fiscal costs, such as security and military expenses, judicial system-related expenses, poverty reduction-related expenses, etc.

(3) Challenges for the Future

As mentioned above, in order to achieve these three agendas of the MTDP, the government intends to strengthen the role of civil society, and it needs to convince the people of the MTDP's progress in order to retain their support for it. While the MTDP covers five years, BAPPENAS is now making annual plans with a policy matrix that shows specific measures to be taken and the timing for their implementation. The point is how well BAPPENAS can present effective and practical measures. For the 2005 annual plan, only minor modifications are added to the plan made by the former government, while the 2006 annual plan was finalized in June after conducting public hearings.

Another important point is that the government must secure the financial resources necessary to implement the MTDP. The government apparently has not calculated in detail the fiscal costs necessary for the implementation of the MTDP, thus the fiscal outlook mentioned above may change depending on those costs. It is important to calculate the fiscal costs (e.g., security/military expenses, judicial system-related expenses, poverty reduction-related expenses, infrastructure improvement expenses) necessary to implement the MTDP precisely and to create a realistic financing plan. If a realistic financing plan is not developed, the implementation of the 5-year plan may be delayed.

Chapter 3: Public Debt Sustainability

1. Public Debt after the Asian Financial and Currency Crisis

The outstanding public debt rose to a little more than 90% of GDP in 1999. A large amount of government securities was issued to recapitalize banks affected by the Asian financial and currency crisis, while the foreign debt swelled compared to GDP due to the rapid depreciation of the exchange rate (see Table 5). The domestic debt expanded rapidly from 11% of GDP in 1998 to 47% of GDP in 1999, while foreign debt expanded from 23% of GDP in 1997 to 47% of GDP in 1999. Meanwhile, the face value of foreign debt increased only from 50.9 billion dollars in 1997 to 65.6 billion dollars in 1999, while the exchange rate depreciated sharply from 2,890 rupiahs to the dollar in 1997 to 7,848 rupiahs to the dollar in 1999.

The outstanding public debt has gradually decreased since 1999 to 57% of GDP in 2004. New issuance of government securities has been withheld since 2001, and the nominal GDP expanded more rapidly, thus domestic debt declined in relation to GDP. Foreign debt has continued declining since 1999 because, while an increase of nominal foreign debt stayed low, the nominal GDP expanded.

This public debt decline was made possible by the continued primary surplus of Indonesia's fiscal position. The stability of the public debt in relation to GDP depends on the primary fiscal balance, as well as nominal interest rate, nominal GDP growth rate, etc. If the primary fiscal balance deteriorates, or the nominal interest rate greatly exceeds the nominal GDP growth rate, the outstanding public debt will expand in relation to GDP. In the case of Indonesia, the primary fiscal balance has been surplus even after the Asian financial and currency crisis. On the other

Table 5. Public Debt Development

	1997	1998	1999	2000	2001	2002	2003	2004	2005
				(in percent of GDP, unless otherwise indicated)					
Public Debt	…	72.8	93.3	87.8	80.4	71.9	63.2	56.9	51.2
Domestic debt	…	10.6	46.5	49.1	42.5	39.0	32.9	29.0	25.8
Percentage point of change [1/]	…	…	35.9	2.6	-6.7	-3.5	-6.1	-3.8	-3.2
(factors)									
Public domestic debt[2/]			37.3	12.3	1.9	0.6	-2.7	-0.2	0.1
Nominal GDP[2/]			-1.4	-9.7	-8.6	-4.1	-3.5	-3.7	-3.3
Foreign debt[3/]	23.4	62.2	46.8	38.7	37.9	32.9	30.3	27.9	25.3
Percentage point of change [1/]	-0.7	38.8	-15.4	-8.1	-0.7	-5.0	-2.6	-2.4	-2.6
(factors)									
Public foreign debt [4/]	-2.0	7.9	5.2	-1.0	-1.0	1.8	2.7	-0.2	-0.8
Nominal exchange rate [4/]	5.0	39.0	-12.5	2.6	7.0	-3.1	-2.4	1.1	1.4
Nominal GDP [4/]	-3.7	-8.0	-8.1	-9.8	-6.8	-3.6	-2.9	-3.4	-3.2
(Reference)									
Public domestic debt (in trillion rupiah)	…	101.2	511.2	682.7	715.2	726.5	672.1	668.6	672.0
Public foreign debt (US$ billion)	50.9	58.2	65.6	63.9	62.3	65.8	72.3	71.9	69.7
Nominal exchange rate (rupiah/US$: period average)	2,890	10,210	7,848	8,405	10,256	9,316	8,577	8,939	9,450
Nominal GDP (in trillion rupiah)	628	956	1,100	1,390	1,684	1,863	2,046	2,303	2,600
Nominal GDP growth rate (y)	17.9	52.3	15.1	26.4	21.2	10.6	9.8	12.6	12.9
Nominal interest rate (r)[5/]	…	…	6.1	4.9	7.1	6.6	5.1	4.8	5.0
Primary fiscal deficit (d) (-: surplus)	-2.8	-1.3	-1.4	-2.7	-2.8	-3.3	-1.5	-1.5	-1.3

1/ The percentage point of change is a result of calculating the increase/decrease of domestic and foreign debts in relation to GDP.
2/ If DDt is the domestic debt outstanding and Yt is the nominal GDP, then the following expression holds:

$$\Delta\frac{DD_t}{Y_t}=\frac{1}{Y_t}\Delta DD_t+DD_{t-1}\Delta\left(\frac{1}{Y_t}\right)$$

In this equation, the first term is a factor arising from the change in public domestic debt, the second term a factor arising from the change in the nominal GDP. The magnitude of each factor is calculated in this table.
3/ Foreign debt includes foreign bonds.
4/ If EDt is the foreign debt outstanding and et is the nominal exchange rate, then the following expression holds:

$$\Delta\frac{ED_te_t}{Y_t}=\frac{e_t}{Y_t}\Delta ED_t+\frac{ED_{t-1}}{Y_t}\Delta e_t+ED_{t-1}e_{t-1}\Delta\left(\frac{1}{Y_t}\right)$$

In this equation, the first term is a factor arising from the change in public foreign debt, the second term a factor arising from the change in the nominal exchange rate, and the third term a factor arising from the change in the nominal GDP. The magnitude of each factor is calculated in this table.
5/ The nominal interest rate was calculated from the interest payments in the government expenditures and the outstanding public debt in the previous years.
Source: the Indonesian government, IMF, and the author estimates

hand, the nominal GDP growth rate has been high due to inflation, while relatively low interest has been imposed on the public debt. Therefore, public debt in relation to GDP has continued to decline.

2. Sustainability of the Medium-term Development Plan, Fiscal Policy, and Public Debt

Though public debt in relation to GDP is on a downward trend, the public debt sustainability may be affected by the MTDP. As mentioned above, the government aims to achieve a balanced budget by 2009 within the macroeconomic framework indicated in the MTDP. However, if it requires fiscal costs to implement the MTDP, whether or not a balanced budget can be achieved in 2009 depends on the extent to which the MTDP can be implemented.[7] It is quite difficult to precisely predict to what extent the current Yudhoyono administration will implement the MTDP, but the fact that the government has correctly handled various tasks after the Indian Ocean earthquake, when the government raised the fuel price in March 2005 without significant disorder, and that it is boldly tackling the corruption issue involving the governor of Aceh Province, may provide some promise that some success with the MTDP can be achieved.

To examine future public debt sustainability, a macroeconomic scenario will be presented with the assumption that the Yudhoyono administration will achieve some success with the MTDP. Given the assumed success, the investment climate will see

7 Some of the goals set by the Medium-term Development Plan can be accomplished by improvement of the efficiency of government business. However, in general, there is a high possibility that security/military expenses, judicial system-related expenses, expenses for poverty counter-measures, and expenses for infrastructure improvement, will increase.

Table 6. Medium-term Macroeconomic Outlook (2001 - 2009)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
				Prelim.	Projection				
Growth, Price, Savings, Investment				(y/y, %, unless otherwise indicated)					
Real GDP growth rate	3.8	4.4	4.9	5.1	5.5	5.6	5.7	5.8	5.9
Inflation rate (average)	11.5	11.9	6.6	6.1	7.0	6.0	5.5	4.5	3.5
Exchange rate (average, rupiah/dollar)	10,256	9,316	8,577	8,939	9,450	9,746	10,120	10,408	10,574
				(in percent of GDP)					
National savings	23.4	22.9	22.3	22.1	23.3	23.0	22.8	23.0	23.3
Investment	19.2	19.0	18.9	21.0	22.2	22.3	22.6	23.0	23.5
Fiscal				(in percent of GDP)					
Revenue and grant	17.9	16.1	16.7	17.7	18.3	17.6	17.1	16.7	16.7
Tax revenue	11.0	11.3	11.8	12.2	12.6	12.4	12.4	12.5	12.5
Others	6.9	4.8	4.9	5.5	5.7	5.2	4.7	4.3	4.1
Expenditures	20.3	17.6	18.5	18.9	19.2	18.6	18.1	17.7	17.6
Central government	15.5	12.3	12.6	13.3	13.2	12.8	12.5	11.9	11.7
Transfer to local government	4.8	5.3	5.9	5.6	5.9	5.8	5.6	5.7	5.9
Primary balance	2.8	3.3	1.5	1.5	1.3	1.3	1.0	0.8	0.6
Fiscal balance	-2.4	-1.5	-1.8	-1.2	-0.9	-1.0	-1.0	-0.9	-0.9
Financing	2.4	1.5	1.8	1.2	0.9	1.0	1.0	0.9	0.9
Foreign (net)	0.6	0.4	0.2	-1.0	-0.4	-1.2	-0.8	-0.5	-0.3
Domestic (net) 1/	1.8	1.1	1.7	2.2	1.3	2.2	1.8	1.4	1.2
Public debt	80.4	71.9	63.2	56.9	51.2	46.7	42.8	39.4	36.4
Domestic debt	42.5	39.0	32.9	29.0	25.8	24.1	22.2	20.2	18.6
Foreign debt 2/	37.9	32.9	30.3	27.9	25.3	22.5	20.7	19.2	17.8
Monetary				(an average in the period, %)					
Interest rate of SBI (1 month)	16.6	14.9	9.9	7.4	8.5	8.0	7.3	6.5	5.5
External					(y/y, %)				
Exports	-12.3	3.1	8.4	12.0	12.3	2.4	3.7	4.4	6.3
Imports	-14.1	2.8	10.9	27.8	16.2	2.9	6.5	6.6	8.4
				(in percent of GDP; unless otherwise indicated)					
Trade balance	13.8	11.8	10.3	8.2	8.0	7.4	6.7	6.0	5.6
Current account	4.2	3.9	3.4	1.1	1.1	0.7	0.2	0.0	-0.2
Gross foreign reserves (US$ billion)	28.0	32.0	36.3	36.3	36.1	35.5	36.4	38.1	40.9
Gross foreign reserves (in months of import)	6.7	7.4	7.7	5.6	5.0	4.8	4.7	4.7	4.7
Foreign Public debt (US$ billion)	71.4	74.7	81.7	80.3	77.3	74.0	72.0	70.6	70.1
Foreign public debt 3/	43.5	37.3	34.2	31.2	28.1	24.8	22.5	20.5	18.8
Debt service ratio	36.0	31.2	32.0	30.0	20.5	23.4	21.7	21.1	19.7

1/ This includes foreign bonds in accordance with the government classification.
2/ This excludes the obligation to IMF, but includes foreign bonds.
3/ This includes the obligation to IMF.
Source: the Indonesian government, and the author estimates

some improvement, investment will expand at 6%-8% per annum, and real GDP growth will reach nearly 6% in 2009 (see Table 6). Exports, primarily non-oil/gas exports, will also rise at 3%-5% per annum by volume, and imports will rise at 5%-6% per annum by volume as a result of the investment expansion. The current account will register a surplus of 1.1% of GDP in 2005, but then the surplus will gradually decline, and from 2008, the current account will run into deficit.

In terms of fiscal policy, personnel/material expenditures, capital expenditures, etc., will slightly rise in relation to GDP with a successful implementation of the MTDP. The oil price will rise to 43 dollars per barrel in 2006, but then it will decline to 38 dollars per barrel in 2009.[8] Revenue as a whole will decline from 18% of GDP in 2005 to 17% of GDP in 2009 on the assumption that tax revenues from non-oil/gas products will slightly expand by strengthening the tax administration. Assuming no major changes in the fuel subsidy policy, the expenditure will decline to 17%-18% of GDP in 2009 as the fuel subsidy decreases in line with the reduction of oil prices, and interest payment will

8 The oil price forecast mentioned above is in line with the IMF's "World Economic Outlook, April 2005."

diminish, reflecting the reduction of the public debt. As a result, the fiscal deficit will expand to 1.0% of GDP in 2006, and after that will level off at 0.9%. Therefore, the budget, contrary to the government's forecast, will not be balanced in 2009.

With this macroeconomic outlook, the public debt will decline from 51% of GDP in 2005 to 36% of GDP in 2009. This decline reflects the assumptions that the primary fiscal balance will be a surplus and that the nominal GDP growth rate remains at a higher level than the nominal interest rate. The real GDP growth rate rises to about 6% with successful implementation of the MTDP. The reduction of the public debt drops the ratio of interest payments to revenue from 13% in 2005 to 8% in 2009 and the revenue for debt servicing to revenue from 20% in 2005 to 18% in 2009.

3. Financing Needs and Strategies

Financing of the deficit should be analyzed in order to address public debt sustainability. The financing needs, defined as the sum of fiscal deficit and debt amortization, were 4.4% of GDP in 2003 and 4.5% of GDP in 2004. (Table 7) These needs were financed in 2003 by the Paris Club rescheduling (1.2% of GDP), recovery of bank assets (1% of GDP), etc., but increased the dependence on government securities (1.4% of GDP) and domestic bank finances[9] (1.1% of GDP). While the financing needs will be reduced in 2005, it is estimated that finance through government securities will increase to 1.7% of GDP, while financing through recovery of bank assets will decline to 0.1%-0.2% of GDP. Meanwhile, a tsunami-related moratorium (principal only, 0.6% of GDP) will be granted by the Paris Club creditors.

After 2006, the moratorium by the Paris Club will not be granted, and the recovery of bank assets will decline. Therefore, dependence on government securities will further increase. The financing needs will slightly decrease from 3.4% of GDP in 2005 to 3.2% of GDP in 2009, and the issuance of government securities will remain at more than 2% of GDP until 2009. The government intends to reduce the fiscal deficit, squeeze the financing needs, and issue government securities while fostering their secondary markets. As budgeted, foreign bonds worth 1 billion US dollars were issued in April 2005, and also domestic bonds worth 13 trillion rupiahs were issued between January and April 2005.[10] Since interest rates are on an upward trend, it is somewhat difficult to decide when domestic bonds should be issued, and thus an issuance of domestic bonds in March was postponed. However, since the volume of domestic bonds bid exceeded the volume targeted at

Table 7. Financing Needs for Fiscal Policy and Trend of Finance Strategy

	2001	2002	2003	2004	2005	2006	2007	2008	2009
				Prelim.	Amended budget	Projection			
									(in percent of GDP,%)
Financing needs	4.9	3.8	4.5	4.4	3.6	3.5	3.4	3.3	3.2
Fiscal deficit	2.4	1.5	1.8	1.2	0.8	1.0	1.0	0.9	0.9
Amortization	2.5	2.3	2.7	3.1	2.8	2.7	2.5	2.5	2.4
Foreign	2.5	2.1	2.0	2.0	2.0	1.9	1.6	1.5	1.4
Domestic	0.0	0.2	0.7	1.1	0.8	0.8	1.0	1.0	1.0
Finance	4.9	3.8	4.5	4.4	3.6	3.5	3.4	3.3	3.2
Foreign finance	3.1	2.5	2.1	1.0	1.7	0.7	0.8	1.0	1.1
Reschedule/moratorium	1.6	1.4	1.2	0.0	0.6	0.0	0.0	0.0	0.0
Borrowing	1.6	1.0	0.9	1.0	1.1	0.7	0.8	1.0	1.1
Domestic finance	1.8	1.3	2.4	3.3	1.9	2.8	2.6	2.3	2.2
Domestic banks	-0.1	-0.2	0.5	1.1	0.0	0.0	0.0	0.0	0.0
Privatization rerenue	0.2	0.4	0.4	0.2	0.1	0.1	0.1	0.0	0.0
Recovery of bank assets	1.7	1.0	1.0	0.7	0.2	0.1	0.0	0.0	0.0
Government securities[1/]	0.0	0.1	0.6	1.4	1.7	2.6	2.5	2.3	2.1

1/ This includes foreign bonds in accordance with the government classification.
Souce: the Indonesian government, and the author estimates

9 In this context, domestic bank finances mean withdrawals from the government deposit account (investment funds accounts, etc.).

10 The government issues domestic bonds once a month, and according to the amendments to the 2005 budget, 33 trillion rupiahs worth of domestic bonds (1.5% of GDP) are expected to be issued.

the time of each issuance,[11] there is little concern over the demand for government securities.

The fostering of the secondary market for domestic bonds is still a challenge as banks hold about 70% of the total. Holders of domestic bonds have been diversified to a certain extent: mutual funds, growing rapidly these days, hold 14% of total domestic bonds outstanding; insurance companies hold 7%; pension funds 4%; foreign investors 4%, etc. To further develop the secondary market in the future, it is necessary to improve the information system as well as the infrastructure for trading, and the capital market supervisory agency (BAPEPAM) is now reviewing the regulations and systems for market improvement.

Conclusion

As mentioned at the beginning of this paper, Indonesia has been changing, both politically and economically. To maintain the momentum of these changes in order to achieve further economic growth in the medium term, the government must steadily implement the agendas specified in the MTDP. To this end, the government needs to secure the financial resources necessary to implement the MTDP, thus government expenditures may expand if the fiscal cost for the MTDP turns out to be larger than the expectation, or the achievement of the MTDP exceeds the assumed level. On the other hand, less implementation of the MTDP will reduce the pressure on government expenditures, but will delay the investment climate improvement and make the real GDP growth rate and export growth rate less than the assumption. The scenario exercise presented in this paper shows that the public debt will be reduced by 20 percentage points over the medium term. Although the government intends to balance the budget by 2009, it also needs to secure the financial resources for successful implementation of the MTDP.

However, there exist several risks associated with this scenario. First, the oil price may be different from what the government has projected. Not only does the oil price have an effect on revenues related to oil and gas, but it also has an effect on expenditures, specifically the fuel subsidy and the transfer to local governments. The net impact of an oil price increase on the budget was said to be neutral or somewhat negative but may be different as the prices of fuel product were raised in March 2005. Future impact is contingent on the future policy on fuel product prices. Second, the rupiah fluctuates more widely than the currencies of its neighboring countries, thus the economy may experience temporary instability caused by the exchange rate fluctuation. The government should implement careful fiscal management so that it can balance the targets of maintaining public debt sustainability and the sound implementation of the MTDP.

11 The volumes of bids for the January and February issuances were respectively 6 and 3 times as large as the initially targeted volumes, and the volume of bids for the April issuance again exceeded 1.6 times the volume initially targeted.

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