August 2007
IMF Country Report No. 07/273

Indonesia: Selected Issues

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International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

INDONESIA

Selected Issues

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Approved by the Asia and Pacific Department

June 27, 2007

Contents Page

I. INTRODUCTION

1. **The chapters in this volume present some of the background work for the 2007 Article IV consultation.** They were prepared to help address key policy questions raised during the discussions. Staff findings on these issues formed the basis of the policy recommendations provided to the authorities, as highlighted in the staff report for the 2007 Article IV consultation.

2. **While the recent boom in commodity exports has benefited Indonesia, export performance in many other sectors has lagged behind other countries in the region.** This includes the labor-intensive manufacturing sector which is of key importance for employment creation. Using a gravity model, Chapter II assesses Indonesia's trade integration relative to underlying country characteristics and confirms that Indonesia trades less than could be expected based on fundamentals. One reason has been Indonesia's lack of integration in the dynamic regional supply chains that have generated positive spillover effects for other Asian countries. This, in turn, reflects weak FDI inflows as Indonesia lags behind its neighbors on most investment climate indicators.

3. **Although FDI inflows have remained small, portfolio inflows have surged periodically driven by improved macroeconomic fundamentals, a still significant yield differential, and high global risk appetite.** The authorities expressed concern that sudden reversals could undermine macroeconomic stability and derail the progress made since the crisis. Chapter III analyzes Indonesia's vulnerabilities, especially compared with the eve of the crisis in 1997. Various indicators suggest that the underlying fundamentals are significantly stronger and the institutional structure, most notably in the financial and corporate sectors, is more robust. Combined with the adequate reserve ratios and a flexible exchange rate system, they make the economy much more resilient to volatile capital flows. The challenge now is to consolidate the progress that has been achieved and adapt policies to the changing external environment.

4. **The absence of a financial safety net (FSN) prior to the 1997–98 financial crisis contributed to vulnerabilities and the severity of the crisis.** Much progress has been achieved since and the introduction of a FSN in Indonesia was completed in March 2007. This element of Indonesia's financial infrastructure will continue to gain importance as the authorities are committed to promoting financial intermediation and the role of the financial sector in the economy. Chapter IV analyzes the key features of the FSN in view of international standards and concludes that the current system is capable of timely addressing bank problems. However, the system could be strengthened further and staff laid out some proposals that could be implemented in the future.

5. **Improving financial intermediation has been a priority of the authorities.** In particular, they have expressed concern that the banking system is not adequately performing

its financial intermediation role and contributing to economic growth. Chapter V looks at determinants of, and constraints to, credit growth in recent years. Staff found that while the expansion of short-term lending is likely to be constrained by limited demand from credit-worthy customers, the limited availability of long-term credit is the result of various structural weaknesses, including the absence of a well-developed nonbank financial market. Staff suggested that rather than relaxing prudential regulations or using moral suasion to encourage banks to lend, authorities should focus on promoting the availability of long-term lending instruments and development of capital markets.

6. **Indonesia needs to create fiscal space to help meet its large infrastructure and poverty reduction goals.** The last chapter looks at the scope for creating fiscal space, both through improving revenue collections and through reprioritizing spending, to help accommodate priority spending. Staff finds that, in addition to ongoing efforts to improve tax administration, new tax policy initiatives could be considered. On the spending side, further continued gains in spending efficiency and a reduction in subsidies could create much needed fiscal space. In addition, improved budget allocation and better public financial management systems could improve regional governments' ability to use accumulated deposits for key priority spending.

II. Is Indonesia Adequately Integrated into Global and Regional Trade and Finance?[1]

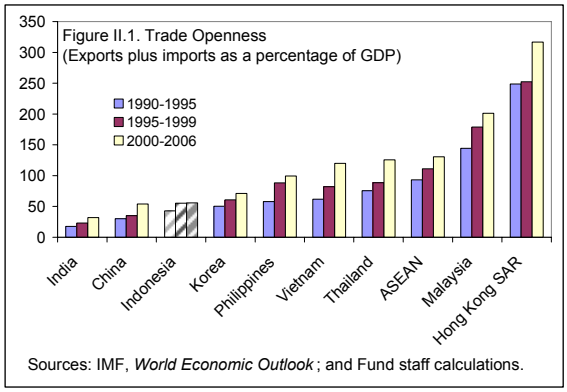
A. Introduction

7. **This paper examines the integration of Indonesia into the regional and global economy.** While Indonesia fares better on various indicators of trade restrictiveness than the regional average, it fares worse in terms of actual openness, with trade-to-GDP ratios well below the regional average. However, as larger countries generally have lower trade-to-GDP ratios, a gravity model is estimated to control for size and to analyze the degree to which Indonesia is integrated into world trade. The paper also examines the extent to which Indonesia is financially integrated in the region. In this context, the extent of cross border banking and portfolio flows within the region are assessed.

B. Regional Trade Integration

Trends in Trade Integration

8. T**he Indonesian economy remains one of the least integrated into world trade among emerging market countries (EMCs) in Asia.** Actual trade openness,[2] as measured by the ratio of export plus imports to GDP, is around 50 percent, compared to an average of 130 percent for ASEAN countries.[3] (Figure II.1). Historically, many Asian economies have relied on an export oriented development strategy and continue to rely heavily on trade. Indeed many countries have openness ratios in excess of 100 percent, including Hong Kong SAR, Malaysia, Singapore, Thailand, and Vietnam. Furthermore, while the degree of integration has risen significantly for most EMCs in Asia, it has remained stagnant in Indonesia since the mid-1990s. Larger countries generally have lower trade-to-GDP ratios, however, the next section will show that the lower level of integration is not due to Indonesia's large size.



[1] Prepared by Sonali Jain-Chandra (PDR).

[2] This measure of trade openness is unconditional on the determinants of trade.

[3] Unweighted average of the 10 ASEAN countries.

9. **Asia remains an important trading partner for Indonesia, accounting for around 60–65 percent of Indonesian exports and imports in 2005 (Table II.1).** While industrial Asia's, including Japan's, share in Indonesia's trade has diminished over time, that of

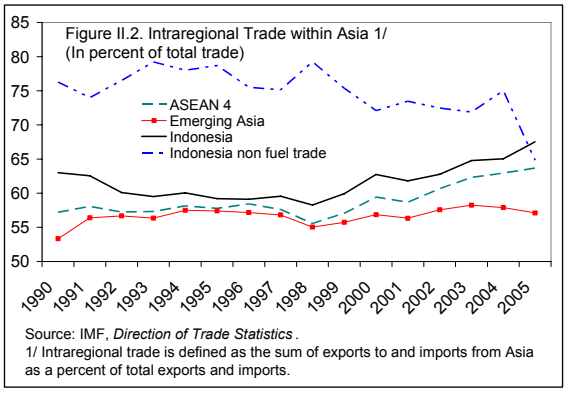
Table II.1. Indonesia's Trade Integration with Asia

	Indonesia's imports from: (In percent of total Indonesian imports, average)			Indonesia's exports from (In percent of total Indonesian exports, average)		
	1990-95	1996-99	2000-05	1990-95	1996-99	2000-05
Asia	54.9	54.3	61.3	64.0	60.5	64.1
Non Industrial Asia	25.8	30.0	41.8	30.3	34.3	38.8
Brunei Darussalam	0.0	0.0	0.6	0.1	0.1	0.0
Cambodia	0.0	0.0	0.0	0.1	0.1	0.1
Hong Kong SAR	0.9	0.8	0.7	2.7	3.4	2.1
India	0.9	1.4	1.9	0.3	1.3	2.5
Korea	6.2	5.7	5.4	6.3	6.3	7.2
Lao PDR	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	1.7	3.0	3.5	1.5	2.5	3.7
Philippines	0.2	0.2	0.4	0.7	1.4	1.5
Singapore	6.1	8.1	12.8	9.4	9.9	9.3
Thailand	1.1	2.7	4.6	1.1	1.7	2.2
Vietnam	0.2	1.0	0.9	0.5	0.7	0.7
China, People's Republic of	3.3	3.9	8.0	3.7	4.0	5.6
Myanmar	0.0	0.1	0.1	0.1	0.2	0.1
Taiwan Province of	5.0	2.9	3.0	3.8	2.7	3.6
Industrial Asia	29.1	24.4	19.5	33.7	26.2	25.3
Japan	23.4	16.9	13.9	31.5	23.2	22.2
Australia	5.1	6.1	5.0	2.1	2.7	2.9
New Zealand	0.5	0.5	0.5	0.1	0.2	0.3

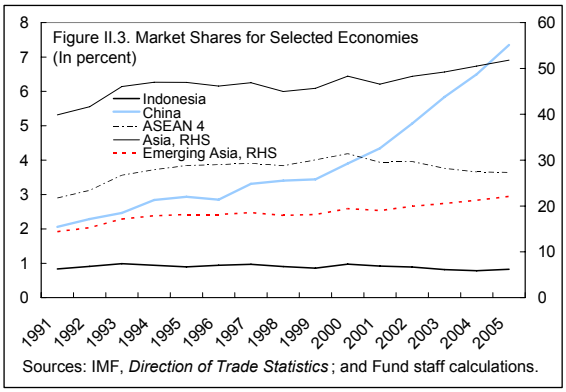
Source: IMF, *Direction of Trade Statistics*.

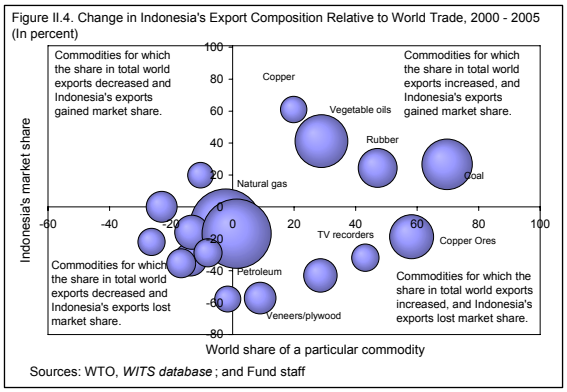
Emerging Asia has increased. China, Malaysia, Singapore, and Thailand have become increasingly important trading partners for Indonesia.[4]

10. **Intraregional trade in Asia has risen since the early 1990s, including for Emerging Asia as a whole and for Indonesia.** Intraregional trade accounts for about 57 percent of Emerging Asia's total trade, whereas it accounts for about 64 percent of Indonesia's trade (Figure II.2). Furthermore, in the case of Indonesia, the share of intraregional trade has risen steadily, though the share of non-oil intraregional trade has fallen since peaking in the late 1990s.



11. **Despite the recent robust export growth, Indonesia's export performance relative to its regional competitors has not improved.** Indonesia has lost market share (from 0.97 percent of total world trade in 2000 to 0.95 in 2006) (Figure II.3). Moreover, it has lost market share in both non-oil exports and manufactured products since 2000. Of its key export markets, accounting for 85 percent of total exports, Indonesia has lost market share in Japan, the US, and China, while gaining in other emerging markets such as Korea, Malaysia, India, Singapore, Taiwan Province of China, and Thailand. Using disaggregated trade data from Comtrade, the change in the market share of Indonesian exports in its 20 most important export categories with a change in the market share of these products in world trade were compared (Figure II.4). Indonesia has increased its market share in only four commodities whose global market share has risen, specifically coal, copper, rubber, and vegetable oils. In other products categories,

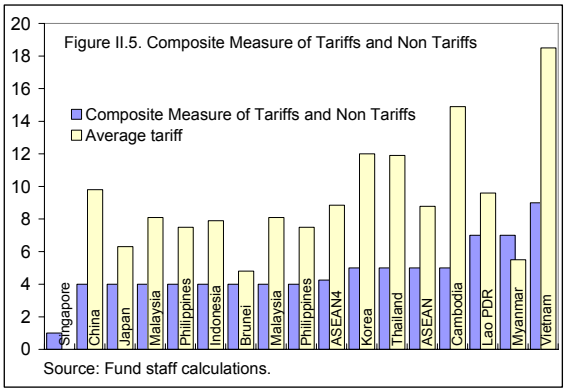




[4] Includes Australia, Japan, and New Zealand.

Indonesia either lost market share (including textiles, computer equipment, oil and natural gas) or gained market share in products with a declining share of world trade, contributing to stagnating market penetration.

12. **The low level and unfavorable trend of integration is not explained by a relatively restrictive trade policy, but rather by supply constraints.** In fact, measures of de jure openness indicate that Indonesia is a relatively open economy. On both average tariffs and a composite measure of tariffs and non tariffs, which include measure of tariffs and non tariffs, Indonesia appears to be an open economy relative to other countries in the region (Figure II.5).



C. Gravity Model: Does Indonesia Undertrade Within Asia?

13. **A gravity model is estimated to assess Indonesia's integration into the world economy, relative to the trade potential.** The gravity model relates the actual bilateral trade between two countries to size (GDP), the level of development (proxied by GDP per capita),[5] and the distance between the two countries. Recently the standard gravity model has been augmented by a number of trade resistance variables to predict bilateral trade. Finally, predicted and actual bilateral trade are compared to arrive at a measure of undertrading or overtrading relative to potential.

14. **The theoretical underpinnings of the gravity model are based on the framework of Anderson and van Wincoop (2003).** The model assumes that each country produces only one good, consumers exhibit homothetic preferences, with a constant elasticity of substitution (CES) utility function, and a standard budget constraint. Imposing a market clearing condition, they show that the gravity equation can be written as follows:

$$x_{ij} = \frac{y_i y_j}{y_w}\left(\frac{r_{ij}}{P_i P_j}\right)^{(1-\sigma)} \qquad (1)$$

Where, x_{ij} refers to the demand for imports of country i's goods from country j's consumers, P_i and P_j refers to consumer price indices for i and j, y_i and y_j refers to the total incomes of i

[5] Frankel (1997) shows the demand for variety increases with income leading to greater intra industry trade and higher overall trade.

and j, σ is the elasticity of substitution between goods from different countries, y_w is the nominal world income and r_{ij} is the trade resistance term.

Taking logs, using total trade as the dependant variable, and augmenting the standard gravity equation with the a number of trade resistance variables, a gravity model of the following form widely used in the literature is estimated:

$$\log t_{ijt} = \alpha + \beta_1 \log(y_{it} y_{jt}) + \beta_2 \log(GDP/Pop)_{it} + \beta_3 (GDP/Pop)_{jt} + \delta_i \log(Dist_{ij}) + \delta_2 Comlang_{ij} + \delta_3 Colony_{ij} + \\ + \delta_4 Col45_{ij} + \delta_5 Contig_{ij} + \delta_6 Curcol_{ij} + \delta_7 Smctry_{ij} + \tau_t + \varepsilon_{ijt} \quad (2)$$

Where, t_{ijt} refers to the bilateral trade between countries i and j at time t, GDP/Pop_{it} refers to the per capita income in country i at time t, $Dist_{ij}$ refers to the distance between countries i and j, and ε_{ijt} is the white noise disturbance term. We augment the basic gravity model with dummy variables to control for other trade resistance factors: *contig* refers to whether two countries are contiguous, *comlang* refers to whether they share a common language, *colony* refers to whether they have ever had a colonial link, *col45* refers to whether two countries have had a common colonizer after 1945, and *smctry* refers to whether the two countries were ever the same country. The gravity model is estimated for 180 countries in a panel from 1990 to 2006, with bilateral trade data drawn from the IMF's Direction of Trade Statistics. The data on macroeconomic variables is from the IMF's World Economic Outlook and the data on geographical and other trade resistance variables is from the Centre d'Etudes Prospectives et D'Informations Internationales (CEPII). Random effects estimation is used , as using fixed effects panel estimation would eliminate the important time invariant dummy variables and the distance variable. A time dummy to control for common shocks is also included.

15. **In line with recent advances in the literature, alternate specifications of the gravity model are also estimated.** Recent applications of the gravity model use imports[6] from country i to j instead of total trade to avoid the assumption that imports and exports follow the same pattern (Subramanian and Wei, 2007). This allows the introduction of importer and exporter fixed effects for all countries in the sample, which attenuates the omitted variable bias by controlling for all country specific characteristics not explicitly included in the regression. The second specification is of the following functional form:

$$\log im_{ijt} = \alpha + \beta_1 \log(y_{it} y_{jt}) + \beta_2 \log(GDP/Pop)_{it} + \beta_3 (GDP/Pop)_{jt} + \delta_i \log(Dist_{ij}) + \delta_2 Comlang_{ij} + \delta_3 Colony_{ij} + \\ + \delta_4 Col45_{ij} + \delta_5 Contig_{ij} + \delta_6 Curcol_{ij} + \delta_7 Smctry_{ij} + \eta_i + \gamma_j + \tau_t + \varepsilon_{ijt} \quad (3)$$

[6] Imports are used since data on imports is typically better than export data.

16. **The bilateral trade dataset includes a number of zero trade observations for countries that do not trade.** Since the model is in logs, many applications of the gravity model simply omit the zero trade observations. However, omitting zero trade observations essentially truncates the distribution at zero and leads to a bias. Other solutions for dealing with zero trade observations include replacing the zero observations by an arbitrarily small number. Regressions using both methods are estimated with little impact on the direction of the results. In addition, a non linear random effects Tobit model is estimated, which includes the zero trade observations thus taking into account truncated distributions.

17. **Table II.2 presents the results of the regressions. The sign of the coefficients are in the right direction, and significant for most variables.** Specifically, the coefficients on the economic size and the level of development are positive, while that on the distance between countries are negative. Dummy variables capturing the colonial links, common language, contiguous countries are all positive and significant. The regression with imports as the dependant variable also includes exporter and importer specific dummies for each country.

Table II.2. Panel Estimation of the Gravity Model.

	1	2	3	4
	Log (trade)	Log (trade)	Log (trade)	Log(imports)
Log(GDPi)	1.72	2.01	1.08	2.84
	(363.08)**	(108.59)**	(107.46)**	(23.82)**
Log(GDPj)	1.74	1.75	0.92	0.22
	(369.87)**	(90.66)**	(91.99)**	(11.85)**
Log (GDPpercapi)	0.31	0.13	0.25	2.27
	(47.14)**	(5.17)**	(18.97)**	(18.56)**
Log (GDPpercapj)	0.17	0.17	0.17	0.23
	(25.13)**	(6.88)**	(13.75)**	(11.92)**
Log (Dist)	-2.07	-2.10	-1.39	-1.63
	(169.74)**	(42.21)**	(53.33)**	(73.74)**
Contig	0.37	0.17	0.58	0.58
	(5.09)**	-0.55	(3.86)**	(5.54)**
Comlang	1.65	1.77	0.57	0.65
	(59.90)**	(15.64)**	(9.55)**	(12.96)**
Colony	0.57	-0.91	0.95	0.39
	(4.36)**	-1.69	(3.58)**	(2.13)*
Comcol	1.86	2.30	0.52	0.92
	(58.33)**	(17.61)**	(7.32)**	(15.49)**
Curcol	3.23	-4.16	-0.56	-2.68
	(5.41)**	-1.67	-0.45	(3.18)**
Col45	2.96	2.69	1.22	1.39
	(18.15)**	(4.02)**	(3.69)**	(5.92)**
Smctry	2.11	2.37	0.64	0.57
	(21.81)**	(5.87)**	(3.12)**	(4.00)**
Constant	3.84	3.11	6.82	5.17
	(35.33)**	(7.05)**	(29.70)**	(6.32)**
Method of estimation	Pooled OLS	Random Effects	RE Tobit	Random Effects
Importer and exporter dummies	no	no	no	yes
Time dummies	yes	yes	yes	yes
Regional dummies	yes	yes	yes	yes
Dummy for commodity producer	yes	yes	yes	yes
Observations	448322	227018	150564	131572
Number of id		13732	12081	22323

Absolute value of z statistics in parentheses.
* significant at 5 percent; ** significant at 1percent.

Table II.3 presents the comparison of actual trade and predicted trade patterns for Indonesia. It is found that Indonesia undertrades with the world economy by around US$90 billion or around 40 percent below potential trade(average 2000–06), after controlling for size, the level of development and geography.[7] Indonesia undertrades with the US, EU, and rest of Asia, specifically with China and Japan, while it overtrades with countries in Latin America, the Middle East and Africa. While the precise magnitude of the degree of undertrading needs to be interpreted with caution, the direction of the deviation from trade potential, i.e., the presence of undertrading suggests significant room to increase integration with the world economy and the region.

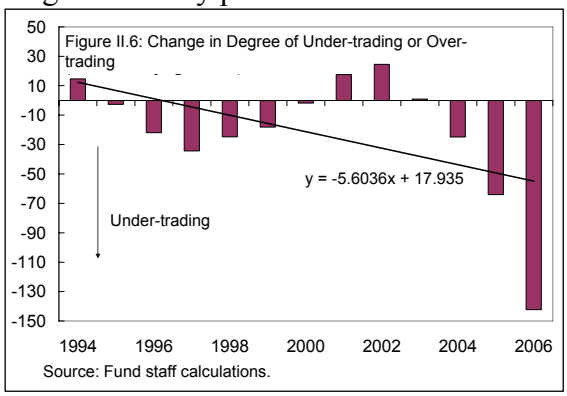
Table II.3. Indonesia: Actual Versus Predicted Trade
(In billions of US$, average 2000-2005)

	Actual trade	Predicted trade	Deviation from actual trade
Total	118.0	211.9	-93.9
Asia	77.3	123.1	-45.9
Australia	4.2	3.1	1.1
Brunei Darussalam	0.5	0.0	0.5
Cambodia	0.1	0.0	0.1
China,P.R.: Mainland	8.8	16.9	-8.2
Hong Kong SAR	1.9	0.9	0.9
India	2.8	2.5	0.3
Japan	21.2	81.7	-60.4
Korea	7.6	3.8	3.7
Lao People's Dem.Rep	0.0	0.0	0.0
Malaysia	4.5	4.0	0.5
Myanmar	0.1	0.0	0.1
New Zealand	0.5	0.0	0.4
Philippines	1.3	0.3	1.0
Singapore	15.4	6.7	8.7
Taiwan Prov.of China	3.7	1.9	1.8
Thailand	3.9	1.3	2.6
Vietnam	0.9	0.1	0.8
ASEAN 4	9.7	5.5	4.2
ASEAN 10	26.7	12.3	14.4
United States	12.2	56.2	-44.1
EU	11.3	22.5	-11.2

Source: IMF *Direction of Trade Statistics* , Fund staff estimates.

18. **In particular the results of the gravity model suggest that there is considerable undertrading with Japan and the US, and to some extent with China and the EU.** It is with respect to these countries that Indonesia's export market share has fallen since the mid-1990s. The structure of Indonesia's exports reveals the reasons for the undertrading with these countries. Indonesia exports mostly manufactures to the US, and in concert with a declining share in world manufactures, the market share in the US has declined, reflecting increased competition from China and Vietnam. Exports (value terms) of mineral fuels to Japan (which constitute more than 50 percent of exports to Japan) were falling until the uptick in 2005, but have rebounded following the rising commodity prices.

19. **The gravity model can also be used to analyze the changes in trade integration over time.** Comparing the difference between the actual and predicted levels of total trade over time suggests that the degree of undertrading has increased in Indonesia (Figure II.6). This is due to of Indonesia's diminishing export market share since the mid 1990s.



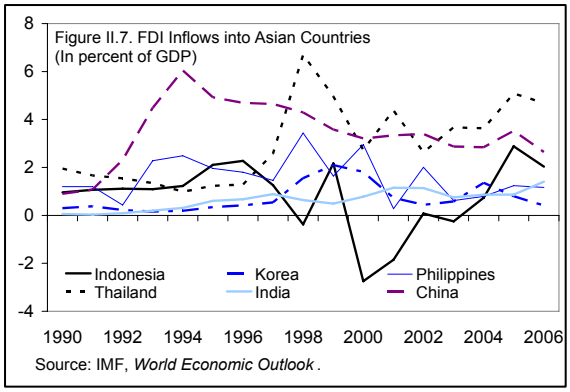
[7] Other East Asian countries overtrade with respect to their trade potential.

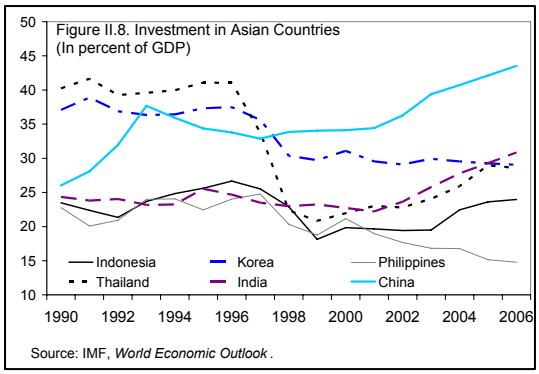
20. **The gravity model possibly underestimates the degree of undertrading as it does not include the effects of restrictive trade policies.** Previous research (IMF, 2002) has shown that coefficients on the measure of the degree of restrictiveness in the gravity model will be negative and significant. If we include the restrictiveness measure Indonesia's undertrading would be greater than in the baseline gravity model.

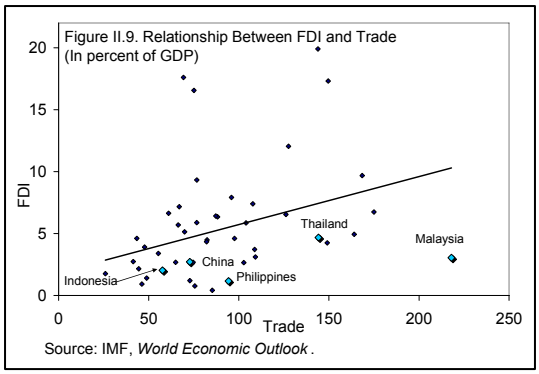
D. Impediments to Increased Integration

21. **Indonesia's relatively low trade integration can in part be explained by the fact that Indonesia has not taken advantage of the growing vertical specialization of global production (Athukorala, 2006a).** International product specialization, or the fragmentation of production and assembly within vertically integrated production processes across borders, has contributed to significant increases in trade integration (Hummels, Ishii, and Yi, 2001), particularly in East Asia. East Asia's market share of world trade in intermediate goods such as parts and components was the largest among developing countries (around 39.5 percent of exports of these goods in 2000), of which Indonesia's share is relatively small (0.5 percent). Using disaggregated data, it has been shown that in 2003–04 parts and components accounted for 9.1 percent of exports from Indonesia, compared with 36.3 percent in Malaysia, 59.6 percent in the Philippines, 45.2 percent in Singapore and 20.5 percent in Thailand (Athukorala, 2006b).

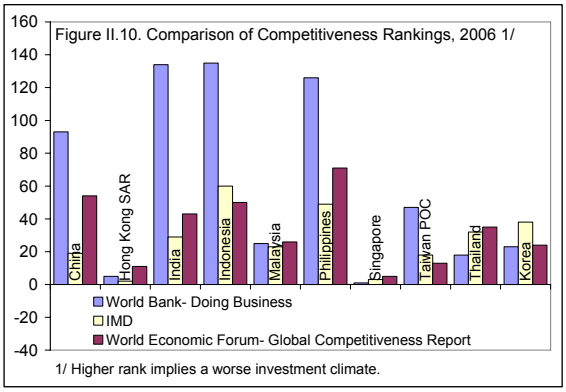
22. **FDI has played a significant role in the rapid expansion of vertical specialization in East Asia (Fukao, Ishido,and Ito, 2003).** Reflecting the deficiencies in the business climate (see below), investment- both foreign and domestic- has been lackluster. FDI into Indonesia remained significantly lower than most other countries in the region (as a percent of GDP) in the aftermath of the crisis, to pick up moderately in 2005 (Figure II.7). Domestic investment in Indonesia also lags, and has historically lagged, other Asian countries (Figure II.8). Detailed analysis at the sectoral level suggests that share of investment into sectors such as mining, metals, chemicals and paper, is not commensurate with their share in total exports (Appendix Table 1, Figure II.9).







23. **Survey based indicators of the business climate are useful to identify the structural impediments to increased international integration.** Indonesia ranks 135 out of 175 countries according to the World Bank's Doing Business database, while the International Institute for Management Development (IMD) and the World Economic Forum's Global Competitiveness Report place it as the lowest among selected Asian countries (Figure II.10). However, the recent approval of the investment and tax administration laws, as well as other reforms planned by the authorities, could be expected to change that.



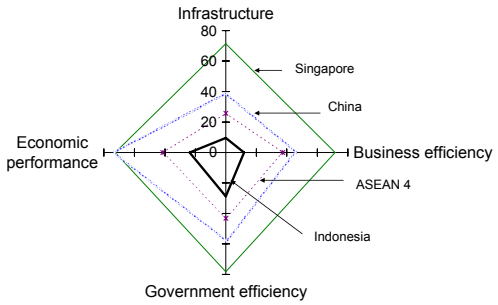
These surveys point to specific constraints posed by the investment climate:

- According to the IMD, Indonesia scores worse on business and government efficiency, infrastructure, and economic performance, with the infrastructure seen as the most important obstacle (Figure II.11).

- The World Economic Forum's Global Competitiveness Report cites the following as the most problematic factors in the business climate (in order of importance): the inadequate supply of infrastructure, inefficient government bureaucracy, policy instability, tax regulations, inadequately educated workforce, and restrictive labor regulation.

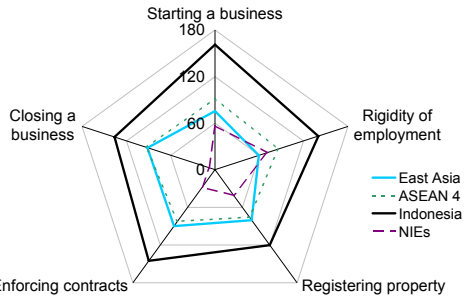
- More specifically, according to the World Bank's Doing Business database, it takes longer to start and close businesses, labor markets are more rigid, and it is more costly to enforce contracts, compared with other countries in the region (Figure II.12).

Figure II.11. Elements of Competitiveness, 2006



Source: IMD, *World Competitiveness Yearbook, 2006*.

Figure II.12. Ranking of Various Aspects of the Business Climate, 2006 1/



Source: World Bank, *Doing Business database*.
1/A higher rank implies a worse business climate.

E. Has Finance Followed Trade?: Trends in Regional Financial Integration

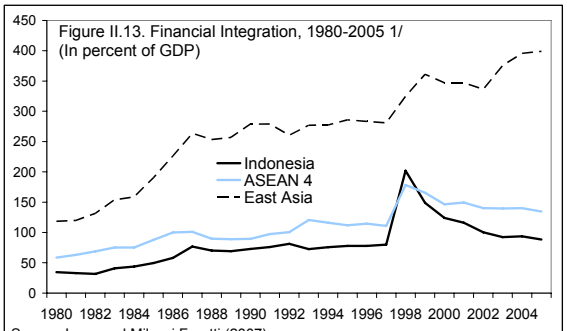
24. **The linkages between trade and financial integration has been shown in a number of empirical studies (Fukao, Ishido, and Ito, 2003; Lane and Milesi-Ferretti, 2000, Rose and Spiegel, 2002).** Financial integration refers to the extent to which domestic savings can be mobilized across national borders to achieve a more efficient allocation of capital, leading to lower cost of capital and higher returns. It can be measured by looking at bilateral cross border financial flows and stocks relative to the rest of the world. Analogous to trade integration, financial integration with respect to the world is usually measured as the share of foreign assets and liabilities as a percent of GDP. East Asia's integration into the global financial system has increased rapidly in the last two decades (Figure II.13). However, Indonesia's financial integration with respect to the rest of the world declined in the aftermath of the crisis, and it remains less integrated into the world economy than other Asian economies (Table II.4 and Figure II.13).

Table II.4. Financial Integration in Selected Countries

	Liabilities to GDP		Assets plus liabilties to GDP	
	1990	2005	1990	2005
Argentina	48.3	85.8	84.3	178.7
Brazil	34.1	64.1	45.1	87.7
Brunei	...	...	...	...
Cambodia 1/	84.9	113.1	96.0	180.2
China	19.3	43.5	38.9	97.8
India	27.7	35.7	29.9	56.9
Indonesia	**59.3**	**63.2**	**72.9**	**88.2**
Hong Kong SAR	617.5	593.9	1435.2	1434.9
Lao PDR 2/	205.9	150.0	215.3	170.4
Japan	50.3	60.3	111.4	153.9
Korea	20.4	68.0	35.5	116.7
Malaysia	69.9	102.5	121.6	196.8
Myanmar 2/	200.3	112.3	214.7	121.7
Philipinnes	77.7	90.3	95.0	131.6
Russia 1/	64.1	69.9	110.1	133.8
Singapore	166.8	408.9	363.5	1004.4
Turkey	39.5	76.0	48.9	104.9
Thailand	50.0	75.4	68.8	121.6
Vietnam 3/	83.8	76.5	96.2	104.0
ASEAN 10	102.1	143.3	147.6	270.5
ASEAN 4	64.2	82.8	89.6	134.6

Source: Lane and Milessi Feretti, 2007.
1/ 1993 data.
2/ 2004 data. 2005 not available.
3/ 1995 data.

Figure II.13. Financial Integration, 1980-2005 1/
(In percent of GDP)



Source: Lane and Milessi Feretti (2007).
1/ Financial integration is defined as foreign assets plus foreign liabilties as a percentage of GDP.

25. **Despite the rapid growth of intraregional trade in Asia, regional financial integration has not kept apace (Cowen, and others, 2006).** They argue that cross border financial flows between Asian and non Asian countries are greater than intraregional Asian flows. In the absence of

comprehensive bilateral data on cross border financial flows in Asia, it has been shown that indirect measures such as correlations of consumption growth of most Asian countries with other Asian countries are relatively low (Mercereau,2006), implying a low level of intraregional financial integration.

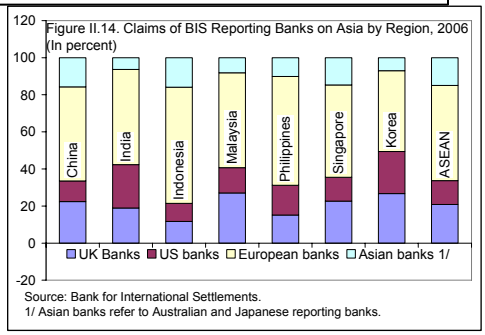
26. **Asia's cross border portfolio investment also shows that intraregional integration lags integration into global financial markets.** Data on bilateral stocks of portfolio investment from the IMF's Coordinated Portfolio Investment Survey (CPIS) show that the US and EU still constitute a more important source of portfolio investment inflows for Asian countries than other Asian countries (Table II.5). In the case of Indonesia, the US and EU account for twice as much portfolio investment from Asian countries (including Singapore).

Table II.5. Geographic Breakdown of Total Portfolio Assets, 2005
(In percent of total portfolio investment of the recepient country/region)

Investment in: \ Investment from:	US	EU-15	Asia	Emerging Asia	Industrial Asia	Indonesia
China	25.6	23.4	43.9	40.2	3.7	0.1
Hong Kong SAR	34.5	36.6	18.0	11.3	6.7	0.0
India	29.7	26.1	7.5	4.3	3.2	0.0
Indonesia	**31.8**	**25.2**	**26.7**	**24.7**	**2.0**	**0.0**
Japan	42.4	41.6	3.6	2.2	1.4	0.0
Korea	51.0	29.7	13.3	9.3	4.0	0.0
Malaysia	22.7	29.2	45.8	42.9	2.9	0.0
Myanmar	0.0	10.1	89.9	89.9	0.0	0.0
Philippines	32.9	45.3	16.0	9.6	6.3	0.0
Singapore	44.8	29.0	17.4	10.7	6.7	0.3
Taiwan POC	51.8	35.7	8.7	7.0	1.7	0.0
Thailand	34.1	35.9	24.5	22.1	2.4	0.0
Vietnam	27.3	62.0	4.4	3.3	1.1	0.0
US	...	40.4	18.3	2.1	16.2	0.0
EU-15	15.2	62.7	7.9	1.6	6.2	0.0
Asia	39.3	36.6	12.7	8.5	4.3	0.0
Emerging Asia	39.3	36.6	19.4	15.3	4.1	0.0
Industrial Asia	39.3	39.8	9.1	4.7	4.4	0.0

Source: IMF, *Coordinated Portfolio Investment Survey*.

27. **Intraregional cross border banking flows within Asia appear to be limited.** In most Asian countries, European, American and UK banks constitute a majority of the source of banking flows, with flows from



other Asian countries on average about 10 percent of the total claims of foreigners[8] (Figure II.14). This suggests that there is considerable scope for enhancing the regional integration of banking flows. In Indonesia, only 16 percent of banking inflows are from Asian countries. Eichengreen and Park (2005) study gross cross border banking flows (of BIS reporting banks), and use a gravity model to conclude that different levels of financial market development (as measured by bank credit as a share of GDP) compared with other regions mostly explains the lower financial integration in Asia. Greater intraregional trade within Europe than within Asia is also an important factor.

F. Conclusions

28. **This paper finds evidence that Indonesia is less integrated into world trade and region, than would be expected based on fundamentals.** In order to control for the various determinants of trade, a gravity model is estimated which provides a measure of predicted bilateral trade based on fundamentals, and is used to arrive at a measure of undertrading or overtrading relative to potential. It is found that that Indonesia undertrades relative to its potential by around US$90 billion, and the degree of undertrading has increased over time. Furthermore, financial integration has lagged trade integration. The low level of trade integration can be explained in part by the lack of investment, resulting from the deficiencies in the business climate, and the limited integration into the global production chains. There is hence large scope to increase integration with the world and regional economy, which has the potential to contribute significantly to raising growth and incomes, as it has happened in much of East Asia.

[8] It should be noted that only data on the BIS reporting banks are included. Australia and Japan are the only the Asian reporting countries for which data are publicly available through the BIS website. The omission of data on banks from Singapore and Hong Kong presents a significant limitation.

REFERENCES

Anderson, J.E., and E. vanWincoop, 2003, "Gravity with Gravitas: a Solution to the Border Puzzle," *American Economic Review*, 93 (1), 170–192.

Athukorala, P., 2006a, "Product Fragmentation and Trade Patterns in East Asia," Asian Economic Papers, 4 (3).

Athukorala, P., 2006b, "Post Crisis Export Performance: The Indonesian Experience in Regional Perspective," Bulletin of Indonesian Studies, Vol. 42, No.2.

Cowen, D., R. Salgado, H. Shah, L. Teo, and A. Zanello, 2006, "Financial Integration in Asia: Recent Developments and Next Steps," *IMF Working Paper* WP/06/196.

Eichengreen, B. and Y. C. Park, 2005, "Why Has There Been Less Financial Integration in Asia than in Europe?", *University of California, Berkeley Working Paper.*

Frankel, J., 1997, "Regional Trading Blocs in the World Economic System" (Washington: Institute for International Economics).

Fukao, K., H. Ishido, and K. Ito, 2003, "Vertical Intra-Industry Trade and Foreign Direct Investment in East Asia," *Institute of Economic Research Discussion Paper Series* A, No. 434.

Hummels D., J. Ishii, and K. Yi, 2001, "The Nature and Growth of Vertical Specialization in World Trade," *Journal of International Economics*, Volume 54, Issue 1.

International Monetary Fund, 2002, "Trade and Financial Integration," *World Economic Outlook*, Chapter 3, pp. 108–146.

Lane, P. R., and G.M. Milesi-Ferretti, 2000, "External Capital Structure: Theory and Evidence," *IMF Working Paper* 00/152

Mercereau, B., 2006, "Financial Integration in Asia: Estimating the Risk-Sharing Gains for Australia and Other Nations," *IMF Working Paper* WP/06/267.

Rose, A. and M. Spiegel, 2002, "A Gravity Model of International Lending: Trade, Default and Credit," *CEPR Discussion Paper* No. 3539.

Subramanian, A and S. Wei, 2007, "The WTO Promotes Trade, Strongly But Unevenly," *Journal of International Economics*, Volume 72, Issue 1, pp. 151–175.

III. INDONESIA, 1997 VS. 2007: HOW FAR HAS CRISIS VULNERABILITY BEEN REDUCED?[9]

A. Introduction

29. **Of all the emerging market economies hit by the 1997–98 financial crisis, Indonesia was most severely affected, and took longest to recover**. Output declined by 13 percent in 1998, while the rupiah had lost more than 80 percent of its value by June 1998. Unemployment, inflation and poverty soared. This happened despite Indonesia's economy appearing (at least superficially, based on headline macroeconomic indicators such as the current account deficit) in better shape prior to the crisis than some of the other affected countries. However, perhaps more than in any other country, the experience of the crisis triggered deep-rooted institutional reform.

30. **A key question for Indonesia, given the devastating effect of the 1997–98 crisis, is whether the changes to its economy and institutions in the intervening years have substantially reduced its crisis vulnerability**. The tenth anniversary of the onset of the crisis provides a good occasion for such an assessment.

31. **Financial crises can be caused by a multitude of factors**, and the literature on their genesis is exhaustive (see Allen and others, 2002 and Dornbusch, 2001). However, the causes can be grouped into four broad but inter-related groups:

- Macroeconomic policies, including unsustainable or mutually incompatible fiscal, monetary and exchange rate policies;
- Weaknesses in the financial and corporate sectors, including excessive risk-taking by firms and balance sheet mismatches;
- Contagion as a crisis in another country leads to a collapse in investor sentiment;
- Weak, inefficient or corrupt institutions that can create poor policies, exacerbate structural weaknesses, and undermine investor confidence, as well as delaying the response to a crisis once it occurs.

32. **The following sections discuss these factors in turn**, briefly commenting on their role in the 1997–98 Asian crisis. Indonesia's progress in overcoming these vulnerabilities is then assessed for each set of factors, both in absolute terms and relative to the other countries affected by the crisis to a greater or lesser extent (Korea, Malaysia, the Philippines, and Thailand). Overall, Indonesia has made significant progress since 1997, reflecting sound macroeconomic policies, institutional reform and, in recent years, a benign external environment.

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[9] Prepared by Christopher Crowe (ext. 35303), with thanks to Agnes Isnawangsih, Armando Morales, Romaine Ranciere and Wiwit Widyastuti for help with various data requests.

33. **Each "generation" of financial crises tends to arise from hitherto unknown or underappreciated vulnerabilities**. The final section therefore considers some new potential sources of vulnerability as cited by some analysts. In as far as these vulnerabilities can be quantified, risks here too seem relatively lower in the case of Indonesia relative to many other countries.

B. Macroeconomic Policies

34. **Macroeconomic policies have a central role in both the first and second generation currency crisis literature** (Krugman, 1979; Flood and Garber, 1984; Obstfeld, 1994). The role of macroeconomic policies lies in the tension between domestic and external policy objectives. In particular, if a country pursues external stability by pegging the exchange rate, while at the same time attempting to achieve domestic policy objectives via expansionary monetary, credit and/or fiscal policies, the currency will become overvalued in real terms and vulnerable to speculative attack.

35. **In fact, weak macroeconomic policies are not seen as having played a central role in any of the Asian crisis countries** (except perhaps in as far as policies such as maintaining a fixed exchange rate encouraged excessive private sector borrowing and poor risk management in the financial sector). Fiscal policy was conservative: Indonesia ran a surplus of 0–1 percent of GDP in the run-up to the crisis (Table III.1). While external current account deficits were quite high in Thailand and Malaysia, Indonesia's current account deficit was modest, at just over 2 percent of GDP, while the real exchange rate appreciated only mildly in the run-up to the crisis (Figure III.1) and did not appear over-valued in Indonesia (Goldstein, 1998).

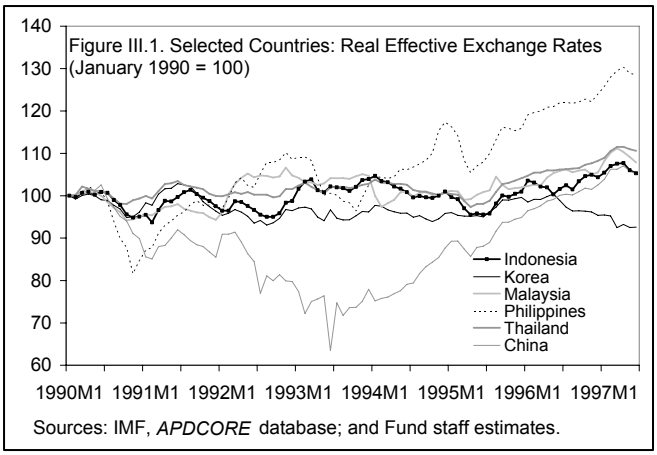
Table III.1. Selected Countries: Macroeconomic Indicators, 1992-2006

	Indonesia		Korea		Malaysia		Philippines		Thailand	
	1992-96	2002-06	1992-96	2002-06	1992-96	2002-06	1992-96	2002-06	1992-96	2002-06
External Current Account Balance (percent of GDP)	-2.2	2.2	-1.6	1.9	-6.0	12.9	-3.8	1.3	-6.3	1.2
Central Government Balance (percent of GDP)	0.0	-1.2	0.0	2.2	0.6	-4.5	-1.3	2.2	2.3	-0.4
M2 (growth rate, percent p.a.)	23.8	11.1	16.3	4.5	17.0	9.8	20.6	9.5	15.9	5.5
M2/GDP (average change, percentage points p.a.)	2.5	-1.6	0.5	-1.3	3.2	-0.7	2.5	-0.4	2.4	-3.1
Inflation	7.8	9.0	5.3	3.0	1.9	2.3	7.8	5.2	4.9	2.3

Source: IMF, *World Economic Outlook*.

36. **However, loose credit conditions and a fixed exchange rate encouraged risky lending (often in foreign currency) in a number of affected countries,** which created vulnerabilities in the corporate and financial sectors (Krugman, 1999). Money and credit growth was particularly rapid in Indonesia, with broad money growing at almost 25 percent per year during 1992–96. The M2/GDP ratio, an indicator of financial intermediation, expanded by around 2–3 percentage points per year, strongly suggestive of a credit boom. Rapid credit creation interacted with structural weaknesses in the financial sector to create new vulnerabilities (discussed below), particularly with respect to currency and maturity mismatches on financial and corporate sector balance sheets. Indonesia also placed itself open to speculative pressure (as did the other Asian crisis countries) by pegging its exchange rate.[10]

37. **Current macroeconomic policies in Indonesia are sound.** Fiscal deficits are modest and debt is declining, the external current account is in surplus, the exchange rate is more flexible (and the real exchange rate is estimated to be modestly undervalued; see IMF, 2007). While credit expansion has picked up recently, the M2/GDP ratio has declined to 40 percent (a 14 percentage point decline since 1998). A steady build-up of reserves and lower external borrowing has reduced the ratio of short-term debt to reserves to less than half of the pre-crisis level, well below the 100 percent level implied by the Greenspan-Guidotti rule. However, inflation remains higher and more volatile than in other regional economies, which could ultimately put pressure on the exchange rate.



C. Financial and Corporate Sector Weaknesses

38. **Rapid credit creation in the first half of the 1990s exacerbated structural weaknesses, particularly with respect to private sector balance sheets**. Much of the credit expansion was undertaken via overseas borrowing, mostly short term and denominated in foreign currencies. Moreover, the extent of the rapid build-up in external borrowing only

[10] According to the Reinhart and Rogoff (2004) de facto classification, Indonesia's and Korea's exchange rate regimes at end-1996 can be classified as crawling pegs, Malaysia's as a crawling band (with a tolerance zone of less than 2 percent around the central peg), while the Philippines and Thailand followed fixed pegs.

started to emerge mid-1997, contributing to the slide in confidence. Currency mismatch was encouraged by the exchange rate peg. By end-1996, Indonesia's ratio of short-term external debt to international reserves was more than 170 percent (Table III.2). Total borrowing by the nonbank private sector from international banks stood at almost two times reserves in mid-1997 (Table III.3). A significant portion of the foreign borrowing went into sectors, such as real estate, which tended to earn little or no foreign exchange. Domestic banks were also lending in foreign currency, which totaled more than 30 percent of total credit outstanding by the end of 1997 (of which one-tenth went to the property sector; Table III.4). Commercial banks were also borrowing significantly in foreign currency (including via foreign currency deposits), with total foreign currency liabilities representing more than 30 percent of total bank liabilities by end-1997.[11] Hence Indonesian banks were doubly squeezed once the crisis hit: devaluation significantly increased the value of their liabilities, while on the asset side corporate borrowers defaulted on their foreign currency loans.

Table III.2. Short term External Debt
(In percent of reserves)

	Indonesia	Korea	Malaysia	Philippines	Thailand
1996	175.1	222.8	40.8	77.4	126.0
1997	196.4	312.8	71.5	156.6	143.9
2005	73.9	31.3	17.4	39.5	31.5

Sources: WB, *World Development Indicators*; IMF, *International Financial Statistics*; and Fund staff calculations

Table III.3. Non-bank Private Sector Cross-border Borrowing
(From BIS-reporting banks, percent of reserves)

	Indonesia	Korea	Malaysia	Philippines	Thailand
1997 Q2	194.0	92.9	61.6	67.5	131.1
2006 Q3	56.0	20.0	24.9	42.5	18.6

Source: BIS Quarterly Review; and IMF, *International Financial Statistics.*

Table III.4. Commercial Bank Credit Outstanding, End of Year

	1997	2000	2006
Forex Lending, percent of total	30.8	43.3	18.8
Property Lending, percent of total	17.1	10.3	14.7
Forex property lending, percent of total property lending	16.2	23.8	5.6
Forex property lending, percent of total lending	2.8	2.4	0.8
Total Credit Outstanding, Rp. tn.	378.1	269.0	787.1

Source: Bank Indonesia.

39. **Lax prudential rules encouraged risky lending, leading to deteriorating asset portfolios**. Prior to the crisis, the ratio of non-performing loans (NPLs) to total loans was

[11] Source: CEIC.

almost 9 percent in Indonesia (Table III.5).[12] High pre-crisis NPLs demonstrated how connected lending and poor credit-risk management had jeopardized the health of the banking system. In addition, they made currencies more vulnerable to speculative attack by increasing the costs of an interest rate defense of the exchange rate anchor.

40. **Underlying weaknesses in the financial and corporate sectors helped to create these financial fragilities**. In Indonesia more than half of the corporate sector was controlled by just 10 families prior to the crisis (IMF, 2006). This concentrated ownership structure meant that risks were not well diversified, and also contributed to corporate governance problems (Turner, 2007). Moreover, many large corporate groups owned banks that lent intra-group significantly in excess of regulatory limits. Post-crisis, around half of lending by banks that failed and ended up under the control of the restructuring agency, IBRA, was found to be intra-group (Pangestu and Habir, 2002). Financial regulation and supervision was perceived to be improving in the run-up to the crisis.[13] However, post-crisis it was revealed that violations of prudential regulation (for instance, with respect to intra-group lending) were widespread, as was financial misreporting more generally. Partly, this reflected the concentrated and opaque ownership structure of the banking and corporate sectors, with a small number of players—well-connected politically—able to manipulate the system. Politically-connected banks were seen as "too important to fail," generating moral hazard problems. Regulatory and supervisory capacity at Bank Indonesia (BI) and elsewhere was inadequate (Pangestu and Habir, 2002).

Table III.5. Non Performing Loans Ratio
(In percentage points)

	Indonesia	Korea	Malaysia	Philippines	Thailand
1996	8.8	0.8	3.9	n.a.	7.7
Peak, 1997-98	>25.0	>25.0	12.0-25.0	10.0-15.0	>25.0
2005	8.1	1.0	9.6	8.6	9.1

Sources:
1996: BIS, 1997; quoted in Goldstein, 1998
1997-98: Ramos 1998, for Goldman Sachs; quoted in Goldstein, 1998
2005: Financial Soundness Indicators Consolidated Collection Exercise
Except Thailand: April 2007 Global Financial Stability Report
Malaysia: IMF Staff Estimates

[12] Substantial financial misreporting means that the pre-crisis NPL measures should be interpreted cautiously; they are almost certainly underestimates (so that the real improvement in credit quality is higher than that implied by the figures presented here).

[13] For instance, the Economist Intelligence Unit's assessment of the Indonesian banking sector in the first quarter of 1997 noted that "Although vulnerable on a number of counts—its poor asset quality, its overexposure to the property sector and its growing reliance on external funds—the sector is reasonably closely supervised."

41. **There have been significant improvements in financial sector regulation and supervision since the crisis**. Regulatory changes in the banking sector tightened rules on, inter alia, loan classification and provisioning, related-party lending, capital adequacy and foreign exchange rate risk (IMF, 2004 provides a detailed account of the reforms). There has also been an improvement in regulatory capacity at BI, and supervision is more regular and thorough. In addition, the restructuring of insolvent banks post-crisis removed banks from related corporate groups, helping to solve the related lending problem (IMF, 2006).

42. **However, weaknesses remain**. In the banking sector, the post-crisis restructuring has bequeathed a large share of the banking system (more than one third by assets) to state-owned banks, which generally have weaker financial performance and loan quality, and are more exposed to the potential for government interference in operational matters (Nasution, 2007). In the corporate sector, disclosure of cross-ownership can still be insufficient, and financial statements are still not fully consistent with international norms, while ownership remains concentrated (IMF, 2006).

43. **Improvements at the policy and institutional level have been reflected in a post-crisis recovery in financial and corporate sector indicators**. In the banking sector, NPL ratios have fallen significantly from their crisis peak, and are comparable to other countries in the region. The corporate sector is less leveraged, with debt-equity ratios having also fallen back to below the levels in other regional economies (Table III.6), and estimated corporate default probabilities are low and below the average for emerging market economies (EMEs) in the region (although this is also the case when a similar calculation is made using 1996 data; Table III.7). However, corporate performance differs by type of company. In particular, domestic firms with a concentrated ownership structure remain more vulnerable, as they tend to be both less profitable and more highly leveraged.[14] Banks' capital-asset ratios have increased significantly (Table III.8).[15] However, ratings agencies have been slow to upgrade their assessment of banks' underlying financial strength (Table III.9).[16] Ratings for Indonesian banks have improved more than in some countries, but less than in others (particularly Korean institutions).

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[14] Domestic firms with more than 40 percent of equity held by a single family or group have a debt/equity ratio of 144 percent and a return on assets of 0.3 percent, compared with an average of 109 percent and 1.4 percent (respectively) in the sample as a whole (the top 100 nonfinancial firms listed on the Jakarta Stock Exchange, data for 2005; Source: *Worldscope* database).

[15] However, Indonesia's high Capital Asset Ratios are partly the result of the illiquidity of the recapitalization bonds on the banks' balance sheets, which encourage holdings of additional liquid assets, primarily SBIs (Nasution, 2007).

[16] Fitch's Individual Ratings represent Fitch's assessment of the probability of a bank requiring financial support. Ratings vary from A through E (where E represents the greatest risk). The number of banks in each sample is shown in parentheses. Turner (2007) presents the Fitch ratings for end-1998 and end-2005, in addition to ratings by Moody's which show a very similar picture.

Table III.6. Corporate Debt as Percentage of Equity 1/

	Indonesia	Korea	Malaysia	Philippines	Thailand	Japan	USA
1996	95.2	267.5	100.4	76.0	165.9	194.3	140.9
1998	453.6	313.7	112.5	86.1	352.2	187.7	172.3
2004	80.5	115.4	98.2	124.3	100.3	200.3	145.3

Source: IMF, *Corporate Vulnerability Utility* database.
1/ Weighted by capitalization

Table III.7. BSM Probability of Default

	Indonesia	Korea	Malaysia	hilippines	Thailand	Asia EMEs (avg.)
1996	0.4	9.0	1.0	0.0	0.0	1.6
2005	0.7	0.4	2.3	0.6	0.6	0.8

Source: Fund staff estimates.

Table III.8. Bank Regulatory Capital
(In percent of risk weighted assets)

	Indonesia	Korea	Malaysia	Philippines	Thailand
1995 1/	11.9	9.3	11.2	n.a.	9.3
2006 2/	19.2	13.3	12.7	17.6 3/	14.3

Sources: Turner (2007); and IMF, *Global Financial Stability Report April 2007*.
1/ 1995 CARs can be regarded as overestimates, since inadequate provision made for impaired loan
2/ 2006 CARs: September (Indonesia and Korea); November (Malaysia and Thailand).
3/ Data for 2005.

Table III.9. Selected Countries: Fitch Individual Ratings on Banking Sector

	Indonesia	Korea	Malaysia	Philippines	Thailand
1998 1/	E (3)	E to D/E (8)	D/E to D (6)	D to C/D (5)	E to D/E (12)
2007 2/	D to C/D (12)	C to B/C (14)	D to B/C (11)	D/E to C/D (13)	D to B/C (10)

Source: Turner (2007) and Fitch Research.
1/ as of December.
2/ Most recent ratings, generally January - May 2007.

44. **There also appears to be less exposure to devaluation risk via international borrowing in foreign currency**. International bank lending (from BIS reporting banks) to Indonesian entities (public and private sector, including banks) remains below pre-crisis levels (Table III.10). Moreover, the proportion of such lending undertaken via local affiliates in local currency—as opposed to cross-border or locally in foreign currency—has quadrupled to around one-third, implying significantly lower currency mismatch for local borrowers. However, this proportion has increased even more markedly in Korea, Malaysia, and

Thailand. International borrowing by the nonbank private sector has declined from almost two times reserves in mid-1997, to just over one-half more recently, although the level of borrowing, as a proportion of reserves, remains the highest of the Asian crisis countries.

Table III.10 Lending to Selected Asian Countries by BIS- Reporting Banks 1/

	Indonesia		Korea		Malaysia		Philippines		Thailand	
	Total (US$ bn.)	Local (percent of total)	Total (US$ bn.)	Local (percent of total)	Total (US$ bn.)	Local (percent of total)	Total (US$ bn.)	Local (percent of total)	Total (US$ bn.)	Local (percent of total)
1997 Q2	63.5	7.5	113.5	8.9	37.5	23.1	19.3	26.8	78.5	11.7
2006 Q3	54.2	28.7	286.5	50.7	89.5	56.4	26.8	19.9	51.1	56.5

Source: Bank for International Settlements Quarterly Review (December 1997 and March 2007).
1/ Total: international claims (cross-border loans plus local loans in foreign currency) plus local loans (made through local affiliates in local currency).
Local: local currency loans made by local affiliates.

D. Contagion

45. **Contagion is seen as a critical component of the Asian financial crisis** (Baig and Goldfajn, 1998; Berg, 1999; Goldstein, 1998). For Indonesia, where macroeconomic fundamentals were largely benign and structural weaknesses did not show up until the crisis had broken out, contagion likely played a large role. Contagion (from country A to country B can occur via three channels (Goldstein, 1998): (i) direct real effects via bilateral trade and investment flows between countries A and B, (ii) speculative pressure on country B's currency as the devaluation in country A undermines B's external competitiveness, and (iii) a "wake up call" to investors as the perceived risks to investors in country B increase in response to the crisis in country A.

46. **Direct trade flows within East Asia were fairly limited prior to the crisis** (Goldstein, 1998). Investment flows, though harder to quantify, were likely equally insignificant. Competitive devaluation pressure could have played a role for some countries, although perhaps less so in Indonesia's case, due to less direct export competition in third-country markets. The "wake up call" view seems more plausible: market perceptions of risk across the region were excessively sanguine in the run-up to the crisis (reflected in stable or improving sovereign credit ratings and declining spreads). The onset of the crisis led to a rapid reassessment of risks and speculative pressure on the rupiah quickly mounted.

47. **Indonesia may have become more vulnerable to contagion from other regional economies**, principally via the investor sentiment channel. The potential for contagion via other channels has also increased, but remains small.

- Bilateral trade flows remain relatively low but have increased (Table III.11).

- Competitive devaluation remains an unlikely potential source of contagion, but here again risks have increased somewhat. Indonesia's export composition continues to differ from those of its principal regional competitors. According to the export similarity indices presented in Table III.12 (which vary between 0 and 100 and increase in export similarity), Indonesia's export pattern remains the most specialized. However, it has become a little more similar to those of regional counterparts over time.

- Regional financial markets are more integrated. To illustrate this increased integration, the Table III.13 shows the comovement of daily stock market returns in Indonesia and other regional economies during 1995 (pre-crisis), 1997–98 (the crisis period) and 2005–06 (to show recent behavior).[17] Greater comovement in stock returns is taken as evidence of greater market integration, creating heightened contagion risks.

Table III.11. Indonesian Exports
(In percent of total exports)

	1996	2005
ASEAN5+Korea	21.0	25.7
Korea	6.6	8.3
Malaysia	2.2	4.0
Philippines	1.4	1.7
Singapore	9.1	9.2
Thailand	1.6	2.6
Hong Kong SAR	3.3	1.7
China	4.1	7.8
Industrial Countries	58.5	48.0

Source: IMF, *Direction of Trade Statistics.*

[17] The comovement measure shown here is the unconditional correlation coefficient (Forbes and Rigobon, 2002) which attempts to control for the impact of heteroskedasticity (in periods of greater volatility, the correlation coefficient will tend to increase even if the underlying correlation structure does not change). The assumptions necessary for the unconditional correlation coefficient presented here to be unbiased are unlikely to be met; however, it is likely to be a less biased measure than the conditional correlation coefficient. The original data series are the daily stock market return (using the main stock market index for each country, in U.S. dollar terms). Contemporaneous correlations are obtained from the variance-covariance matrix of the errors from bivariate VARs run with 5 lags. Dummies for market closures in either market and returns on the New York market (current and lagged to 5 days) are included as controls (the latter controls for the influence of common shocks that influence both markets, which is distinct from spillovers from one market to the other). If ρ^* is the conditional correlation coefficient between the shock to stock returns in country A (assumed the source of contagion) and country B (assumed the victim of contagion, in this case Indonesia) then the unconditional correlation coefficient is given by:

$$\rho = \frac{\rho^*}{\sqrt{1+\left(\frac{\sigma_{A0}^2}{\sigma_{A1}^2}-1\right)\left(1-\rho^{*2}\right)}}$$; where $\left(\frac{\sigma_{A0}^2}{\sigma_{A1}^2}-1\right)$ denotes the change in the variance of the stock return in country A between the (low-variance) pre-crisis period 0 and the high-variance crisis period 1. In the calculations presented here, for comovement with respect to Indonesia, country A is the country denoted in the first row of the table and country B is Indonesia; period 0 is 1995, while period 1 is either 1997–98 or 2005–06.

Table III.12. Export Similarity, Indonesia and Selected Economies, 1996 and 2005

	Indonesia	Korea	Malaysia	Philippines	Thailand	China
1996 Export Similarity Index						
With respect to Indonesia	...	28.6	36.4	25.4	36.5	35.5
Average with respect to all other 5 economies	32.5	36.8	40.9	37.9	41.9	37.0
2005 Export Similarity Index						
With respect to Indonesia	...	25.6	41.6	26.5	40.0	36.3
Average with respect to all other 5 economies	34.0	37.6	43.8	34.9	43.3	40.6

Source: Comtrade, via WITS, and IMF Staff Calculations.
Notes: [18]

Table III. 13. Estimated Comovement of Daily Stock Returns, Indonesia and Selected Countries.

	Hong Kong	Korea	Malaysia	Philippines	Singapore	Thailand	Average
1995	.39	.08	.40	.46	.47	.38	.37
1997-98	.19***	.02	.13***	.21***	.25***	.14***	.16
2005-06	.57***	.37***	.65***	.28***	.59***	.32	.47

Sources: Bloomberg, Datastream, and Fund staff calculations.
***: signifies that corrected correlation coefficient is significantly different from the 1995 measure at the 1 percent significance level (only with respect to individual countries).
Average is unweighted mean for all six countries.

- According to this measure, comovement generally declined during the crisis period, possibly reflecting the rather different patterns of crisis and recovery in the different countries.

- The degree of comovement in 2005–06 is generally higher than during either the pre-crisis or crisis periods (for Indonesia and most of the other countries). This would tend to suggest that Indonesia's vulnerability to contagion has increased.

[18] Following Finger and Kreinin, 1979, the Index of Export Similarity is defined as:
$S(ab,c) = 100.\sum_i Min.[X_i(ac), X_i(bc)]$ where *a* and *b* are the two countries whose export patterns are being compared, *c* is the third market (in this case, the world), and $X_i(ac)$ etc. is the share of good *i* in country *a*'s total exports to market *c*. Goods are defined using the 4-digit SITC code. The average is a simple unweighted mean.

E. Institutions

48. **In many of the Asian crisis economies there were very close links between governments, banks and large corporations in their very successful growth phase in the run-up to the crisis** (Wyplosz, 2007). In Indonesia, banks were often owned by corporate groups with strong political connections (Hill and Shiraishi, 2007). The resulting problems of connected lending, poor credit quality and weak supervision undermined the banking sector and contributed to its collapse in 1997–98 (see section C). In addition, links between particular banks and political groups meant that political instability could trigger bank runs which were only halted when the banks' assets were taken over by IBRA (Pangestu and Habir, 2002). Generally, these problems, which were well-known prior to the crisis, were reflected by high perceived levels of corruption (Table III.14).[19]

Table III.14. Corruption Perception Index Rankings
(Percentile)

	Indonesia	Korea	Malaysia	Philippines	Thailand	China	India	Coverage
1996	83.3	50.0	48.1	81.5	68.5	92.6	85.2	54
1998	94.1	50.6	34.1	67.1	75.3	61.2	80.0	85
2006	82.2	26.4	27.0	77.3	39.9	43.6	45.4	163

Source: Transparency International.

49. **Since the crisis, the institutional environment in Indonesia has improved significantly** (Hill and Shiraishi, 2007). Political reforms to decentralize power have complimented improvements to financial regulation and supervision outlined in Section C, helping to reduce vulnerabilities stemming from close corporate-political ties. This broad institutional transformation has also been associated with decreased perceptions of risk and instability, which have fallen

Table III.15. Selected Countries: Risk Ratings
(Rating from 0 to 100)

	Indonesia	Korea	Malaysia	Philippines	Thailand
Overall Political Risk Rating					
Jan-May 1997	33.0	18.8	21.4	31.2	24.8
Peak, 1998-99	60.0	28.0	34.0	31.0	34.0
Jan-May 2007	39.5	27.5	23.6	38.5	42.9
Corruption					
Jan-May 1997	50.0	33.3	33.3	50.0	50.0
Peak, 1998-99	83.3	50.0	50.0	50.0	66.7
Jan-May 2007	56.7	58.3	53.3	66.7	75.0
Government Instability					
Jan-May 1997	11.7	18.3	8.3	16.7	31.7
Peak, 1998-99	58.3	25.0	33.3	33.3	41.7
Jan-May 2007	36.7	62.5	20.8	53.3	40.0

Source: *International Country Risk Guide.*

[19] For instance, according to the 1996 Corruptions Perceptions Index (CPI; Transparency International's survey-based measure of perceived corruption in a cross-section of countries), Indonesia, the Philippines and Thailand were perceived to be more corrupt than average (Table III.14). In 1995 Indonesia topped the global survey.

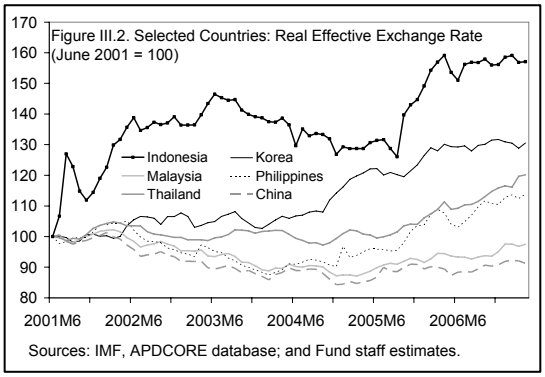
furthest from their crisis peak among affected countries (Table III.15). Although concerns remain with respect to perceived levels of corruption, there has been progress in this area too.[20]

F. New Sources of Vulnerability

50. **While Indonesia generally appears less vulnerable now with respect to the crisis risks relevant in 1997, hitherto underappreciated sources of vulnerability tend to emerge from each new crisis**. These are difficult to identify ex ante; however, some analysts have attempted to identify new potential sources of risk for the economies hit by the 1997–98 crisis.

51. **One potential source of risk is the alleged pursuit of policies that do not permit the exchange rate to appreciate, with the goal of boosting exports and economic growth** (Roubini, 2007). According to this view, undervalued exchange rates can increase vulnerabilities by encouraging asset price bubbles and a more rapid growth in the money supply (via only partial sterilization of the reserves build-up and below-equilibrium interest rates). Asian economies are therefore vulnerable to a growth slowdown outside Asia that could trigger an export-led slump and rapid reversal of asset prices, leading to a collapse in confidence and, potentially, second-round effects on the exchange rate, inflation and output.

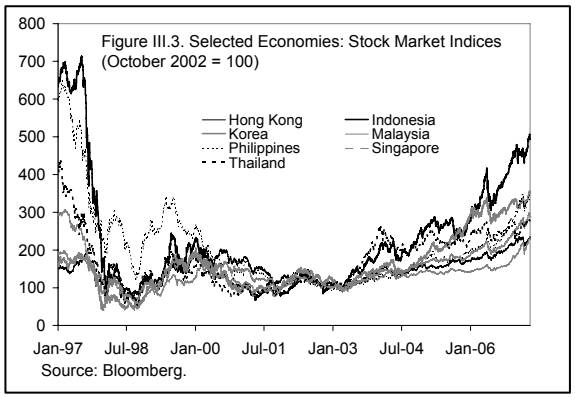
52. **Recent developments in Indonesia are not consistent with this model**. Indonesia is less dependent on export-led growth than many other emerging market countries and the reserve build-up has been more modest. In addition, the rupiah has shown considerable flexibility in nominal terms. It has also appreciated by more than 50 percent in real effective terms in the last six years, though much of the real appreciation reflects above-average inflation (Figure III.2).[21]



[20] The two sets of corruption indicators presented here give contrasting pictures for the recent period, suggesting that some caution is needed in interpreting the indicators. The difference reflects in part that the former shows relative global rankings, while the latter gives absolute scores. Hence, Indonesia's score has improved recently in absolute terms, but is less impressive set against a downwards trend in perceived corruption globally. Moreover, the ICRG scores are more focused on perceived concerns for international investors, whereas the CPI has a broader civil society focus.

[21] The nominal effective exchange rate has also been on an upwards trend since September 2005, appreciating by around 8 percent (by April 2007).

53. **As regards asset prices,** over the course of the current bull market (dated from the start of the pick-up in the Hong Kong stock index in October 2002) the U.S. dollar value of Indonesian stocks has increased by around 400 percent, ahead of other regional stock markets (Figure III.3). However, Indonesia's markets were in large part recovering from the prolonged historically low stock values following the crisis and catching up with the recoveries that occurred earlier in the other crisis countries. Good corporate performance and improving macroeconomic indicators supported the recovery. Nevertheless, in Indonesia price/equity ratios, while below historical (pre-crisis) levels, are now above those in the other Asian crisis countries, and still on an upwards trend.[22] Hence, while the surge in stock prices does not necessarily imply the existence of a bubble, it does create the possibility of a reversal.

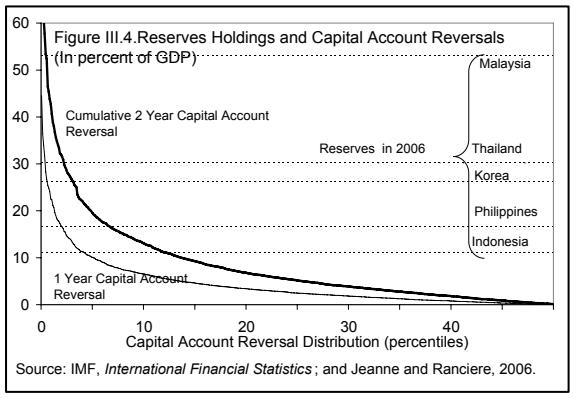


54. **The recent pick-up in the volume of portfolio inflows has been of concern to the authorities**. In particular, the short-term nature of the inflows creates a worry that, as in 1997–98, they could be quickly reversed, leading to a collapse in asset prices and a loss of reserves. However, inflows have largely been into liquid government and central bank certificates, rather than illiquid loans to the corporate or financial sector. Hence, a rapid reversal of the inflows could potentially affect asset prices, but is unlikely to have the kind of real effects, via corporate and banking sector balance sheets, that occurred during the crisis. In addition, the capital and financial account surplus has averaged less than 1 percent of GDP in recent years as some banks and corporates have been repaying loans, while the current account has remained in surplus, with the substantial overall surplus leading to reserves accumulation. This suggests that even a quite substantial portfolio outflow could be accommodated without necessitating a drawdown in reserves.

[22] The weighted average price-equity (PE) ratio for April 2007 was around 18.2, compared with an average of 21.4 for the pre-crisis period (January 1992–July 1997; Data from CEIC). A fuller assessment of asset price sustainability would compare PE ratios with forecasts of future earnings, which is beyond the scope of the current chapter.

55. **Another concern is that despite the significant reserves accumulation, the level of reserves is still insufficient to fully deter or provide cover against speculative attacks or sudden stops**.[23] For instance, Wyplosz (2007) argues that, while the Asian crisis countries have done much to reduce vulnerabilities, including by significantly building reserves, the level of reserves required to defend the currency in all circumstances is prohibitively large, particularly given the volume of global capital flows and an increase in investors' risk appetite (that makes the demand for emerging market assets more elastic with respect to expected yield differentials). Therefore, traditional benchmarks of reserves adequacy may paint too complacent a picture.[24]

56. **To illustrate this point, the level of reserves can be compared with the kind of capital account reversals associated with sudden stops and financial crises**. Table III.16 shows reserves holdings (as a percentage of GDP) in the Asian crisis countries (and three other emerging market comparators) in 1996 and 2006, set against the capital account reversals that occurred in 1997–98.[25] Clearly, the level of reserves in Indonesia in 1996 was insufficient to cover the capital account reversal experienced in 1997 and 1998. Moreover, the level of reserves in 2006 remains at around half the level required to cover a reversal of similar magnitude (as a share of GDP).



[23] A sudden stop (defined as a substantial reversal of the capital account), from the basic Balance of Payments identity, must be covered by a combination of a movement toward surplus in the current account and the rundown of reserves. To the extent that reserves depletion cannot cover the capital account reversal, then the current account must move into surplus, generally requiring a significant real exchange rate depreciation as well as a contraction in domestic demand (this is the 'transfer problem' highlighted by Krugman, 1999). Passthrough to inflation means that the nominal depreciation required for a given real depreciation is significant, while lower domestic demand implies a substantial recession which impacts on firm solvency. These heightened currency and solvency risks exacerbate the balance sheet problems highlighted in Section C.

[24] Jeanne and Ranciere (2006) calibrate an optimal reserves holding model and find that the optimal level of reserves is close to that implied by the Greenspan-Guidotti rule. However, their model differs from Wyplosz's in assuming exogenous crises (with reserves having a mitigating role on the crisis's effect on consumption), whereas Wyplosz's model is essentially a bank run model with endogenous crises potentially occuring when reserves are below a threshold. This threshold can be extremely high.

[25] The crisis years differ for the non-Asian comparators (see notes accompanying the table).

57. **Reserves can also be compared against the full spectrum of capital account reversals ('sudden stops') experienced globally**. Figure III.4 compares reserves holdings (as a percentage of GDP, end-2006) in the Asian crisis countries against the percentiles of the capital account reversals experienced in a wide sample of countries (up to 150, depending on the year) over 1976–03, taken from Jeanne and Ranciere's (2006) dataset. The extent of additional reserves accumulation required to cover the most extreme events would clearly be large for Indonesia (as for the other countries shown, with the exception of Malaysia). For instance, Indonesia's reserves at end-2006 would be insufficient to cover around 4 percent of the 1-year capital account swings experienced globally between 1976 and 2003, and around 12 percent of the 2-year swings.[26] This suggests that some additional reserves accumulation might be desirable. However, the cost of holding additional reserves (including sterilization costs and potential negative valuation effects) need to be balanced against the benefits. Other risk mitigation policies may be less costly, though only effective in the medium term: these could include policies to promote financial market liquidity (to minimize the effect of sudden capital outflows on asset prices and the exchange rate) and a heightened emphasis on financial sector surveillance (to minimize the risk of a sudden stop caused by a collapse in investor confidence).

Table III.16. Reserves and Capital Account Reversals
(In percent of GDP)

	Asian Crisis Countries					Other EMEs		
	Indonesia	Korea	Malaysia	Philippines	Thailand	Brazil	South Africa	Turkey
Reserves								
1996	8.2	6.4	27.0	12.5	21.0	7.8	0.9	12.1
2006	11.1	26.2	53.1	16.6	30.2	7.9	9.4	15.0
Capital Account Reversal								
1st year	-6.9	-7.2	-4.9	-8.5	-19.4	-4.7	-3.1	-14.2
2nd year	-6.4	-1.4	-1.4	-1.9	-5.1	0.7	1.5	11.9
Combined	-20.1	-15.8	-11.1	-18.9	-43.9	-8.7	-4.7	-16.4

Source: IMF, *International Financial Statistics;* and Jeanne and Ranciere (2006).
Capital Account Reversals: 1997-98 (Asia), 2002-03 (Brazil), 2001-02 (Turkey) and 2000-01 (South Africa)
Capital account reversal defined as the change in the capital account as a percentage of GDP (y/y)
Combined reversal defined as 1st year plus the cumulative 1st and 2nd year (total 2nd year vs. baseline)

G. Conclusions

58. **Indonesia has come a long way in overcoming macroeconomic vulnerabilities since 1997**. Monetary and fiscal policies remain cautious, helping to reduce external and public debt levels and build up foreign exchange reserves. The exchange rate is more

[26] The sample of countries includes some very small and open economies which typically experience much greater capital account swings; hence, a relatively large and closed economy such as Indonesia is probably less likely to experience a shock of a given high magnitude than the probability implied by the full distribution of capital account reversals.

flexible, increasing the economy's resilience and reducing the risk of a speculative attack. In the financial sector, the recapitalization and reorganization of the banking sector, greatly improved regulation and supervision, and less exposure to foreign exchange risk help to minimize risks. Broader institutional reforms help to reduce the risk of a repeat of the close political-corporate links that helped to create financial sector vulnerabilities in the 1990s.

59. **Nevertheless, vulnerabilities have not been eliminated.** Regional capital markets are more integrated, presenting opportunities for risk diversification but also increasing the potential for financial contagion. Recent large capital inflows are presenting challenges to policymakers. There are risks from a sharp tightening in global financial conditions, as for all countries, although there is no evidence that Indonesia faces a disproportionate risk (e.g. because of significant exchange rate misalignment or an asset price bubble). The build-up of reserve assets in recent years helps to insulate Indonesia against the risk of a sudden stop, although it should be recognized that these shocks can potentially be extremely large, even compared with Indonesia's increasing stock of reserves.

REFERENCES

Allen, Mark, Christoph Rosenberg, Christian Keller, Brad Setser, and Nouriel Roubini, 2002, "A Balance Sheet Approach to Financial Crisis." IMF Working Paper WP/02/210. Washington, DC: International Monetary Fund.

Baig, Taimur and Ilan Goldfajn, 1998. "Financial Market Contagion in the Asian Crisis." IMF Working Paper WP/98/155. Washington, DC: International Monetary Fund.

Bank for International Settlements (BIS), 1998, *68th Annual Report*. Basle: Bank for International Settlements.

Berg, Andrew, 1999, "The Asia Crisis: Causes, Policy Responses, and Outcomes." IMF Working Paper WP/99/138. Washington, DC: International Monetary Fund.

Dornbusch, Rudiger, 2001, "A Primer on Emerging Market Crises," NBER Working Paper 8326. Cambridge, Massachusetts: National Bureau of Economic Research.

Finger, J.M. and M. E. Kreinin, 1979, "A Measure of 'Export Similarity' and Its Possible Uses," *The Economic Journal* 89, pp. 905–912.

Forbes, Kristin and Roberto Rigobon, 2002, "No Contagion, Only Interdependence: Measuring Stock Market Comovements." *The Journal of Finance* 57 (5) pp. 2223–61.

Goldstein, Morris, 1998, "The Asian Financial Crisis: Causes, Cures and Systemic Implications," *Policy Analyses in International Economics 55*, June. Washington, DC: Institute for International Economics.

Hill, Hal and Takashi Shiraishi, 2007. "Indonesia After the Asian Crisis." *Asian Economic Policy Review* 2, pp.123–141.

International Monetary Fund, 2007. "Indonesia: Staff Report." Washington, DC: International Monetary Fund.

International Monetary Fund, 2006. "Corporate Sector in Indonesia: Financial Performance and Underlying Vulnerabilities." In International Monetary Fund, 2006, "Indonesia: Selected Issues." (Washington, DC).

International Monetary Fund, 2004. "Assessing Indonesia's Banking Sector Reforms." In International Monetary Fund, 2004, "Indonesia: Selected Issues." (Washington, DC)

Jeanne, Olivier and Romain Ranciere, 2006. "The Optimal Level of International Reserves for Emerging Market Countries: Formulas and Applications." IMF Working Paper WP/06/229. (Washington, DC: International Monetary Fund).

Krugman, Paul, 1999, "Balance Sheets, The Transfer Problem and Financial Crises," (mimeo, MIT, January 1999, http://web.mit.edu/krugman/www/FLOOD.pdf).

Nasution, Anwar, 2007. "Comment on 'Are Banking Systems in East Asia Stronger?'" *Asian Economic Policy Review* 2. pp. 96–97.

Pangestu, Mari and Manggi Habir (2002), "The Boom, Bust and Restructuring of Indonesian Banks," IMF Working Paper 02/66. (Washington, DC: International Monetary Fund).

Reinhart, Carmen and Kenneth Rogoff, 2004. "The Modern History of Exchange Rate Arrangements: A Reinterpretation." *Quarterly Journal of Economics* 119 (1), pp. 1–48.

Roubini, Nouriel, 2007. "Asia is Learning the Wrong Lessons from its 1997–98 Financial Crisis: The Rising Risks of a New and Different Type of Financial Crisis in Asia." New York: New York University, Mimeo. First Draft, May 2007.

Turner, Philip, 2007. "Are Banking Systems in East Asia Stronger?" *Asian Economic Policy Review* 2, pp. 75–95.

Wyplosz, Charles, 2007. "Is East Asia Safe from Financial Crises?" HEI Working Paper No. 2/2007. Geneva: Graduate Institute of International Studies.

IV. Building a Financial Safety Net in Indonesia[27]

The introduction of a financial safety net (FSN) in Indonesia was completed in March 2007 with the phasing-out of the blanket deposit guarantee introduced at the time of the crisis. The FSN is aimed at preventing financial instability by clarifying responsibilities in the provision of lender-of-last resort facilities, the administration of the explicit limited deposit protection, the management of bank resolution processes, and the monitoring of systemic risks. Next steps include improving information flows, eliminating overlaps, and enhancing legal certainty.

A. Background

60. **The absence of a preventive framework prior to the 1997–98 financial crisis contributed to its severity.** In the decade prior to the crisis, financial liberalization resulted in easy entry of new participants and inadequate exit provisions for failed institutions. Over time, governance problems in the corporate and banking sectors became widespread in the context of poor enforcement of prudential regulations. In handling the crisis, weak institutions, the absence of a preventive framework, and protracted delays in implementing measures conspired against generating public trust in the authorities' plans.

61. Specific problems related to the absence of an FSN during the crisis were the following:

- **Weak prudential regulation and supervision did not allow for a timely identification of bank problems.** Serious institutional and governance shortcomings hampered the effectiveness of prudential monitoring. Once the extent of delinquent loans and connected lending became evident, it was found that "state banks had been used as vehicles for directed lending to noncommercial ventures, and private banks as vehicles for channeling deposits to the owners." [28]

- **Difficulties in distinguishing between illiquid and insolvent banks led to an indiscriminate use of Lender-of-Last-Resort (LOLR) facilities.** Once problems erupted, Bank Indonesia (BI) provided massive liquidity support without being in the position to discern between illiquid and insolvent institutions. By mid-1998, the use of BI's Lender-of-Last-Resort Facility (BLBI) reached the equivalent of 14 percent of GDP, mostly extended against personal guarantees (in the absence of usable collateral), in a process plagued with irregular practices.

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[27] Prepared by R. Armando Morales (APD). Special thanks to Steven Seelig, who provided guidance and background information, and to Edo Mahendra and Wiwit Widyastuti (IMF Jakarta Office) for their valuable research assistance.

[28] Enoch, Charles; B. Baldwin; O. Frecaut; and A. Kovanen. Indonesia: Anatomy of a Banking Crisis: Two Years of Living Dangerously; IMF Working Paper No. 01/52, Washington D.C., 2001.

- **The absence of a framework for the provision of deposit guarantees contributed to depositors' uncertainty.** Limited ad-hoc deposit refunds applied to closed banks failed to inspire confidence.[29] By the time a bank-restructuring plan based on a blanket guarantee was introduced, a large share of deposits had already been moved out of the domestic banking system.

- **Undue delays in making and implementing decisions regarding bank restructuring led to higher than necessary loss of banks' asset value.** Although a bank resolution package was announced at the beginning of November 1997, Indonesia introduced a bank restructuring process only in January 1998, managed by the Indonesia Bank-Restructuring Agency (IBRA), a combined bank-restructuring and centralized public asset management agency. That stopped the drain of deposits, but the costs in terms of fiscal resources reached about 40 percent of GDP. IBRA itself did not always manage the process in a timely manner.[30]

- **An unclear allocation of responsibilities in the absence of an appropriate legal framework, led to inconsistent decisions in handling banks' failure.** For example, the authorities' reluctance to close banks that later proved insolvent led BI to turn LOLR outstanding obligations into long-term low-interest subordinated loans. On banking resolution, the absence of legal liquidation provisions specific to banks slowed down unnecessarily the recapitalization of problem banks.

62. **Following the crisis, the authorities decided to introduce a preventive framework in the form of an FSN supported by an explicit limited deposit guarantee.**[31] The 1998 banking law already anticipated the introduction of a deposit guarantee scheme, and revisions to the central bank law in 2004 facilitated the re-introduction of LOLR capabilities for BI. The latter had been removed in 1999 following BLBI mismanagement problems. The intended purpose of the FSN was to establish the roles of different institutions (BI, Ministry of Finance, Deposit Guarantee Agency) in the monitoring of systemic risks and the handling of financial problems. With the introduction of the FSN, ad-hoc arrangements are not necessary, and therefore fewer opportunities for political interference are available. Other countries in the region also moved towards introducing FSNs, with features consistent with the specific situation of their financial systems (Box IV).

63. **Ten years after the crisis, the main components of a comprehensive financial safety net are in place.** The blanket guarantee used at the time of the financial crisis as a short-term crisis management tool has been phased out, and the roles of participating institutions have been established (Figure IV.1):

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[29] Batunanggar, Sukarela; Financial Safety Nets: Review of Literature and its Practice in Indonesia, in Financial Stability Review II-2006, Bank Indonesia, Jakarta, 2006.

[30] Some delays also occurred because of overall institutional deficiencies rather than IBRA-specific problems.

[31] The government's plan to introduce a financial safety net was incorporated into the 2000 EFF program with the Fund.

- The necessary regulations to make LOLR facilities operational have been introduced.

- A deposit guarantee agency (LPS) is now functioning, and a new deposit guarantee scheme is in place following the transition period completed in March 2007. A bank resolution framework was introduced in the LPS law, and is now operational.

- A Financial Stability Forum (FSF), with participation of BI, the Ministry of Finance (MoF) and the LPS, has been established to coordinate the government's actions with regard to systemically important institutions experiencing difficulties.

64. **The introduction of the FSN has been accompanied by significant improvements in banking supervision, in an environment of overall macroeconomic and financial stability.** This is consistent with good practices.[32] Critical regulatory measures were adopted in the aftermath of the crisis, including improved loan-loss provisioning regulations; a timetable to phase out regulatory forbearance on capital requirements, bringing back capital adequacy requirements from 4 percent to 8 percent of risk-weighted assets by 2001; and narrowing legal lending limits. The 1999 central bank law granted BI additional regulatory and enforcement authority, which allowed BI to introduce the gradual adoption of risk-based supervision; measures to improve banks' transparency; enhanced on-site supervisory capacities; and fit-and-proper tests for controlling shareholders and bank management. In recent years, the supervisory framework has been further improved by introducing good corporate governance regulations; and exercising surveillance more closely through teams of bank supervisors.

65. **This paper aims at assessing the suitability of the new framework to respond to possible bank problems.** In this regard, the paper discusses the different components of the FSN, especially design issues and potential costs, and evaluates the main sources of risks and corresponding challenges, taking into account international experience.

[32] See Garcia, Gillian G. H.; Deposit Insurance: Actual and Good Practices, IMF Occasional Paper No. 197, Washington, DC, 2000.

BOX IV.1. FINANCIAL SAFETY NET: INTERNATIONAL EXPERIENCE AND REGIONAL DEVELOPMENTS FOLLOWING THE ASIAN FINANCIAL CRISIS

Financial safety nets in different countries have evolved in line with specific financial and institutional circumstances. In the US, the disastrous savings-and-loans experience in the 1980s motivated stricter FDIC regulations and provisions for Federal Reserve emergency lending. In the EU, major bank failures (BCCI in 1991 and Barings in 1995) led to agreement on a basic framework to resolve financial institutions and their branches as a single entity (2001 Directive on the Reorganization and Winding-Up of Credit Institutions). In Japan, the banking resolution framework has been revised several times to incorporate lessons from the prolonged experience in dealing with troubled banks. In Australia, a highly concentrated banking system has allowed authorities to handle bank failures case-by-case, but the government has plans to introduce formal procedures for handling bank distress.

The Asian crisis influenced decisions regarding the FSN in several countries in the region:

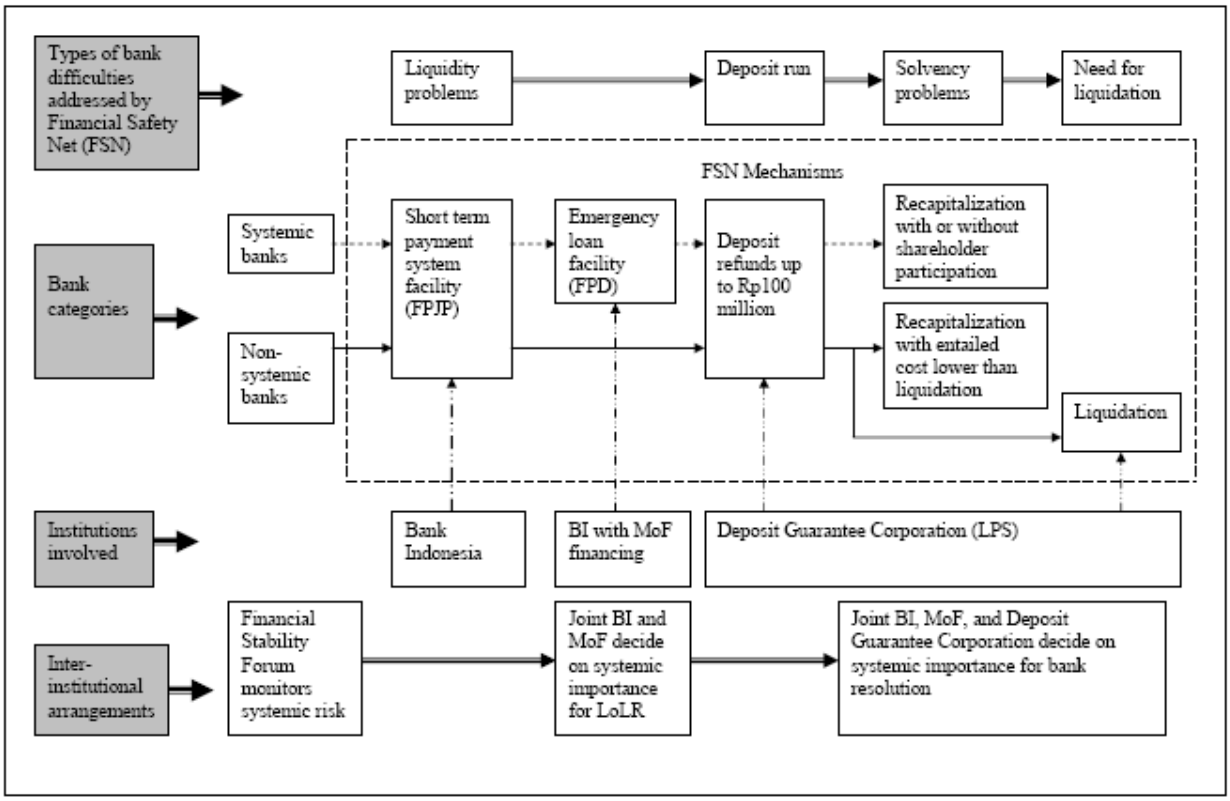
- **Some pre-existing FSN arrangements were used at the time of the crisis.** Korea used extensively the emergency liquidity assistance facility. The Philippines, where the impact of the banking crisis was relatively mild, basically maintained the deposit guarantee scheme instituted in 1963.

- **In countries where the crisis hit more strongly, transitional arrangements were necessary.** Korea replaced its then recently introduced partial deposit insurance scheme with a blanket deposit protection system, to reintroduce the original scheme again in 2001 with broader prudential monitoring capabilities for the Korean Deposit Insurance Corporation. The Thailand Financial Institutions Development Fund administered a temporary general guarantee to depositors between October 1997 and December 2004, when a new deposit insurance agency was created.

- **Specific country circumstances explain different priorities among countries in the region.** In the Philippines, the authorities focused on handling rising nonperforming loans by using incentives introduced in the 2002 Special Purpose Vehicles Act. The Hong Kong Monetary Authority formalized in 1999 a LOLR facility funded by the Exchange Fund under their quasi-currency board arrangements.

- **Most countries in the region have introduced deposit protection schemes and systemic monitoring arrangements.** Deposit insurance institutions have been established in Hong Kong (2004), Singapore (2005), and Malaysia (2005). Institutional arrangements to monitor systemic risk have been implemented in Hong Kong (Financial Stability Committee and the Council of Financial Regulators), and in Singapore the Monetary Authority of Singapore has in place a crisis management framework covering a range of possible contingencies.

Figure IV.1. Indonesia: Financial Safety Net



B. Components of the Financial Safety Net

Liquidity assistance

66. **The 2004 central bank law reinstated standard LOLR capabilities to BI.** The Law states that BI can extend credit via an emergency loan facility (FPD), funded by the government, to solvent banks with liquidity problems and of systemic importance. If necessary, the government can issue government securities to finance FPD funding following standard budget procedures. A Joint Coordinating Committee decides on the systemic importance of banks with MoF making the formal decision.[33]

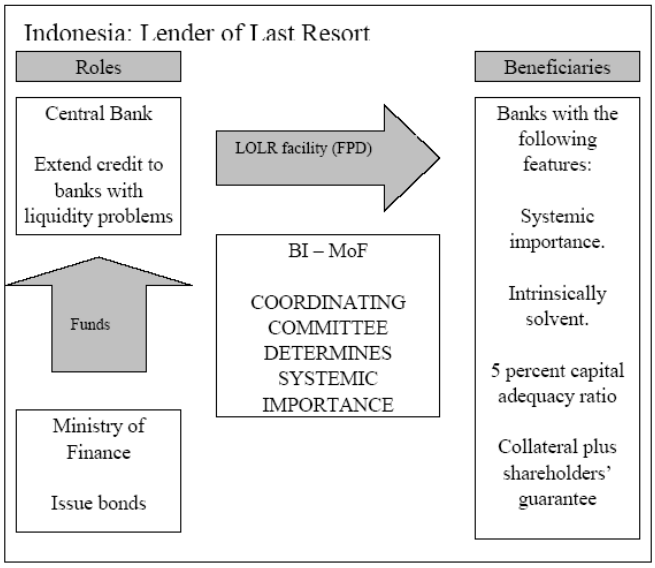
67. **The LOLR capabilities in Bank Indonesia is a key element of the financial safety net.** Banks entitled to draw on this facility must meet a 5 percent minimum capital adequacy ratio and pledge liquid assets as collateral, accompanied by personal or corporate guarantee from their controlling shareholders. All available bank assets can be used as collateral. They can be supplemented by other assets, including those belonging to the controlling

[33] The precedent for this arrangement is the assumption of BLBI obligations by the government in exchange for recapitalization bonds. Other arrangements under which the Minister of Finance participates in LOLR decisions are in place in Japan, where the Minister of Finance may ask the central bank to provide loans to prevent financial turmoil, and in Jordan, where the cabinet approves the use of emergency credit facilities by the central bank.

shareholder, and/or by registered shares from the controlling shareholder in the bank. The facility is available for 90 days, and can be extended once for another 90-day period (Figure IV.2).

68. **The LOLR facility in Indonesia is available only to systemically-important institutions.** BI has also a Short-Term Liquidity Facility (FPJP) available to all banks with sufficient liquid and high-value collateral (government and central bank securities) to finance payment system obligations. This credit can be renewed for up to 90 days, although in practice, it has been rarely used and never for more than two days.[34]

Figure IV.2. Indonesia: Lender of Last Resort



Deposit protection

69. **Depositors' confidence remained unaffected throughout the gradual introduction of a limited deposit guarantee.** After the creation of LPS in 2004, the blanket deposit guarantee was phased out in four stages between March 2006 and March 2007.[35] The new limited deposit guarantee coverage was set at Rp 100 million per depositor per bank (about US$11,000). This amount provides full coverage to about 98 percent of all depositors and to 38 percent of deposits, based on information as of March 2007. Participant banks pay premiums of 0.1 percent of total deposits twice a year.

[34] A problem may arise if the provision of LOLR assistance delays the closure of institutions, thereby increasing the resolution costs for the deposit guarantee agency. The US introduced legislation in 1991 to limit the ability of the Federal Reserve to lend to insolvent banks even when collateral was available, in light of excessive use of these facilities in previous years.

[35] Coverage was reduced to Rp. 5 billion in March 2006, Rp. 1 billion in September 2006, and Rp. 100 million in March 2007.

70. **All financial institutions supervised by BI are members of the Deposit Guarantee System.** Member institutions comprise 130 commercial banks and 1,880 local development banks (BPR). Currently, LPS resources invested in securities (equivalent to 0.54 percent of total deposits) would be sufficient to finance deposit refunds for 30 percent of small domestic private banks or 45 percent of all rural banks (Figure IV.3). The new framework for deposit protection has already been successfully tested following the failure of six rural banks in the last two years.

71. **LPS has a broad mandate.** In addition to providing a limited guarantee to bank deposits, it is responsible for the resolution and management of failing banks.[36] To avoid adverse-selection problems, the system is compulsory for all commercial and rural banks, and is partly funded with government resources, in line with most newly established deposit guarantee schemes.[37] LPS has operational independence and is accountable to the President of the Republic. The guaranteed deposit limit may be raised with Parliament's approval in the event of acceleration of inflation, decline of coverage to below 90 percent of depositors, or substantial bank deposit withdrawals (Figure IV.4).

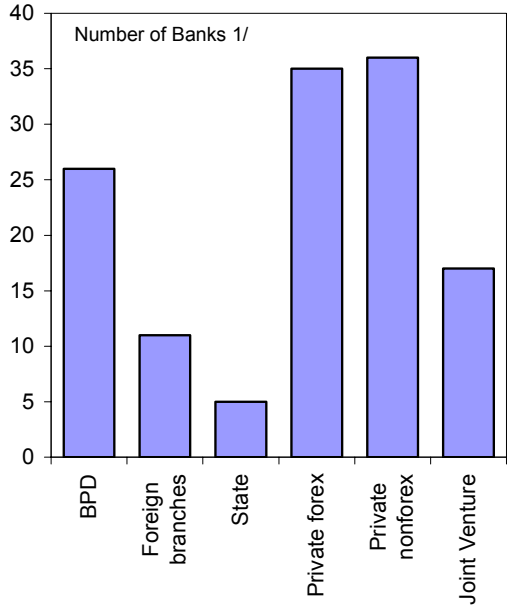
72. **LPS financial arrangements are generally conservative.** Assets can only be invested in securities issued or guaranteed by the government or BI. As in most countries, foreign banks also contribute to the fund in the understanding that they also benefit from enhanced confidence. Reserves have an explicit target of 2.5 percent of total deposits, with the idea of building reserves only up to the level of expected contingencies. Unlike most countries, contribution is based on total deposits, ensuring simplicity in collecting premiums.[38] Simplicity and maximum premium collection potential are important considerations in countries with high coverage per depositor like Indonesia. Like most other countries, Indonesia does not have a risk-based premium system in place (where banks pay premium based on risk assessments by third parties) (Figure IV.5). However, the Deposit Guarantee Law opens the possibility to eventually move to a risk-based premium system.

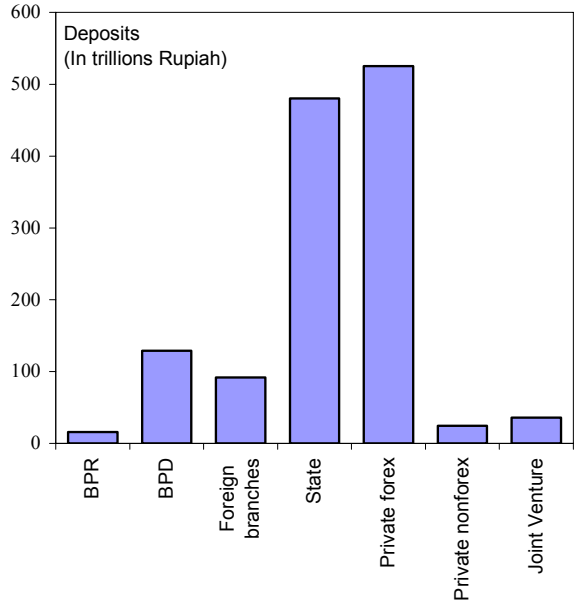
[36] Asian and Western Hemisphere countries favor comprehensive deposit guarantee schemes, unlike European countries where central banks or regulatory bodies other than the deposit insurance agency have had clearly defined banking resolution responsibilities for a long time (Garcia, 2000).

[37] Initial capital participation of the government amounts to Rp 4 trillion (about US$ 400 million).

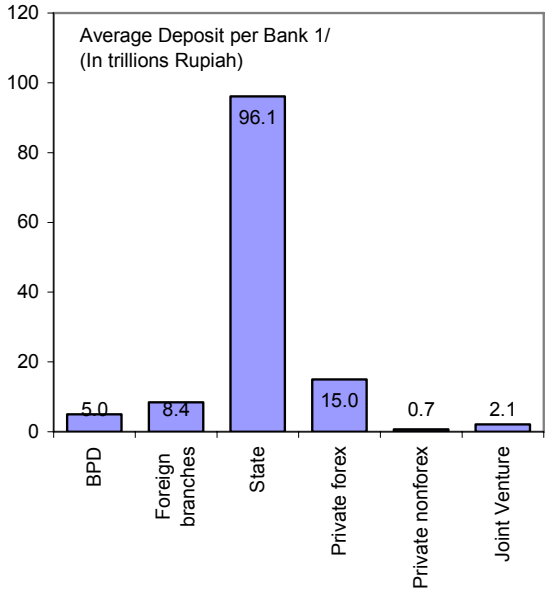
[38] Premiums are applied only to covered deposits in most countries. However, some countries are considering shifting the application of premiums to total deposits for simplicity.

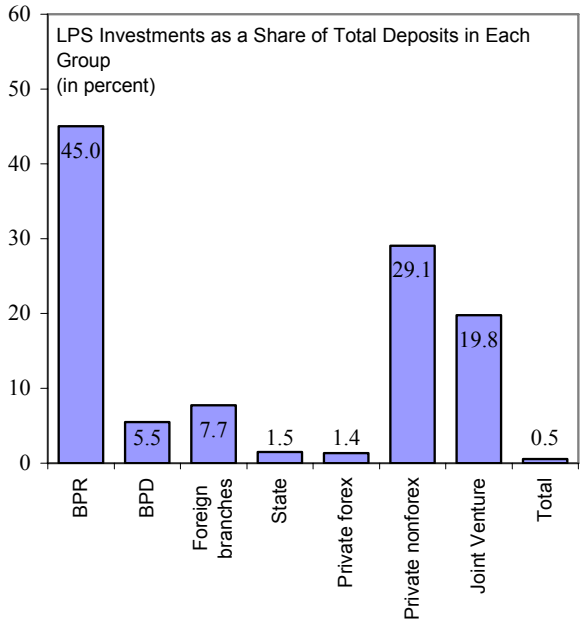
Figure IV.3. Indonesia: Features of Deposit Coverage Under Deposit Insurance Scheme, December 2006





1/ Deposit banks only, not includes the 1880 rural banks.

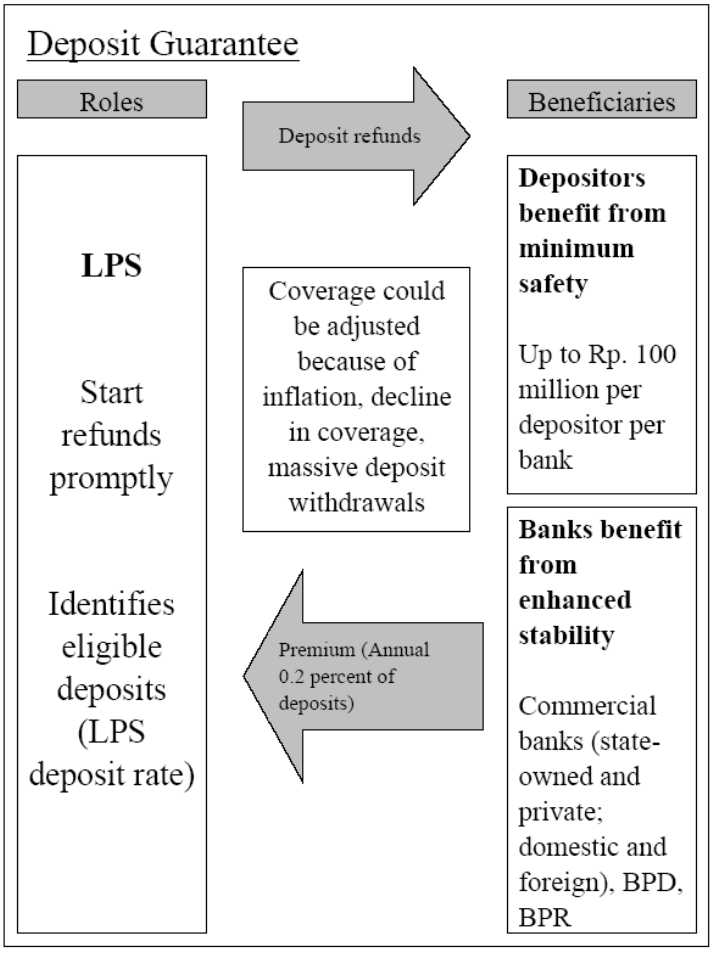




1/ The average deposit for the rural banks is 8.4 billions Rupiah.

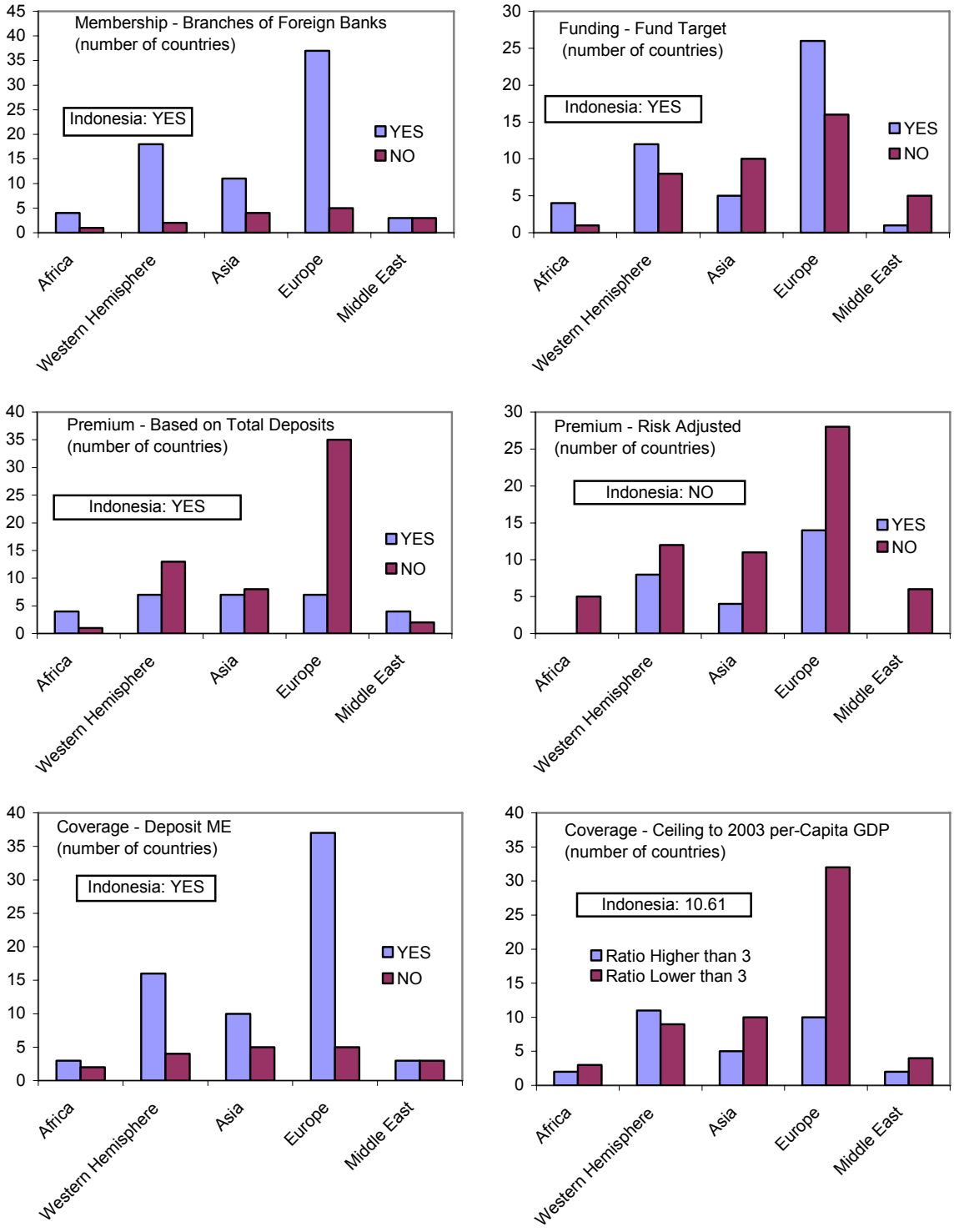
Source: BI and Fund staff calculations.

Figure IV.4. Indonesia: Deposit Guarantee Scheme



73. **The Deposit Guarantee Law clearly states when claims can be declared ineligible by LPS**. This can occur if claims cannot be corroborated in bank records, as well as if depositors were responsible for the insolvency situation of the banks or are parties that benefited from bad prudential practices. In applying the latter provision, LPS announces every month a ceiling deposit interest rate that banks cannot exceed in order to ensure eligibility for deposit protection.

Figure IV.5. Selected Economies: Features of Deposit Insurance Schemes, 2006



Source: IMF.

Bank resolution

74. **In case of solvency problems, BI's Banking Supervision Department (BI-BS) hands over the resolution of the bank to LPS.** A coordinating committee (whose members are currently the Ministry of Finance, Bank Indonesia and LPS) will determine if a failed bank is of systemic importance.[39] Liquidation is not an option in the case of failing banks of systemic importance, but shareholders can only participate in the recapitalization of assisted banks if they inject at least 20 percent of additional capital requirements. Alternatively, LPS will take over all the corresponding rights and powers. In the case of non-systemically important banks, LPS will choose between recapitalization or liquidation based on an assessment of the costs of bank assistance versus the costs of liquidation (lower cost approach). LPS must dispose of banks' shares within a period of 2 years for banks of no systemic importance and 3 years for banks of systemic importance, renewable for no more than 2 additional years.

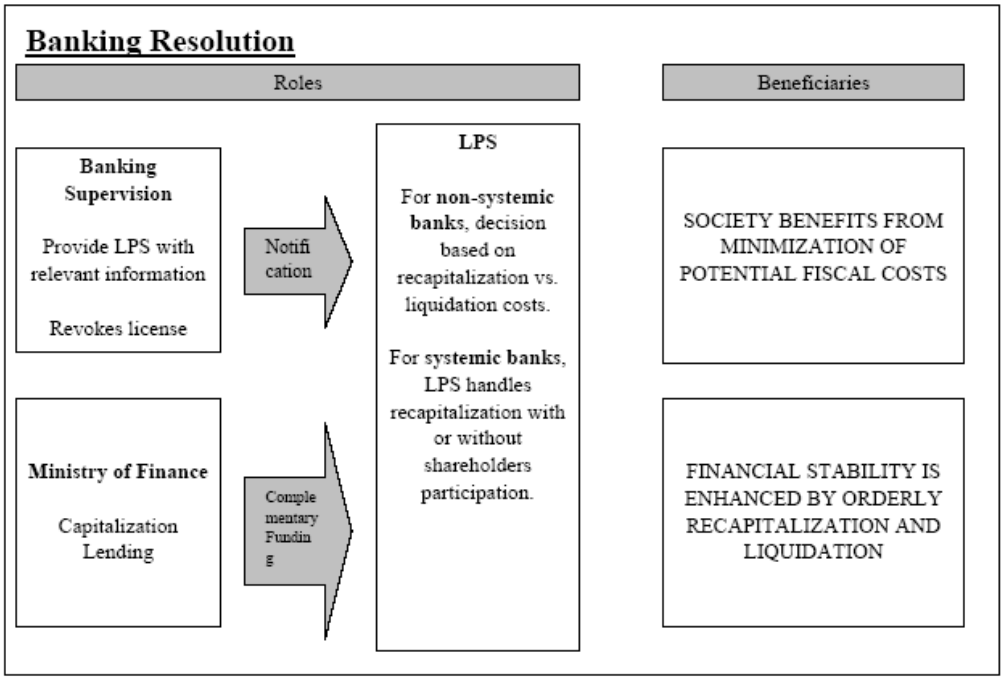
75. **LPS legal capabilities are generally sufficient to carry out banking resolution duties.** LPS is empowered to: take over and exercise all rights and powers of shareholders; possess and manage assets and liabilities of the failing bank; review, annul, terminate and/or alter any contracts between the failed bank and third parties; and, sell and/or transfer failing bank assets and liabilities without debtor or creditor consent.

76. **Information sharing agreements between LPS and BI are not yet firmly established.** Information arrangements need to be put in place to properly monitor the risks that problem banks pose to the deposit guarantee fund. The lack of information sharing arrangements may potentially delay key decisions at the time of bank resolution, making the process unduly costly. Currently, BI-BS must notify the LPS about problem banks under special supervision. However, given that LPS regulations stipulate that a decision on the modality of banking resolution should be made in one day, it is critical that relevant information is made available early in the process (Figure IV.6).

77. **In the case of liquidation, LPS will repay the guaranteed claim to depositors and dissolve the bank.** Following a public announcement of a bank's liquidation, LPS will appoint a liquidation team, which may include one member of the board of directors, commissioners or shareholders. The liquidation team has ample powers to act on behalf of the bank under liquidation in every aspect pertaining to the settlement of the rights and liabilities of the bank. This includes requesting from a commercial court the cancellation of transactions that had an impact on the reduction of assets and increasing liabilities within one year prior to the revocation of the bank's license. The process of liquidation must be completed within 2 years from the establishment of the liquidation team, to be extended no more than twice for a maximum of one year each time.

[39] This decision is independent of the one made about the use of LOLR facilities for systemically important banks.

Figure IV.6. Indonesia: Banking Resolution Framework

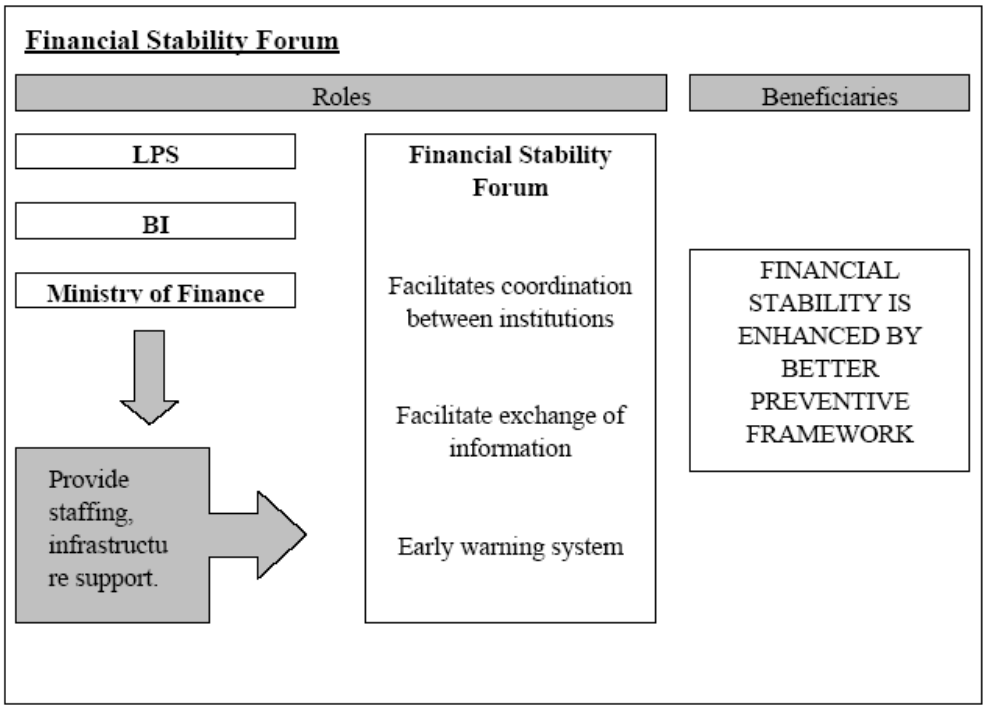


Financial stability forum

78. **The Financial System Stability Forum (FSF) is a vehicle for cooperation, coordination, and information exchange, with the objective of monitoring and preserving financial system stability.** Since its main purpose is to facilitate coordination between the MoF, Bank Indonesia and LPS on monitoring systemic risks, it is not expected to constitute a separate and distinct entity.[40] However, provisions in the MoU signed in December 2005 establish additional roles to the FSF such as taking actions to ensure consistency in financial acts and regulations, developing an early warning system to detect potentially systemic problems, and interacting with managers of individual financial institutions to discuss systematically important developments (Figure IV.7).

[40] The Australian Council of Financial Regulators operates as an informal body where members share information and views, discuss regulatory reforms or issues where responsibilities overlap and, if the need arises, co-ordinate responses to potential threats to financial stability. The Norwegian Contingency Committee for Financial Infrastructure is chaired by the central bank, which provides a secretariat, and its main responsibility is to coordinate measures for preventing and resolving crisis situations that may lead to major disruptions in financial infrastructure.

Figure IV.7. Indonesia: Financial Stability Forum



C. Conclusions and Macroeconomic Stability Considerations

79. **The FSN in Indonesia provides a framework to address the kind of problems that emerged at the time of the crisis.** In addition, significant improvements in banking regulation and supervision and progress in disclosure by firms should help identify the nature of bank problems at an early stage. Features of the new financial safety net that make it capable of timely addressing bank problems are the following:

- **A framework to decide on the solvency and on the systemic importance of a bank in distress has been formalized.** This will help prevent the abuse of regulations to unduly support failing banks. It will also help minimize uncertainty about alternative courses of action, which was a major problem at the time of the crisis. Accountability for determining systemic importance appropriately falls on the Minister of Finance, BI's Governor, and LPS's Chairman. The definition of systemic importance within a "constructive ambiguity" approach remains appropriately open, to avoid moral hazard behavior by banks falling within a particular definition. Current arrangements leave no room for discretion in determining the use of LOLR to attend emergency liquidity needs of banks deemed as solvent.

- **Clearly established procedures, clear allocation of responsibilities and legal certainty about key roles facilitates the adoption of timely decisions.** This applies to the provision of emergency liquidity, banking resolution processes, deposit refunds, and liquidation. Changes in the central bank law and the enactment of the

Deposit Guarantee Law provide legal support to these arrangements. In turn, the favorable environment for timely decisions would be conducive to maintaining potential costs at a minimum.

- **The establishment of new specialized institutions should help focusing on systemic risks on an ongoing basis.** The LPS, in charge of administering the deposit guarantee, will remain vigilant about potential use of deposit protection. Building up LPS's credibility will help enhance the perception of safety by depositors, contributing to minimize the probability of deposit runs. The FSF, in charge of assessing systemic risks, will help alert about emerging risks, favoring the activation of self-correcting adjustments by regulators and market players.

80. **The FSN would be further strengthened by continuous improvement in legal and judicial systems, market-based discipline, accounting standards, and enhanced disclosure.**[41] While progress on addressing these structural issues can only be gradual, a complementary effort to minimize potential moral hazard costs seems appropriate. It is widely accepted that the benefits of FSNs come at the cost of undermining market discipline to some extent, which is made worse when many financial institutions are regarded as too important to fail.[42] In this regard, the following features of the FSN could impose high moral hazard costs: (i) higher than average deposit coverage; (ii) the significant presence of state-owned banks in the system; (iii) the possibility to use payment liquidity facilities for up to 90 days; and (iv) the potential conflicts of interest if a member of the board of directors, commissioners or shareholders participates in liquidation teams. Moral hazard costs could be minimized by continuously improving the prudential framework, introducing stricter governance requirements in state-owned banks, and limiting the use of legal provisions with potential moral hazard implications.

81. **The authorities may consider reassessing periodically elements of the FSN to further improve the framework**, in particular in the following areas:

- **The FSN should be supported by full legal certainty to ensure effectiveness.** The government plans to submit an FSN law to parliament to reinforce legal certainty for some of the main regulations already in place. The new law could usefully assess consistency in the identification of a systemic problem, which currently takes place in two separate moments.[43] Also, provisions in the Deposit Guarantee Law allowing for

[41] See Mishkin, Frederic; Financial Policies and the Prevention of Financial Crises in Emerging Market Countries. NBER Working Paper No. 8087, Boston, 2001.

[42] Schinasi, Garry; B. Drees and W. Lee, *Managing Global Finance and Risk*, Finance and Development, Volume 36, Number 4, Washington D.C., December 1999.

[43] There may be a legal gap in the unlikely but not impossible case that different decisions are made regarding the systemic importance of the same institution at the time of the provision of LOLR financing and at the time of the decision on what resolution approach is chosen.

coverage adjustments at times of financial turmoil may lead to the perception that a "quasi-"blanket guarantee is still in place.[44]

- **Market-based mechanisms should take preference over administrative procedures.** In particular, the deposit guarantee ceiling rate does not seem to play the role of discouraging bad prudential practices by preventing weak banks from bidding for deposits to finance liquidity problems, since these institutions still pay a rate that is significantly higher than market rates at times. A mechanism used in other countries, and more in line with the intention of the LPS law, would entail relating the deposit guarantee rate to an average market rate plus a reasonable margin.[45] Also, risk-based premiums could be introduced when BI has a reliable and objective way to assess banks' differential risks, for example based on external ratings. On banking resolution, consideration could eventually be given to allow the use of other market-friendly alternatives tried successfully in other countries (bridge banks, purchase and assumption), not contemplated in the current Deposit Guarantee Law.

- **The risk of higher resolution costs arising from undue delays in decisions on handling bank failures should be minimized.** Appropriate information exchange between regulators and LPS would help better informed decisions. An MoU should be signed in line with the LPS Law, which establishes that the LPS must obtain customer's deposit data, as well as bank soundness reports and financial statements and banks' examination reports to the extent that banks' secrecy is preserved.

- **The monitoring of systemic vulnerabilities should be carried out with emphasis on inter-institutional coordination**. Regarding the Financial Stability Forum, it seems advisable to keep its infrastructure to a minimum, in line with international experiences. The FSF should focus on facilitating coordination, rather than on functions that potentially overlap with other regulators, such as interacting directly with financial institutions.

[44] A blanket guarantee could still be used, if deposit runs are not stopped by the use of emergency liquidity facilities (See Lindgren et al, Financial Sector Crisis and Restructuring: Lessons from Asia, IMF Occasional Paper No. 188, Washington D.C., 1999).

[45] In fact, in Indonesia, the ceiling was set at a fixed margin above the average deposit rate for the largest banks between 1998 and 1999. Similar arrangements are in place in Argentina, Ecuador and Thailand. Other countries use narrower approaches: Bulgaria, Germany and Portugal regard as ineligible only individual deposits receiving preferential interest rates.

V. Post Crisis Credit Expansion in Indonesia[46]

A. Introduction

82. **Credit growth in Indonesia has not been as strong as might be expected given the strength of its recovery since the crisis.** This is not surprising; countries that have experienced a banking crisis do not experience contemporaneous loan growth with the return to positive GDP growth.[47] Nevertheless, the level of credit to GDP usually returns to pre-crisis levels after a few years. In the case of Indonesia, the level of private sector lending to GDP continues to be significantly below pre-crisis levels and is very low relative to other countries in the region, despite lending having increased by 80 percent during the past three years.

83. **The authorities have expressed concern that the banking system is not adequately performing its financial intermediation role and contributing to economic growth.** In particular, they have identified the need for funding of infrastructure projects and small-and medium- sized businesses. There is also concern that unless the banking sector ramps up the rate of growth of lending the authorities will not achieve their economic growth targets. Bank Indonesia (BI) has for the past several years announced loan growth targets for the banking sector. During 2004 and 2005, lending grew at an annual rate of about 20 percent. However, loan growth slowed in 2006 (to a rate lower than the BI target rate) in response to an increase in interest rates and in energy and food price increases.

84. **The authorities have undertaken several policy initiatives to stimulate lending.** Beginning in late 2006, in an effort to spur additional lending, BI announced a series of relaxations in prudential regulations, including a reduction of capital requirements by lowering risk weights, as well as a relaxation of provisioning and loan classification rules, especially for borrowers who had previously defaulted on loans. In addition, the government has established growth performance benchmarks for state banks and some elements of government have put pressure on them to make infrastructure loans and to fund the construction of toll roads.

85. **The low credit flows reflect both supply and demand factors.** The actions taken by the authorities are an attempt to influence the supply of credit. However, most independent analysts believe that bank lending in Indonesia is demand constrained rather than rationed. This view is supported by the empirical analysis presented in this paper. However, with the exception of limited corporate bond issuance, there is an absence of long-term lending in Indonesia, and likely unmet demand for such credit. In the absence of data, this is, however,

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[46] Prepared by Inutu Lukonga, Elina Ribakova, and Steven Seelig.

[47] In addition to the countries affected by the Asian crisis, Sweden, Russia, Uruguay, and others have seen positive loan growth with a lag after GDP growth becomes positive. The lags have typically been between 18 months and three years.

difficult to measure. This paper examines the structural and economic factors that influence the supply and demand for credit. Two sets of empirical analysis are presented to examine the importance of these factors and to test whether lending is supply or demand constrained in Indonesia. It also examines the implications of dramatically increasing loan growth and presents some policy alternatives to stimulate the extension of long-term financing.

B. Credit Growth in Indonesia

Aggregate Trends

86. **Private sector credit in Indonesia, particularly to businesses, has recovered slowly in the aftermath of the Asian crisis. Nevertheless,** nominal growth in private sector credit averaged 20 percent over the period 2000–2005 and then decelerated to 15 percent in 2006. In real terms, credit growth averaged 13 percent and 0.5 percent respectively. Within these broad trends, lending to businesses has grown slowly at a nominal rate of 13 percent compared with 33 percent for consumer lending.

87. **Growth in private sector credit has decoupled from the trends in GDP and deposits as a result of the crisis.** Prior to the crisis, the credit cycle tracked the economic cycle very closely and also trended with deposit growth. Subsequently, however, these trends diverged as banks replaced their troubled loans with illiquid recapitalization bonds and in more recent times have allocated excess liquidity to SBIs (certificates issued by Bank Indonesia (BI)). However, the flow of deposits into the banking sector continued unabated while credit to the private sector declined significantly in the aftermath of the crisis and has recovered slowly thereafter.[48] In part, this resulted from the initial illiquidity of the recapitalization bonds.[49]

88. **Beginning in August 2005, the growth in private sector credit decelerated.** The slow down came on the heels of an acceleration in inflation and the subsequent hike in interest rates, which caused domestic demand to slow. The decline was broad based across sectors, borrowers and banks, although there were some differences in the magnitude. Consumer lending appeared to respond more to the rise in interest rates than did business lending, and the decline in borrowing was more pronounced for the agriculture and manufacturing sectors. Nevertheless, the various categories of banks reduced loan growth by similar magnitudes.

89. **Intermediation ratios have remained low and have shown little recovery since the crisis.** The credit to GDP ratio increased from 20 percent in 2000 to 26 percent in 2005 before declining slightly in 2006. The intermediation ratios also remain well below some of

[48] The sustained flow of deposits in part reflected confidence in the system engendered by the blanket guarantee on deposits and the subsequent introduction of a limited deposit insurance scheme.

[49] Recently these bonds have become more liquid as international investors have been willing to purchase them.

Indonesia's regional peers. Malaysia, Thailand, and Korea exhibit credit/GDP ratios that are above 90 percent. The loan-to-deposit ratios for Indonesia are also lower than those of the other countries, possibly reflecting the relatively more inflationary environment and the higher real lending rates that borrowers face (Figure V.1).

Policy Response

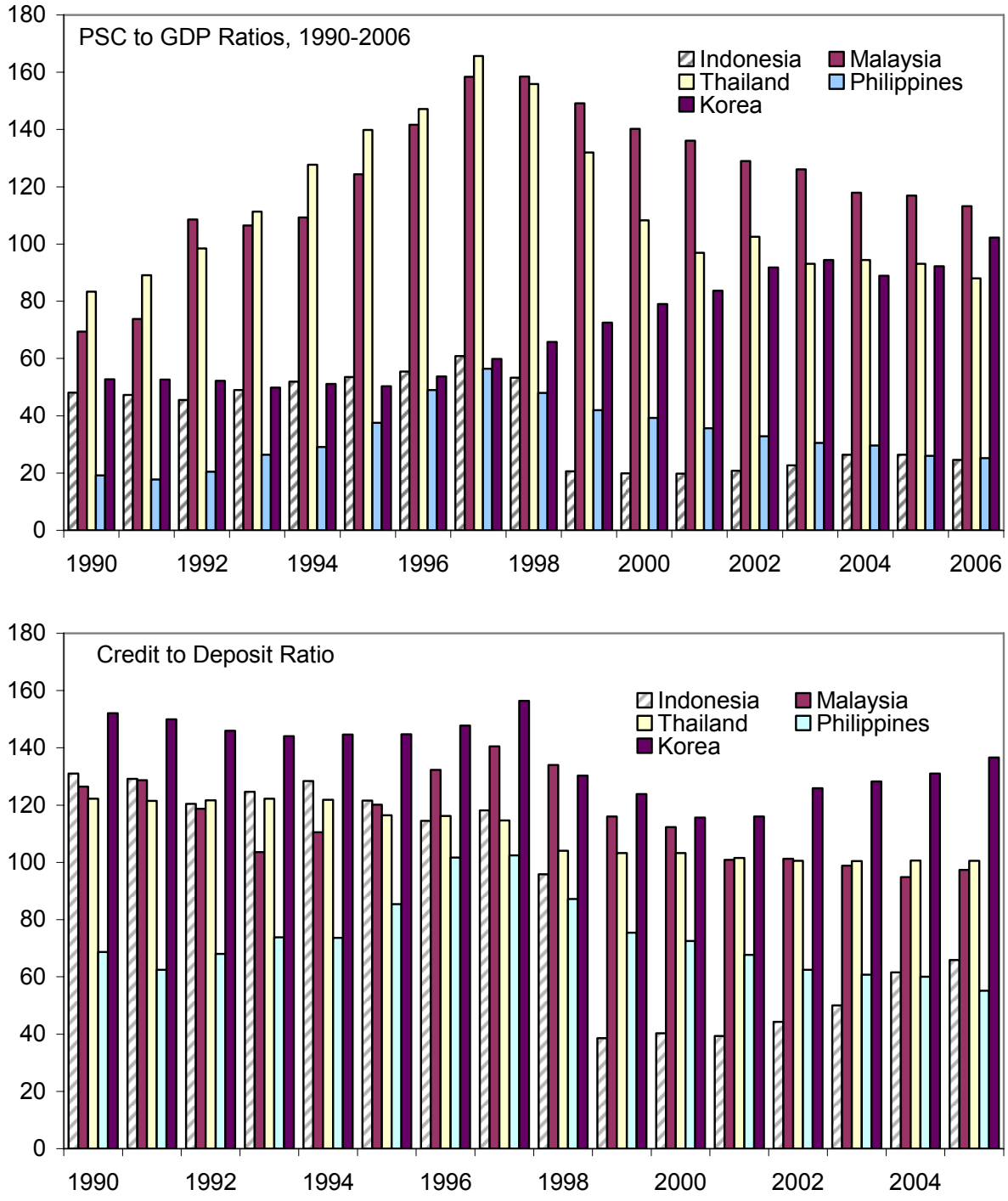
90. **In 2004 the authorities began to use moral suasion to encourage loan growth and followed with relaxation of prudential standards.** BI announced growth projections that it thought were consistent with the government's growth targets, though these were in no way obligatory. In 2005, BI introduced a tightening of certain prudential regulations relating to loan classification and provisioning that were consistent with international standards. However, it introduced a structure of reserve requirement penalties that progressively penalized banks with low loan-to-deposit ratios. These surcharges ranged from 1 percent for banks with loan-to-deposit ratios between 75–89 percent to a 5 percent penalty for banks with ratios below 40 percent. Beginning in late 2006 and early 2007. BI began to relax somewhat its prudential standards relating to capital, provisioning and loan classification (see Box V). State banks have been put under pressure by some elements of government to grow lending and to finance infrastructure projects, despite a lack of clarity as to the real maturity of the loans and the available collateral.

91. **Staff analysis illustrates, however, that if banks were to reduce liquid assets and increase loans to 75 percent of assets, the system would be more vulnerable to an economic downturn.** Indeed, an economic downturn that resulted in one third of the loans in each classification category being downgraded would result in 7 of the 15 largest banks' capital falling below the 8 percent minimum capital requirement and an additional 4 banks' capital adequacy ratio (CAR) falling to below 10 percent.

92. **Official attempts to increase credit, as a means to stimulate growth, can have adverse consequences.** In response to official support the Korean credit card companies, some of which were subsidiaries of banks, dramatically increased the number of credit cards outstanding to over 100 million (approximately 4 cards for every Korean adult).[50] This was accomplished through a significant relaxation in underwriting standards and consumers were encouraged to use the cards to increase consumption. The end result was that by November 2003, 34.2 percent of credit card receivables had become nonperforming. As a result, in 2004 the Korean Development Bank had to acquire credit card companies from commercial firms, and parent banks had to merge their credit card subsidiaries into the parent so that loans could be restructured at a loss.

[50] IMF. "Republic of Korea—Staff Report for the 2003 Article IV Consultation," Washington: February 2, 2004.

Figure V.1. Indonesia: Credit Relative to Other Asian Countires, 1990 - 2006
(In percent).



BOX V.1. RECENT CHANGES IN PRUDENTIAL REGULATIONS

To facilitate bank lending to the private sector, BI has over the last 15 months progressively relaxed a number of the prudential regulations. The initial measures, the changes that were introduced and the potential impact of these changes are discussed below.

Initial measures

In July 2005, BI issued regulations to strengthen asset classification including: (i) introducing a uniform loan classification standard that requires that if a borrower misses a payment with one bank, other creditors must reclassify the loans at the same lower level; (ii) setting out the definition of, and the limits on, large exposures to both related (10 percent) and non-related (25 percent) parties; (iii) requiring banks to consider off balance sheet items in terms of asset classification; (iv) discontinuing implicit forbearance granted for restructured loans and setting out clear and specific criteria for classifying restructured assets; and (v) requiring BI classification of credit to prevail if there is a difference of opinion between the bank and the supervisors;

Prudential measures were also introduced to curb reckless lending to consumers. In November 2005, a ruling was made that requires banks to ensure that cardholders pay a minimum monthly payment of ten percent of outstanding debt. Effective December 28, 2005, and in reaction to the growing consumer credit card debt and default, BI issued a ruling requiring a minimum salary of three times the local minimum wage to qualify for a credit card and for banks which issue the cards to limit the line of credit to twice a card holders monthly salary.

The Changes

In January 2006, BI modified the uniform loan classification standards so as to apply only to the 50 borrowers whose loans are the largest exposures of a bank, or to loans of Rp 25 billion (US$2.7 million) or greater. BI also indicated plans to lower this ceiling to Rp 10 billion (US$1.1 million) in the six months, and Rp 5 billion (US$530,000) in 12 months, but stated that it may delay implementation of the standards for loans of Rp 500 million (US$53,000) or greater until mid-2007. Concurrently, the credit risk weight for residential mortgage loans was reduced from 50 percent to 40 percent, while the credit risk weight for small business loans was reduced from 100 percent to 85 percent. In October 2006, BI announced easing of related lending rules

In April 2007, BI relaxed regulations restricting lending to defaulting borrowers. Amendments were made to the asset classification and provisioning rules, including: (i) relaxing the criteria used to identify problem loans so as to allow qualifying banks to classify loans of a certain threshold using backward looking criteria that rely solely on past-due or delinquency status; (ii) liberalizing the uniform classification rules (UCLL) so as to provide circumstances under which the rule does not apply. Under the revised ULCC, a bank is now allowed to extend loans to a defaulting borrower if the funds are to be used to fund different projects and there is a clear separation of cash flows between projects; (iii) expanding the use of eligible collateral for purposes of determining loan loss provisioning to include machinery and warehouse; and (iv) relaxing the criteria used to classify a placement made to a rural bank, as part of the government's credit linkage program.

Assessment

The measures announced in 2005 had the potential to encourage prudent lending by banks. Technically, the regulations had potential to increase loans that are classified as non-performing and therefore also provisioned by banks. Moreover, they put pressure on borrowers who wished to increase borrowing to settle their outstanding nonperforming obligations. These changes were consistent with international best practices in that they required banks to adequately assess and provision for credit risk.

The reversals on the other hand entail a number of general and specific risks. The policy reversals could undermine BI policy credibility. The backward looking criteria could delay recognition of NPLs and the associated provisions. It is also not clear as to how the relaxation of backward looking criteria will lead to increased lending since it deals primarily with the process used to determine when a loan becomes a problem rather than address loan origination and approval standards. Similarly, the relaxation of the risk weighting for mortgages presents challenges given the problems in Indonesia's legal-foreclosure framework and the lack of reliable historical loss data to support the lower risk weights. Finally, the expansion of the use of eligible collateral to include higher risk and relatively illiquid forms of collateral will require maintenance of reliable collateral appraisal programs and, in the absence of such review systems, entails an increase in the riskiness of associated lending without necessary provisions. However, it should be noted that those private banks are unlikely to deviate from international practice and thus the changes will have little impact on their lending. The impact on state owned banks is less clear.

Sources: Bank of Indonesia and IMF staff.

C. Factors Impacting Credit Growth

93. **For Indonesia, both demand and supply factors appear to have affected credit growth.**

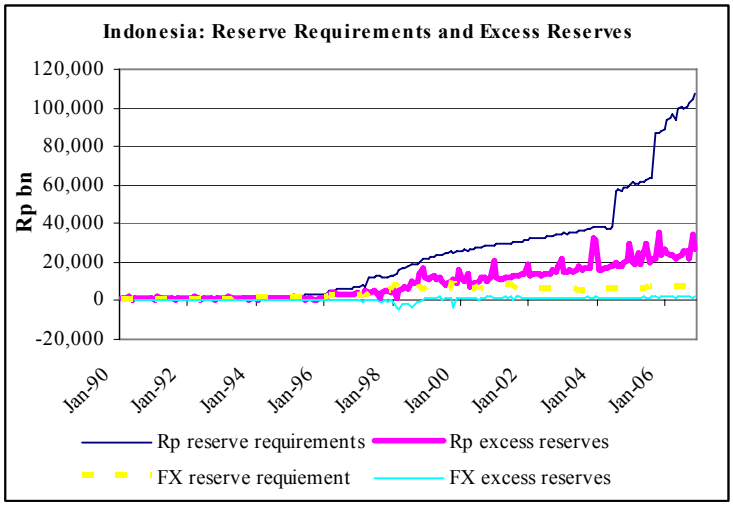
- **On the supply side, banks are liquid and the lending capacity has been increasing.** However, a number of factors constrain banks ability or willingness to lend. Prominent among the factors are the credit risk of the corporates, the unfavorable legal and judiciary framework for enforcing creditor rights, and weaknesses in the infrastructure for assessing credit risk. The strengthening of prudential regulations after the crisis, while strengthening the resiliency of the system, may have also dampened lending relative to its pre-crisis levels.

- **On the demand side, economic activity has been on the upswing.** However, a number of factors appear to be dampening demand, including high lending rates, high inflation rates, increasing unemployment, and the trend by corporates to deleverage.

94. **This section empirically analyzes the relative importance of the various factors on the supply and demand for credit in Indonesia.** The analysis applies a standard supply and demand model for credit and draws on the work of Louis Catâo (1997). The model and empirical specifications can be found in Appendix I.

95. **The supply equations performed well both in terms of economic theory and statistics.** All variables have the expected sign. Specifically, increases in the supply of bank credit to the private sector in Indonesia can be explained by the increase in bank liquidity as reflected in lending capacity and the positive spread on loans. The negative sign on the NPL variable suggests that credit risk has been a major influence on banks lending decisions and that banks have curtailed credit supply in the face of high nonperforming loans (NPLs).

96. **The demand for credit is a bit more difficult to model.** Most of the variables have the expected sign. Demand is clearly related to macroeconomic conditions and inversely to interest rates charged on loans. The excess debt variable yielded a positive sign contrary to expectations. However, since private sector indebtedness has been declining, this result indicates that borrowers reduced



their demand for credit as their indebtedness declined (effectively, they deleveraged).

Supply factors

97. **Indonesian banks have substantial lending capacity.** Although, after 2004, statutory reserve requirements were increased rapidly and progressively, banks' excess reserves are substantial and have been increasing.[51] The loan to deposit ratio is still low at 65 percent and lower than ratios reported by the other countries in the region. The restructuring has also led to improved capitalization (20 percent CAR at end-2006) while NPLs have trended down. Both the short and long term specifications find that banks' lending capacity is a significant factor in determining the supply of credit.

98. **Until recently banks were relatively constrained in their ability to divest recap bonds.** The original bonds issued by the government were fixed rate and illiquid. Several years ago, a significant portion were converted to floating rate, for which there still is only a limited market. However, during the past two years foreign portfolio investors have become willing to acquire the fixed rate bonds.

99. **The balance sheet structure of the banks could limit banks ability to finance long term assets.** Similar to many countries in the region, Indonesian banks obtain most of their funding from short-term deposits. As of end December 2006, more than 90 percent of bank deposits were less than one month in maturity. Prudent asset-liability management would therefore call for banks to offer short-term, floating-rate loans. In addition, on the asset side, recapitalization bonds and other public securities still account for significant shares (18 percent) and these reduce the bank credit available for private investment while at the same time resulting in seemingly high capital adequacy ratios.[52]

100. **Corporate profitability and leverage has improved but not enough, thus credit risk remains high.** Data compiled by Moody's KMV indicates that Indonesian corporate groups have a higher default probability than corporate groups in Korea, Thailand, and Malaysia. Indonesian corporates have restructured their financial statements through agreements with creditors more slowly than those in neighboring countries with the result that nonperforming loans to these firms are still high. The empirical analysis found that NPLs are a negative factor influencing the supply of credit in Indonesia. Moreover, reflecting

[51] Deposit accounts in foreign exchange are subject to a 3 percent reserve requirement while accounts in rupiah are subject to a daily reserve requirement in the range of 5 percent to 8 percent, depending on the total amount of deposits. Effective September 8, 2005, reserve requirements were raised by an additional 1 percent to 5 percent based on the loan to deposit ratio.

[52] Given that government securities are zero risk weighted, the capital adequacy ratios of Indonesian banks are higher than if the banks held loans that are risk weighted.

concerns about credit risk, foreign investors have preferred to invest in public sector securities rather than corporate bonds. Uncertainty about the performance of issuers has also been a major factor in the sluggish growth of the corporate bond market while signals of higher default risk have been amplified by the failure of some corporations to meet their bond obligations.

101. **The credit risk is accentuated by weaknesses in the legal and judicial systems.** In the aftermath of the Asian crisis, the authorities introduced a number of reforms in the legal and judicial framework, including establishing commercial courts. However, much remains to be done to develop an effective bankruptcy regime and a judiciary capable of encouraging investor confidence. In recent studies by the World Bank, Indonesia ranked 5 on the scale of 1–10 for the "*index of effective regulation on secured lending through collateral and bankruptcy laws.*" On procedures to enforce contracts, the World Bank found that enforcement of contacts, including loan agreements is relatively more difficult in Indonesia than in most countries. Legal limitations to the seizure of collateral property, together with the relatively high cost and usually lengthy judicial process, reduce banks willingness to lend, especially to corporates who have the financial resources to fight the banks in court.

102. **Banks' ability to expand lending is also impaired by weaknesses in information infrastructure to facilitate assessment of borrower creditworthiness.** In June 2006, BI launched a credit information bureau for banks and financial institutions to use for managing lending risk. However, the debtor information system, while helpful, does not include information on a prospective borrower's standing with nonbank institutions. With coverage of only 0.1 percent of the population, the registry does not yet facilitate an adequate assessment of borrower risk. Under these circumstances banks face difficulties screening out sound from risky borrowers and this makes lending to small- and medium-sized firms and consumers much more risky and difficult to justify.

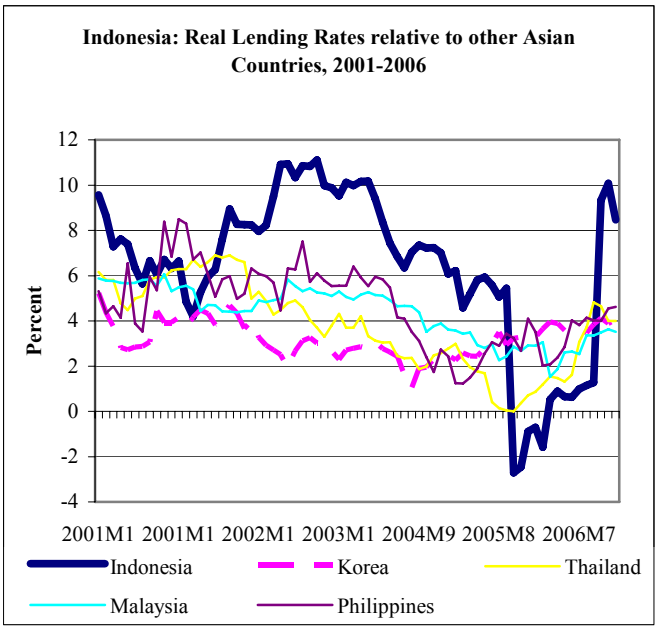
103. **The strengthening of prudential regulations could also have induced greater selectivity in lending by banks and reduced lending.** After the crisis, Indonesia made greater strides to strengthen banking supervision, align the regulatory framework with international practices and improve risk management capabilities in the banking sector, especially in state-owned banks. In addition, the banks that were taken over by the government and sold to foreigners have resulted in some of the largest private banks introducing international risk management practices. Consequently, banks are more likely to exercise greater prudence in lending than was the case prior to the crisis.

104. **Until recently, the state banks faced additional hurdles in resolving their NPLs and this overhang served as an additional deterrent to lending.** Indonesia views the assets of the state banks as state assets with the result that state banks were prohibited from writing off loans, selling assets at a discount, or offering debt forgiveness as part of a loan restructure. These limitations have been recently relaxed and guidance is being drafted to permit the sale of assets at a discount, as well as restructurings that include debt forgiveness.

105. **Finally, government paper may have "crowded out" of private sector credit to some extent.** In the aftermath of the crisis, banks' commercial NPLs were transferred to the government at book value and replaced with recap bonds. The net result was a marked reduction of bank exposure to the private sector in favor of government paper. The share of government paper (as a percent of total assets), though trending down, has continued to remain high and there continues to be a strong appetite for BI paper among the banks. At the state banks, the demand for BI paper has been compounded by a rapid increase in volatile deposits resulting from fiscal decentralization.

D. Demand Factors

106. **The sustained growth in GDP augurs well for long term demand for credit.** Since 2000, real GDP has been growing at an average rate of 5 percent, driven largely by domestic demand except for 2006 when it was export led. Credit demand would be expected to increase with this increased level of economic activity since banks are the primary source of commercial credit.[53] However, growth has also not been sufficiently broad based to generate sustained credit growth. Much of the lending to consumers has been for motor bikes while the property sector, which in many countries has been the engine of consumer lending, has stagnated, due to structural weaknesses in the housing industry and housing finance.



107. **Borrowers have also faced relatively high real lending rates.** During most of the post crisis period real lending rates have been higher than in neighboring countries. Real lending rates have remained high and banks issuing credit cards charge rates annualized at about 26–42 percent. Moreover, in August 2005 BI hiked interest rates in a bid to curb inflationary pressures. The combination of higher interest rates and the increase

[53] Domestic capital markets are not yet a significant source of financing for long term funds for Indonesian corporates. The recent Supreme Court ruling regarding APP bonds is likely to make this financing even more difficult and calls the legality of all corporate bonds into question Also, loan securitization is yet to develop. Rather than provide long term finance to corporates, pensions and insurance firms currently invest a significant portion of their resources in short-term bank deposits, in essence transforming scarce long term resources into short-term assets.

in production costs resulting from higher oil prices led many firms to postpone investment and reduced demand temporarily. During this same period defaults on credit cards and motor bikes also peaked.[54] Consequently, investment continued to decelerate through the end of 2005 after rebounding in the preceding year and the growth in lending to both consumers and businesses declined sharply. Demand for credit from large corporates may also have been constrained by the deleveraging that has occurred at many of these "groups," as owners have repatriated funds and invested them in their businesses, in lieu of borrowing from banks.

E. Is Credit Supply or Demand Constrained?

108. **In analyzing the appropriateness of policy measures to stimulate credit growth it is important to understand whether credit has been supply or demand constrained.** An econometric model was constructed to analyze private sector lending in Indonesia to answer this question. The model uses many of the same determinants of the supply and demand for credit discussed above. The theoretical underpinning for the model derives from the work of Stiglitz and Weiss (1981). The underlying premise is that at a prevalent interest rate, credit can still be supply constrained. Due to adverse selection, banks might choose to apply quantitative rationing rather than increase lending rates due to the risk that higher lending rates will attract only unworthy borrowers that are not expected to repay their loans.

Disequilibrium model

109. **A disequilibrium model is used to investigate whether low real credit observed is supply or demand constrained.** Following a number of existing studies of credit rationing,[55] a disequilibrium framework is used to investigate the behavior of real credit in Indonesia during the period 1990–2006, as well as during the post crisis period. At any given time, observed real credit could be due to low demand, low supply, or both. The disequilibrium framework allows for the identification of the underlying constraints on credit in a switching regression framework by imposing ex-ante different restrictions on supply and demand functions.

110. **At a given time, real credit supply does not have to equal credit demand, if lending interest rates do not adjust sufficiently and or credit rationing occurs, or if**

[54] As of August 2005, credit card defaults were Rp 1.08 trillion or 7.2 percent of total credit card debt.

[55] Pazarbasioglu (1997), Ghosh and Ghosh (1999), Barajas and Steiner (2002), and Canales-Kriljenko, and Gelos, (2006) among others.

there are directed credits. The actual level of real credit will then be determined as follows:[56]

$$C_t = \min(C_t^s, C_t^d) \tag{1}$$

The choice of variables used to determine credit supply and demand are guided by Ghosh and Ghosh (1999) who investigated real credit in Indonesia, Korea, and Thailand in the late 1990s, Canales-Krilijenko and Gelos (2006) who studied real credit in Uruguay after the 2002 crisis, and Barajas and Steiner (2002) who attempted to explain credit stagnation in Latin America. The analysis in this case, however, is constrained by the limited availability of potential explanatory variables with sufficiently long time series.

111. **The supply of credit is modeled as a function of the spread between real lending rate and banks' cost of funds ($r^l - r^d$), banks' lending capacity (l), and an indicator of borrowers' ability to repay (GDP, x).**[57]

$$C_t^s = \beta_0^s + \beta_1^s (r_t^{lending} - r_t^{deposit}) + \beta_2^s * l_t + \beta_3^s * x_t + \varepsilon_t^d \tag{2}$$

112. **The demand of credit is assumed to depend on real lending rate (r), current output determining the need for working capital (y), output gap (y^{gap}), an indicator of future economic activity (stock market index, s), and inflation (π_t).**[58]

$$C_t^d = \beta_0^d - \beta_1^d * r_t + \beta_2^d * y_t + \beta_3^d * y_t^{gap} + \beta_4^d * s_t^p + \beta_5^d * \pi_t + \varepsilon_t^d \tag{3}$$

---

[56] Following the method by Maddala (1974).

[57] All data are quarterly and cover the period 1992:Q1 to 2006.Q1. Data sources include International Financial Statistics and Biropustat Statistik. All variables are deflated by the Wholesale Price Index (2000=100). Consistent with earlier studies and APD practice, the WPI was used as the deflator because it is more stable. All variables are in logs, apart from the real interest rate and the output gap which is defined as the difference between current output and trend output in percent of trend output. Inflation is defined as the percentage change in the CPI over the previous quarter.

[58] A simple measure of output gap is calculated following earlier studies using the Hodrick-Prescott filter to estimate trend. Jakarta stock market index is used as an indicator of future economic activity. Inflation is included to reflect the fact that borrowers benefit from inflation.

113. **The probability that at any given time real actual credit is supply constrained is determined as follows:**

$$\theta_t = Prob(C_t^D > C_t^S) = \Phi\left(\frac{C_t^d - C_t^s}{\sigma_s^2 + \sigma_d^2}\right) \tag{4}$$

Where σ_s and σ_d are estimated standard errors of the credit demand and credit supply equations and $\Phi[\bullet]$ the cumulative Normal distribution function. Under this setting, one can derive the density function $h(C_t)$ and the associated log likelihood function to be maximized subject to the parameter values:

$$\sum_{i=0}^{T} \log h(C_i) \tag{5}$$

Maximization of the log likelihood function allows for estimation of credit demand and supply equations and the probability that the observed credit is supply or demand constrained. OLS is used to estimate the starting values for maximum likelihood estimation. The goodness of fit can be gauged by how well the minimum of the estimated credit supply and demand tracks the actual credit.[59] As in previous studies the equations are estimated in term levels, although observed real credit is not stationary. The results are valid as long as the determinants of credit supply and credit demand are cointegrated, which is indeed the case.

114. **The results suggest that in Indonesia, credit is demand constrained** (see Figure V.1 below and Table V.1 in the Appendix II)**.** During the period immediately following the crisis, credit demand substantially exceeded credit supply, with the probability value of unity. However, following the crisis period both the supply and demand for credit have increased but the results suggest that it is credit demand that is constraining actual credit growth. These results are confirmed both by specifications covering the period from 1992 through 2006 and the post-crisis period beginning with the third quarter of 2000. Figure V.1 is based on the specification (1) in Table V.1, Appendix II; however, different specifications show a very similar picture.

115. **For the post-crisis period the empirical analysis finds that most of the key variables are significant and have the correct sign.** In the demand equation the real

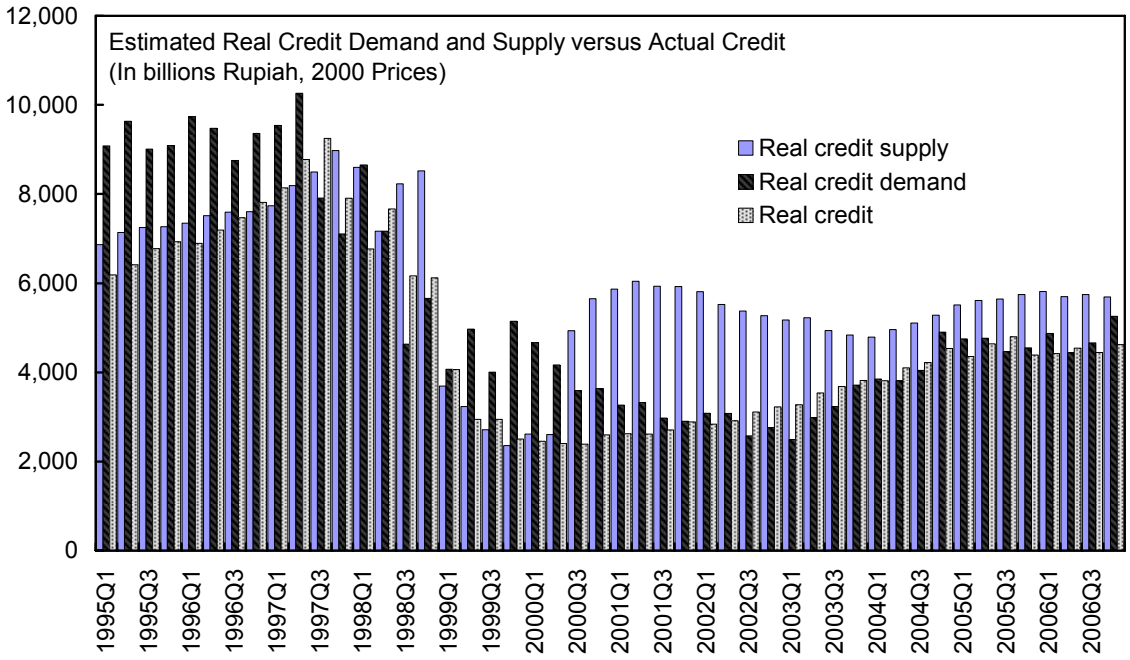
[59] A measure of the robustness of a disequilibrium model is whether the probability that the underlying hypothesis that credit is supply constrained approaches 1, and that if demand constrained the probability approaches zero.

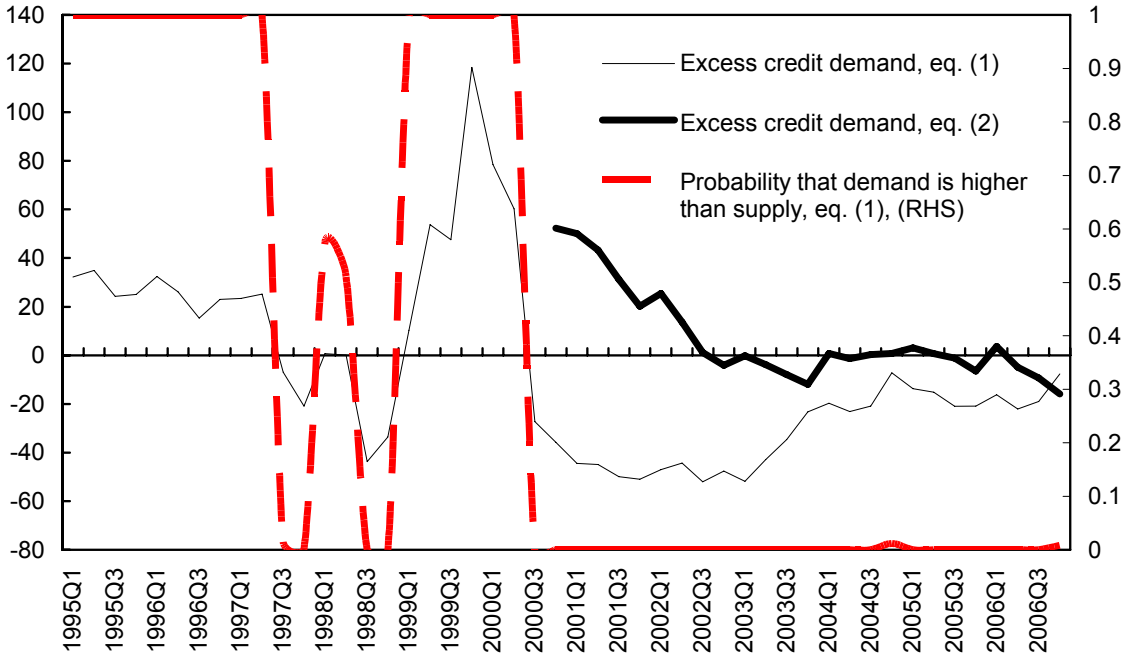
lending rate and the stock market index, are significant with the expected signs.[60] In the supply equation lending capacity is significant with the correct sign in most of the specifications.[61] In all specifications, measures of output were significant with the expected sign. In all specifications that exclude the crisis period the interest rate spread is significant with the expected positive sign. NPLs are significant with the expected sign for the time period for which data is available.

[60] Due to the limited number of observations for the post-crisis specification for credit demand, other variables were excluded to assure sufficient degrees of freedom. In specifications that include the longer period, with and without crisis, the output gap is also significant and with the correct sign.

[61] In the specification covering only the post-crisis period lending capacity is insignificant. This is consistent with the results for equation (4) where the lending capacity (more broadly defined) elasticity was very low.

Figure V.4. Indonesia: Empirical Estimation of Credit Demand and Supply 1/





1/ Figure is based on specification (1) in the Table of Appendix II.
Notes: Excess credit demand is defined as the difference between credit demand and supply in percent of credit supply, (Cd-Cs)*100/Cs, and presented on the left axis. Probability is one when credit is supply constrained and zero when credit is demand constrained and is presented on the right axis.

116. **Discussions with analysts and bankers confirm the finding that credit is currently demand constrained.** Analysts in Singapore and bankers in Jakarta who uniformly indicated that there was a lack of demand for credit from credit worthy borrowers. In fact, several banks noted that they had significant undrawn commitments to the commercial sector. These commitments give the borrowers the right to borrow at pre-specified terms and the fact that they have not been drawn down the loans indicates either weak demand for credit by these borrowers or that they have access to alternative sources of cheaper funds.

Conclusions from empirical work

- **During the past few years lending has been demand constrained or close to equilibrium.** A limitation of this empirical work is that it does not capture the demand for long-term credit. Aside from limited corporate bond financing, there has been very little long-term lending in Indonesia and thus the data used in the analysis presented above does not reflect the demand or supply of such credit.

- **The credit risk associated with lending to the large corporates continues to be problematic.** Many of these firms, or their affiliates, continue to have NPLs in the banking sector left over from the crisis and this has had a statistically significant adverse effect on the supply of credit (in both models analyzed). There is a perception that with a weak judicial framework that these borrowers will be able to block enforcement of a loan agreement should they wish not to repay a loan. Moreover, with BI's stated intention to move toward Basel II, banks recognize that they will have to hold additional capital against these loans.

F. Policy Conclusions

117. **Inasmuch as the credit has been demand constrained, policies aimed at increasing the supply of short-term lending will not be effective in stimulating loan growth.** Moreover, policies aimed at relaxing prudential norms away from those considered to be consistent with international standards risk sending the wrong signal to banks and supervisors.

118. **Pressuring banks to make longer-term loans with no guaranteed short-term exit will increase the liquidity risk in the system.** Indonesian banks have an average maturity on their liabilities of about one month. For these institutions to make long-term loans (even with floating rates), in the absence of a secondary market, increases liquidity risk in the system.

119. **Given the relative underdevelopment of sources of long-term credit, there is potential for stimulating increases in such lending.** Anecdotal evidence suggests that there

is likely unmet demand for long term credit to finance infrastructure, housing, and other long term projects. For example, in Jakarta buyers of condominiums must be able to pay the entire cost of the apartment over three years, which clearly constrains demand to upper income buyers.

120. **The authorities need to move forward with measures to stimulate the creation of a market for asset backed securities.** The draft matrix of policies to enhance the financial sector contains reference to measures that need to be taken to develop a mortgage backed securities market. This could be expanded to cover other types of assets. The government could also explore expanding the role of Ascrindo, a state owned loan guarantee company, to include mortgages for lower-middle income borrowers. This, in conjunction with a secondary market would help develop long term mortgage lending in Indonesia.

REFERENCES

Juda Agung (2002) "Credit Crunch in Indonesia in the Aftermath of the Crisis: Facts, Causes and Policy Implications" Bank Indonesia, Jakarta.

Kusmiarso Bambang (2006) Housing and Mortgages Markets in the SEACEN Countries, The South East Asian Central Banks (SEACEN), Kuala Lumpur, Malaysia.

Barajas, Adolfo, and Roberto Steiner, 2002, "Credit Stagnation in Latin America," IMF Working Paper 02/53 (Washington: International Monetary Fund).

Calvo, Guillermo A., Alejandro Izquierdo, and Ernesto Talvi, 2006, "Phoenix Miracles in Emerging Markets: Recovering Without Credit from Systemic Financial Crises" (Unpublished manuscript; Washington: Inter-American Development Bank).

Canales-Kriljenko, Jorge Iván, and Gastón Gelos, 2006, "Post-Crisis Credit: Facts, Lessons, and Prospects," IMF Country Report No. 06/427 (Washington: International Monetary Fund).

Catao, Luis (1997) "Bank Credit in Argentina in the Aftermath of the Mexican Crisis: Supply or Demand Constrained?" International Monetary Fund (WP/97/32).

Ghosh, Swati R., and Atish Ghosh, 1999, "East Asia in the Aftermath: Was There a Credit Crunch?" IMF Working Paper 99/38 (Washington: International Monetary Fund).

Kiefer, Nicholas, 1980, "A Note on Regime Classification in Disequilibrium Models," *Review of Economic Studies*, Vol. 17, pp. 637–639.

Laffont, Jean-Jacques, and Rene García, 1977, "Disequilibrium Econometrics for Business Loans," *Econometrica*, Vol. 45.

Maddala, G., and Forrest Nelson, 1974, "Maximum Likelihood Methods for Models of Markets in Disequilibrium," *Econométrica*, Vol. 42, No. 6, pp. 1013–1030.

Pazarbasioglu, Ceyla, 1996, "A Credit Crunch? A Case Study of Finland in the Aftermath of the Banking Crisis," IMF Working Paper 96/135 (Washington: International Monetary Fund).

Sealey, C.W., 1979, "Credit Rationing in the Commercial Loan Market. Estimates of a Structural Model under Conditions of Disequilibrium," *Journal of Finance*, Vol. 34, pp. 689–702.

Stiglitz, Joseph, and Andrew Weiss, 1981, "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, Vol. 71, pp. 393–410.

Tornell, Aaron, and Frank Westermann, 2002, "The Credit Channel in Middle Income Countries," NBER Working Paper No. 9355, (Cambridge, Massachusetts: National Bureau of Economic Research).

World Bank (2006) "Unlocking Indonesia's Domestic financial Resources: the role of Non-Bank Financial Institutions," Washington DC.

APPENDIX I: DETERMINANTS OF LONG- AND SHORT-RUN SUPPLY AND DEMAND FOR CREDIT

The long run model

121. The supply of bank credit is specified as a log-linear function of the lending capacity of the banking system (LC) and of the lending interest rates (i) as follows:

$$S = \alpha_0 LC^{\alpha 1} i^{\alpha 2} \varepsilon^s \quad (6)$$

Where ε is an error term.

The long-run demand for credit is a positive function of GDP and negatively related to the interest rate,

$$D = \beta_0 GDP^{\beta 1} i^{-\beta 2} \varepsilon_d \quad (7)$$

And in the long run, supply and demand for credit converges.

$$S = D = Actual\ Credit \quad (8)$$

The short run model

122. The short run specification of the model is derived by applying the log operator and taking the first difference of equations (6) to (8), and adding to these equations any extra variable which may have a short run impact on credit. The analysis in Section III highlighted the factors that impact on credit supply to include the credit risk of the corporates, the banks balance sheet structure, crowding out by the government, the legal and judiciary framework, weaknesses in information infrastructure, and bank regulations. Unfortunately, there are no available indices to capture trends in many of these variables and the developments do not lend themselves to being proxied by dummies.

123. **Thus, the empirical specification used for the short run version of the supply equation (5) is:**

$$\Delta S_t = \alpha^1_0 + \alpha^1_1 \Delta LC_t + \alpha^1_2 \Delta ispread_t - \alpha^1_3 \Delta (NPL\ ratio)_t - \alpha^1_5 \varepsilon_{s-1} + U_t \quad (9)$$

Where S_t is private sector credit, LC is lending capacity of banks defined as deposits and foreign liabilities, *ispread* is the interest rate spread computed as the difference between

lending and deposit rates, NPL ratio denotes the credit risk, ε is the residual of equation (6) or "error correction term" and U is a normally distributed residual term, $U\tilde{t} \sim N(0,\sigma_u^2)$.

By postulating that current changes in credit supply respond to deviations between the actual level of credit and its long run supply, the error correction term ensures consistency between the short and the long run results of the model.[62]

124. **Similarly, the short run credit demand is specified as:**

$$\Delta D_t = \beta^1_0 + \beta^1_1 E_{(\Delta GDP)_t} - \beta^1_2 \Delta i_t - \beta^1_3 excessdebt_t - \beta^1_4 \varepsilon_t + Z_t \qquad (10)$$

Where E (GDP) is the expected output which is proxied by a production index, *i* is the lending rate, excess debt is measured by the deviation of private sector debt from its long run trend and ε is the estimated residual of equation (7), i.e., an error correction.[63]

125. The equations were estimated using a Vector Error Correction Model (VECM) and Least Squares estimation (OLS). The sample period is 2001M1-2006M12. The empirical investigation began with an analysis of the time series properties of the variables. The augmented Dickey-Fuller (ADF) test and the Phillip Perron (PP) tests were used to determine the order of integration of the data compiled for each variables (see Appendix for the results). Following on this procedure, we applied the Johansen (1995) cointegration methodology. The VECM has the distinct advantage of ensuring consistency between the long run and the short run equations through the error correction term.

126. **The results are presented in the tables below**. Appendix Table 1 presents the results for the short-run supply and demand equations and Appendix Table 2 presents the results for the long-run specifications

[62] Ideally, the equation should have included dummies for regulations, the legal framework for contract enforcement and credit registry, but these were omitted due to insufficient information on how they have progressed.

[63] Ideally, the short run demand equation should have included unemployment among the explanatory variables, but data limitations precluded this possibility.

Table 1: Indonesia: Determinants of Private Sector Credit
Results of the Ordinary Least Square(OLS) estmation

	Demand model		Supply model	
	Coefficient	**P-value**	**Coefficient**	**P-value**
d(*GDP*) (+1)	0.04	0.08		
d(i)	-0.02	0.02*		
d(i_spread) (-2)			0.01	0.23
d(PSC) (-2)	0.08	0.35		
Excess debt	0.07	0.00**		
d(Lendcap) (-1)			0.15	0.00**
d(NPL) (-5)			-0.03	0.01*
ECT	1.06	0.00**	0.97	0.00**
constant	0.01	0.00**	0.01	0.00**
No. of Obs.	68		65	
Adjusted R-squared	0.50		0.81	
DW statistic	1.75		1.93	
Breusch-Godfrey LM test	1.47	0.24	0.06	0.94
Jarque-Bera test	0.38	0.82	1.00	0.61
Skewness	-0.18		-0.28	
Kurtosis	3.02		2.78	

1/ All variables are in logarithms, with the exception of interest rate and interest spread.
* and ** denote 5 and 1 percent significance, respectively.

The results of the long-run model confirm the existence of a significant relationship between the variables. The results are consistent with the theoretical model and the estimated coefficients have the expected signs and are statistically significant at 5 percent or very close. The model also proved to be robust to a number of specification tests for autocorrelation and unit root of the residuals.

APPENDIX Table 1: Results of Different Specifications of the Disequilibrium Model for Real Credit

	(1)	(2)	(3)
Demand function			
Constant	20.70*	7.99***	18.30***
	(1.85)	(78.84)	(4.69)
Real lending interest rate	-0.01*	-0.01***	-0.97***
	(1.65)	(4.54)	(2.70)
Stock market index	0.73***	0.22***	0.37***
	(3.38)	(4.38)	(5.30)
Output gap	0.01	---	0.03***
	(0.43)	---	(4.15)
Real output	-1.06	---	-0.82**
	(1.19)	---	(2.77)
Inflation	0.23	---	-0.41
	(0.21)	---	(0.34)
Sigma	0.17***	0.03*	0.04***
	(5.49)	(1.77)	(4.28)
R^2 (OLS)	0.83	0.55	0.93
Supply function			
Constant	4.97***	-20.14***	-8.64***
	(7.53)	(7.37)	(3.40)
Interest rate spread	-0.04***	0.02***	0.03**
	(6.35)	(3.41)	(2.16)
Lending capacity, lagged	0.08***	0.53	1.59***
	(18.04)	(0.02)	(7.65)
Industrial production, lagged	0.67***	---	0.72***
	(4.70)	---	(2.68)
GDP, lagged	---	2.19***	---
	---	(6.30)	---
NPL ratio to total credit, lagged	---	-0.66*	---
	---	(1.71)	---
Pre and post crisis dummy	---	---	0.19
	---	---	(1.43)
Sigma	0.07***	0.02*	0.05***
	(3.19)	(1.66)	(3.60)
R^2 (OLS)	0.54	0.94	0.95
Log likelihood	42.67	52.18	69.53
Period covered	1992:Q1-2006:Q4	2000:Q3-2006:Q4	1992:Q1-2006:Q4; excluding crisis period

Notes: All variables are deflated by the WPI; all variables are in logs expect for real interest rates.

t-statistics in parenthesis; *, **, and *** represent significance at 10, 5, and 1 percent respectively.

VI. INDONESIA: CREATING FISCAL SPACE[64]

A. Introduction

127. **In Indonesia, the government's key policy priorities require the creation of fiscal space to increase spending on health, education, and infrastructure.** Over the past five to ten years, fiscal policy has been geared toward consolidation and reducing the high public debt ratio. More recently, the government has taken significant measures, especially through reducing domestic fuel subsidies, to increase spending in priority areas at both the central and local government levels, with a view to improving social indicators and alleviating key bottlenecks to growth. However, significant additional spending may be needed to achieve the government's growth targets of about 7 percent in the medium term, and to reduce poverty from the current 18 percent level. At the same time, the government may need to deal with some decline in oil revenues.

128. **In its broadest sense, fiscal space can be defined as the availability of room in the budget that allows a government to provide resources for priority purposes without undermining fiscal sustainability.**[65] Fiscal space can be generated through: (i) measures to raise revenue, such as broadening the tax base and improving compliance; (ii) reallocation of expenditures; and (iii) higher deficits, as long as this does not undermine fiscal sustainability. In cases where public resources are insufficient to meet priority spending needs, private sector participation in the provision of public goods can provide an alternative, if a proper institutional framework is in place.

129. **Drawing on Indonesia's policy challenges and key priorities, this paper attempts to answer the following questions:** (i) why is more fiscal space needed in Indonesia? (ii) what can be done to expand fiscal space at the central government level? and (iii) what measures can increase fiscal space at the local government level? Results indicate that fiscal space available at all levels of government could be sizable. The sectoral expenditure analysis in this paper is to a large extent based on recent comprehensive World Bank studies, including the 2007 Public Expenditure Review.

B. Why is More Fiscal Space Needed in Indonesia?

130. **Additional spending on social programs is needed to improve Indonesia's poverty and social indicators.** While considerable progress has been achieved in the last

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[65] Heller, P., 2005, "Understanding Fiscal Space", Policy Discussion Paper, N05/4, (Washington DC: International Monetary Fund).

decade (Annex VI.1), comparisons with other Southeast Asian countries show Indonesia as having a large share of near poor.[66] Similarly, access to quality health, education, and other basic services is weaker, which is consistent with a lower per capita income (Table VI.1).

Table VI.1. Some social indicators: Indonesia and Comparator Countries 1/

	Poverty: (less than 1 US$/day , headcount ratio,	Poverty: (less than 2 US$ a day, headcount	Primary education (Gross %)	Secondary enrollment	Under 5 child mortality (per 1000)	Maternal mortality ratio (per 100k live
Indonesia	8.5	49	82	52.9	46	307
Malaysia	...	...	91	70	12	41
Philippines	15	43	97	84	34	200
Thailand	2	32	na	77	21	44
Vietnam	2	26	101	74	23	130
E. Asia Pacific	...	34	99	69	37	117
Lower Middle Income	...	...	98	72	40	153

Source: World Bank MDG Atlas as retrieved on June 8, 2007. World Bank estimates.

1/ For 2006 or most recent year where data is available.

Notwithstanding recent increases, Indonesia spends less on both education and health (as a percentage of GDP) than comparable countries in the region (Table VI.2). In addition, pressures to increase total spending on education are likely to rise in the future as they are estimated at only 17 percent of total expenditures, while both the constitution and the law on the national education system stipulate that a minimum of 20 percent of the central and regional budget, exclusive of salary costs, be spent on education.[67]

Table VI.2. Total Public Expenditures 1/
(In percent of GDP)

	Health	Education
Indonesia	0.9	2.8
Thailand	3.3	4.6
Malaysia	3.8	8.1
Philippines	3.2	3.1
Vietnam	5.4	...
India	4.8	...

Source: WDI, World Bank Public Expenditure Review (2007).

1/ For 2004. This is the most recent year where local government data is available.

131. **Relatively low infrastructure investment is regarded as a key bottleneck to faster economic growth.**[68] Indonesia's overall central government investment level has hovered

[66] 49 percent of the population lives with less than US$2 a day. This is high relative to the comparable average for the East Asia region (at 34 percent).

[67] Using 2004 data, it is estimated that an additional Rp 62 trillion would be needed to meet that target, which would have been equivalent to 13.9 percent of total government spending in 2004.

around 2–3 percent of GDP since the advent of decentralization in 2001. In recent years actual spending has fallen well below budgeted amounts as a result of weak project preparation and implementation, and significant delays in the budget process, including because of new budget execution procedures and reorganization of the Ministry of Finance.[69] Moreover, a comparison of central government investment levels across countries shows that Indonesia's levels have been lower than in some neighboring countries (e.g., Malaysia or Vietnam). An increase in public investment would aim at:

- **Filling large infrastructure needs**. Infrastructure is increasingly seen as one of the key constraints to growth and poverty reduction. Total private and public annual infrastructure investment, including by public enterprises and local governments, fell from a pre-crisis high of 6 percent of GDP to a historical low of about 2–3 percent of GDP following the crisis. This led to a rapid deterioration of Indonesia's infrastructure indicators, which have now become some of the weakest in the region (Table VI.3).

Table VI.3. Regional Ranking for Access to Infrastructure Services

Infrastructure	Indonesia	Regional Rank
Electrification ratio	53%	11 of 12
Access to sanitation	55%	7 of 11
Access to clean Water	14%	7 of 11
Road network (km per 1000 people)	1.7	8 of 12

Source: Indonesia World Bank PER (2007).

- **Compensating for limited private sector participation in infrastructure.** The vacuum left by the sharp fall in public infrastructure investment during the crisis was not filled by private infrastructure investment. While the government is attempting to address this issue through improvements in the investment climate and forging partnerships with the private sector, this is a protracted process—none of the 91 projects identified in the 2005 infrastructure summit have been finalized yet.[70]

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[68] Central government investment is measured by "development spending", which comprises both capital and social spending. This is the best proxy for measuring investment as capital spending is only available starting in 2005 once the unified budget has been introduced. Data on regional development expenditures are not yet available, but these were reported to amount to 2.5 percent of GDP in 2004.

[69] On average, about 50 percent of total development spending is still effected in the last quarter of the year.

[70] Main bottlenecks are uncertainties surrounding the legal system and weak project preparation. The government has tried to address these issues by introducing a new institutional framework that encourages careful project preparation, with open and transparent bidding and appropriate risk assessment, along with a limit on government's risk exposure. However, this framework will need time to fully bear fruit.

C. How has Fiscal Space Evolved Since 2001?

132. **Several policies since 2001 have contributed to Indonesia's fiscal space:**

- **Higher non-oil revenues.** Total revenues increased to 19 percent of GDP in 2006 (from 18.3 percent of GDP in 2001), with higher non oil and gas tax revenues compensating for the slight decline in oil and gas revenues.[71] Given the volatility in oil revenues and their expected decline, the government has aimed to increase non-oil and gas tax revenues through gains in tax administration and some broadening of the tax base. This has led to a significant increase in non oil and gas tax revenues to 11 percent of GDP in 2006 (from 9.9 percent of GDP in 2001).

- **Decreasing interest payments.** The interest rate bill, at 2.4 percent of GDP in 2006, has been halved since 2001 and only represents 12 percent of total expenditures (compared to 30 percent in 2001). This corresponds to a halving of the public debt level to 39 percent of GDP by end-2006, resulting from the government's fiscal consolidation strategy, as well as non-debt financing such as financial asset sales from the bank restructuring agency (IBRA).

- **Declining energy subsidies.** Spending on fuel subsidies, which are regressive except for kerosene, reached 4.4 percent of GDP in 2005 (compared to 3 percent of GDP in 2001) as fuel prices remained fixed while international oil prices soared. Sharp fuel price increases in 2005 (both in March and October, combined with the introduction of market prices for industry sales in July [72]) reduced those subsidies to 1.9 percent of GDP in 2006.

- **Small decline in personnel spending.** Despite the 45 percent increase in the base wage between 2001 and 2006, personnel spending fell slightly as a share of GDP (0.2 percent) during that time. Currently, Indonesia spends about 10 percent of all expenditures on remuneration of government employees.

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[71] Despite international crude oil prices increasing from US$24 a barrel to about US$60 a barrel, oil and gas revenues remained about stagnant at about 6 percent of GDP (from 6.3 percent in 2001) and about 30–35 percent of total revenues, mainly because of a 30 percent decline in oil production over the period.

[72] The October increases were especially sharp, with gasoline prices raised by 88 percent, diesel by 105 percent and kerosene by 186 percent.

133. **However, with weak budget execution in the last few years, revenue increases and gains from expenditure rationalization resulted in lower deficits.** The overall deficit fell from 3.2 percent of GDP in 2001 to 1 percent of GDP in 2006. Meanwhile, the advent of decentralization in 2001, which led to the devolution of most of the health and expenditure programs, increased regional transfers and reduced fiscal space at the central government level, but substantially increased space at the regional level (Section E). Overall, staff estimates that fiscal space at the central government level increased by only 0.2 percent of GDP during 2001–06 (see Table VI.4).

Table VI.4. Indonesia: Central Government Fiscal Space Under Current Baseline
(Change during periods, percent of GDP)

	2001-2006	2006-2012
Revenues	0.7	-2.3
Oil and Gas	-0.3	-2.8
Non oil and Gas	1.0	0.5
Current Spending	-1.7	-3.6
Personnel	-0.2	1.1
Interest	-3.3	-1.6
Transfers to Regions	1.9	-0.9
Subsidies	-1.5	-2.1
Goods and services	1.4	-0.2
Overall Balance	2.2	0.4
Fiscal space 1/	0.2	0.8

Source: IMF Staff Estimates

1/ A change in fiscal space is defined as improved revenue mobilization, reduction in current spending (discretionary and non discretionary) and increase in the deficit. A positive number implies a positive contribution to fiscal space.

D. What Can Be Done to Increase Central Government Fiscal Space?

134. **Under current policies, the fiscal space of the central government could increase by about 1 percent of GDP over the next five years.** A reduction in spending is projected to be the largest contributor to the change in fiscal space (Table VI.4) with: (i) interest payments declining to 0.8 percent of GDP, as public debt is expected to fall to 26 percent of GDP; and (ii) some reduction in fuel subsidies assumed from 2010 onwards (following the general elections). Absent new policy measures, the expansion of the fiscal space beyond 1 percent of GDP is limited by:

- **Lower Tax Revenues.** The implementation of tax laws recently approved by Parliament, as well as those still before Parliament, should help to both enhance revenues through better tax administration and improve the business climate. However, tax cuts are also envisaged, which would reduce revenue by about 0.6–0.8 percent of GDP by 2010. Such losses would arise mostly from cuts to the personal and corporate income tax rates and possible additional VAT exemptions.[73] Losses

[73] Main changes include: (i) reduction of the PIT rate from 35 percent to 33 percent in 2008 and to 30 percent by 2010; (ii) reduction in the number of brackets for the PIT from 5 to 4; (ii) change in the corporate income tax rate from 3 brackets to a single rate of 30 percent; and (iii) reduction of the CIT rate from 30 percent to 28 percent in 2008 and 25 percent in 2010.

could be higher, depending on the implementation of tax incentives included in the tax package and the investment law.

- **Lower Oil and Gas Revenues.** These are expected to be halved to about 3 percent of GDP in 2012, or about 18 percent of total revenues. These projections assume oil prices declining to US$63 a barrel (a 25 percent reduction in real terms) and some increase in oil production reflecting the coming on line of the Cepu Oil field[74]. The impact of lower oil prices on fiscal space would be offset by lower subsidies and transfers to regions.

- **The need for continued fiscal discipline.** The overall fiscal deficit is expected to fall slightly below 1 percent of GDP by 2012, allowing for continued reduction in the debt-to-GDP ratio (to about 26 percent of GDP). Such a policy would help to keep public debt sustainable even in the event of severe macroeconomic shocks.

135. **Several options are available to create fiscal space at the central government level without higher fiscal deficits.** The government is focusing on its continuing program to improve tax administration, which is expected to increase revenues by at least 0.2 percent of GDP a year following the modernization of medium taxpayers offices and the revamping of audit procedures—this yield is included in the baseline scenario shown in Table VI.4. However, as efforts to improve tax administration are likely to take effect only gradually, another option would be to increase non-oil and gas tax revenues, which are still low by international standards. Over time, additional yields of at least 1 percent of GDP on an annual basis (staff estimates) could be generated through:

- **Limiting VAT exemptions.** VAT, with a single 10 percent rate, is a major source of revenue for Indonesia, currently accounting for about 20 percent of revenues. However, many products continue to be exempt, including under upcoming legislation. The removal of a number of exemptions could be considered as a VAT is most effective when applied to virtually all goods and services at a uniform rate. Examples include mining, electricity (only households with meter capacity above 6,600 watts are taxed), agriculture, clean (piped) water, hotels and restaurants. Removing such exemptions could increase revenues by about 0.3 percent of GDP (staff estimate).

- **Adjusting property tax rates**. An increase in the land and building tax could be considered. Properties are assessed on an annual basis and the taxable value does not

[74] The decline appears large relative to output, as nominal GDP is expected to almost double by 2012. Projections for 2012 assume the same cost oil assumptions as those used in the 2007 budget.

exceed 40 percent although they are allowed by law to be equal to 20–100 percent of the assessed value. Currently, the annual component of land and building taxes produces relatively little revenue (about 0.4 percent of GDP), with most of the intake coming from industrial sectors, such as mining.

- **Introducing a fringe benefits tax.** The main source of non-oil and gas revenues in Indonesia are income taxes, mostly personal and corporate income taxes. Under the 1983 income tax reform, in-kind fringe benefits (company provided housing, motor vehicles, etc.) are not taxed and companies are no longer allowed to deduct the cost of these benefits. Some countries (e.g., New Zealand or the Philippines) have dealt with the problem of in-kind fringe benefits by imposing a separate fringe benefits tax usually at the highest marginal tax rate for individuals. All employers are subject to this tax, including loss making firms, as it is imposed in lieu of taxing employees directly on their fringe benefits. Such a measure, especially if the tax is charged at the highest marginal rate for individuals (and paid by all employers), could result in sizable revenues in Indonesia.[75]

136. **The rationalization of current expenditures could also provide additional room for priority spending.** Indonesia has a very uneven distribution of expenditures. Spending on interest, subsidies, personnel (outside of education, and health) and government apparatus and supervision, represents about one-half of all government expenditures. That trend is expected to continue in the future, thus limiting priority spending on infrastructure, health, and education.[76] According to staff estimates, efficiency gains, along with an elimination of the energy subsidies, could expand fiscal space by an additional 1.5 percent of GDP:

- **Efficiency of spending.** Substantial savings in expenditures could materialize through efficiency gains though they are difficult to quantify. For example, in both the health and education sectors, the most immediate challenge is to better coordinate across all levels of governments to avoid duplication of tasks. Another challenge in the health sector would be to channel spending to areas of most benefit to the poor. Currently, health resources are mostly directed to services predominantly used by higher income quintiles, or for salaries of health providers (World Bank, 2007). In addition, improvements in the procurement process and a simplification of budget execution procedures could reduce costs associated with project preparation and

[75] Potential valuation methods for fringe benefits could typically include the rental value of housing owned or rented by employer, percentage of the cost of the vehicle or school fees provided to the employee. It was not possible to calculate the potential revenue impact given the lack of information on in-kind benefits.

[76] While education and health functions have been devolved to local governments, about 60 percent total development expenditures in these sectors still comes from central government.

implementation (as was the case in 2006 when improvements in procurement reportedly led to savings in certain budgetary lines).

- **Government apparatus**. Indonesia's spending on general administration is expected to remain at about 15 percent of total expenditures, which is relatively high compared with other countries. Some savings in this area could materialize especially if civil service reforms are implemented, including through modifying the compensation package and developing clear job descriptions and service standards (World Bank, 2007).

- **Subsidies.** An increase in average fuel prices[77] could help to reduce fuel subsidies and free up to 1.2 percent of GDP in additional resources, although some of the gains would need to be spent on compensatory programs to avoid a negative impact on the poor. The introduction of an automatic price adjustment mechanism could safeguard fiscal space in the future. Additional gains could also stem from improving the efficiency of the electricity company, as intended by the authorities. A 10–40 percent increase in electricity tariffs could help reduce these subsidies by about 0.2–0.6 percent of GDP in the medium term. However, care has to be undertaken in designing the tariff rate increase as Indonesia has five types of subsidies, which affect the poor differently.[78]

E. Local Governments and Fiscal Space

137. **Fiscal space at the local government level has increased by about 0.8 percent of GDP since 2001 (Table VI.5).** While estimates for regional governments' financial operations have to be taken with caution given data limitations for 2005 onward,[79] the

[77] Staff estimates that an additional 10–40 percent increase in average fuel prices would reduce fuel subsidies by 0.3–1.2 percent of GDP by 2012.

[78] The most important type of subsidy is the one that allows for low intensity electricity (450 volt capacity) and provides the most benefit to the poor. Thus, the regressive nature of the electricity subsidy should be reduced by increasing rates for other subsidy types (i.e., use of 900 VA to 6600 VA).

[79] Details on subnational revenues and expenditures are available only to 2004. Data for 2005 and 2006 were extrapolated from financing information (regional government deposits) and from known revenue transfers. Expenditure composition for 2005–06 is assumed the same as in 2004.

increase in fiscal space is mostly explained by an increase in central government transfers[80] from 5 percent of GDP in 2001 to about 6.8 percent of GDP in 2006. This reflects higher budgeted oil prices, as well as increased ad-hoc revenue sharing arrangements granted to provinces such as Aceh and Papua, and the implementation of the hold harmless provision.[81]

Table VI.5. Indonesia: Fiscal Space at the Regional level 1/
(Change during periods, percent of GDP)

	2001-2006 2/
Total revenue and grants	1.8
Own revenue	0.2
Total transfer from central government	1.9
Other	-0.2
Current Spending 3/	0.5
Overall Balance	0.5
Fiscal Space	0.8

Source: IMF staff estimates.

1/ A change in fiscal space is defined as improved revenue mobilization, reduction in current spending (this may however include some spending on salaries on teachers and health workers) and increase in the deficit. A positive number implies a positive contribution to fiscal space.

2/ Actual data on regional government is available until 2004. Data for 2005-2006 are staff projections, based mostly on available financing information (i.e., local governments' deposit accumulation).

138. **The expansion of priority spending at the local level, especially on health and education, was however limited by:**

- **Regional governments' inability to spend their full budgets.** Regional governments ran large surpluses during the last five years, leading to substantial deposit accumulation**.** As of end-March 2007**,** the stock of regional government deposits, held at commercial banks reached 2.8 percent of GDP and is expected to grow to 3 percent of GDP by end- 2007. The low spending at the local level reflects planning delays and implementation capacity constraints, as local governments are unable to keep up with large revenue increases.

- **Higher spending on personnel and other administration expenses**. Even after excluding salaries for education and health personnel, the current level of expenditure on administration at the local level is high (at about 30 percent of regional spending),[82] reflecting in part the creation of more than 100 new districts over the period (an increase of 30 percent from 336 districts in 2001 to 437 in 2006). The

[80] Intergovernmental fiscal transfers are fixed at budget time and comprise three elements: (i) shared revenues (tax and nontax); (ii) a non earmarked general allocation grant (DAU); and (iii) an earmarked special allocation grant (DAK). The largest component of the transfers is the DAU, which is currently 26 percent of net domestic revenues (net of revenue sharing).

[81] This provision, introduced with the advent of decentralization, ensures that no district or province receives transfers that were less than in the previous year. This provision is expected to be removed in 2008.

[82] Largest items in administrative spending include salaries and allowances for the local and parliamentarians as well as public office building rehabilitation and construction.

World Bank estimates that only 5 percent or less of the budget should be allocated to such expenses, which is the norm in most countries.

139. **Priority spending at the local level could be increased considerably in the next few years.** The government recognizes that there is considerable fiscal space at the local level and substantial room for improvement in the use of its resources. It is currently pursuing policies aimed at increasing overall spending using regional governments' large accumulated surpluses and reorienting the current budget allocation towards infrastructure and the health and education sectors.[83] Policies to be considered include the use of:

- **Better budget allocation.** Future delivery of public funds from the central government, especially targeted grants, could be linked to certain investment thresholds being met by local governments, or the improvement of performance in certain key sectors (i.e., water provision, road infrastructure, and education outcomes).

- **Co-financing schemes and fiscal incentives.** Central government's financing of sub-national infrastructure projects (i.e, roads) could be made conditional on local governments' participation, including through providing adequate road maintenance or electrification in that area.

- **Improved public financial management practices at the regional level**. In addition to increasing the volume of priority spending, improving its effectiveness remains a key issue. Inefficiencies in the budgeting process need to be overcome, including through streamlining of budget approval processes, more regular transfers of resources to local governments and improving local governments' capacity to plan future investments (i.e., investments are commonly done on an ad-hoc basis and not linked to medium-term plans or budget projections).

F. Conclusions

140. **Indonesia needs to create fiscal space to help meet its ambitious infrastructure and poverty reduction goals.** Over the recent past, the expansion of priority spending has been modest as: (i) budget execution problems have resulted in revenue increases and savings on subsidies being mainly used to pursue the central government's fiscal consolidation strategy; and (ii) subnational governments continued to accumulate large

[83] While local governments are expected to spend more on education and health, including through higher investment, the central government still plays an important role as it spends about 14 percent of its budget in the education sector alone. The government is currently working on new regulations that would better delineate expenditure responsibilities across different levels of government.

surpluses as local implementation capacity did not keep up with the large increase in central government transfers. Looking ahead, expansion of fiscal space is essential to meet the country's large infrastructure and social needs. This can be done without affecting public debt reduction goals. In this regard, the following measures could help to create additional fiscal space:

- **Central government.** In addition to ongoing efforts to improve tax administration, new tax policy initiatives could be considered to quickly bring a sizable increase in non oil and gas taxation, while further gains in spending efficiency combined with a reduction in subsidies could provide further fiscal space.

- **Regional governments.** Improved budget allocation along with better public financial management systems would lead to substantial efficiency gains and allow for increased use of the regional governments' accumulated deposits on key priority areas.

REFERENCES

Clements, Benedict; Jung Hong-Sang, and Sanjeev Gupta. "Real and Distributive Effects of Petroleum Liberalization: The case of Indonesia," IMF Working Paper, N03/204 (Washington DC: International Monetary Fund).

Government of Indonesia, 2004, RPJM-Medium-term Strategic Plan 2004–2009 (Jakarta).

Heller, P., 2005, "Understanding Fiscal Space," Policy Discussion Paper, N05/4 (Washington DC: International Monetary Fund).

International Monetary Fund, 2002, Indonesia: Republic of Indonesia: Tax Policy, Tax Administration, and Customs administration Reform: Volume I. Tax Policy" (Washington DC: International Monetary Fund).

International Monetary Fund, 2005, "Indonesia: A Due Diligence Review of Pending Tax Reform Proposals". Technical Assistance Report (Washington, DC: International Monetary Fund).

International Monetary Fund, 2006, "Indonesia: Report on Observance of Standard and Codes-Fiscal Transparency Module" (Washington DC: International Monetary Fund).

International Monetary Fund, 2007, "Indonesia: Technical Note on Statement of Fiscal Risk,". mimeograph (Washington DC: International Monetary Fund).

Lewis, Blane, 2005, "Indonesian Local Government spending, Taxing and Saving: An Explanation of Pre- and Post decentralization Fiscal Outcomes," *Asian Economic Journal*, 19(3), pp. 291–317.

Lewis, Blane and Jasmin Chakeri, 2004, "Central Development Spending in the Regions Post-Decentralization," *Bulletin of Indonesian Economic Studies*, Vol. 42, n3.

World Bank, 2005, Papua Public Expenditure Analysis: Regional Finance and Service Delivery in Indonesia's Most Remote Region (Jakarta: World Bank).

World Bank, 2006a, "Fiscal Policy for Growth and Development: an Interim Report Prepared for the Development Committee Meeting, April 23 (Washington DC: World Bank).

World Bank, 2006b, Making Services Work for The Poor (Jakarta: World Bank).

World Bank, 2006c, Making the New Indonesia Work for the Poor. (Jakarta: World Bank).

World Bank, 2006d, Ukraine: Creating Fiscal Space for Growth: A Public Finance Review". (Washington DC: World Bank).

World Bank. February 2007. "Spending for Development: Making the Most of Indonesia's New Opportunities". Public Expenditure Review. (Jakarta: World Bank).

Annex 1. Indonesia: Selected Social Indicators, 2001-06

	2001	2002	2003	2004	2005	2006
Education						
Elementary school net enrollment ratio, percent *of relevant aged group*	92.9	92.6	92.6	93.0	93.3	...
Population > 10 yr old not completed primary school (percent)	34.4	31.3	30.8	29.4	29.3	...
Population > 10 yr old finished primary and Junior high school (percent)	47.6	49.2	47.1	49.9	49.4	...
Population > 10 yr old finished high school and college (percent)	18.0	19.5	11.5	20.7	21.3	...
Adult literacy rate	89.3	90.7	90.9	90.5	90.9	...
Health						
Life expectancy rate	66.2	66.2	66.2	68.6	67.8	...
Fertility rate, *births per woman*	2.3	2.3	2.3	2.3	2.3	...
Children < 5 yr old that have good nutrition (percent)	69.1	71.9	69.6	74.4	68.5	...
Children < 5 yr old that had been immunized (percent)	89.9	90.6	...	92.1	...	...
Housing and Sanitation						
Household with access to piped water (percent)	18.3	19.7	18.9	18.0	18.0	...
Household with electricity (percent)	86.3	87.6	87.9	89.0	...	...
Poverty and inequality						
Number of people under poverty line (in millions)	37.9	38.4	37.3	36.1	35.1	...
Population under poverty line (in percent)	18.4	18.2	17.4	16.7	16.0	17.8
Gini Coefficient	0.32	0.33	0.32	0.33	0.33	...
Employment						
Total labor force (in millions)	99	101	100	104	107	...
Labor participation rate+A20	68.6	67.8	65.7	67.6	68.0	66.2
Unemployment rate	8.1	9.1	9.5	9.9	10.3	10.3

Sources: World Bank and CEIC Database.