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Indonesia: Selected Issues

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INDONESIA

Selected Issues

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Approved by the Asia and Pacific Department

June 30, 2009

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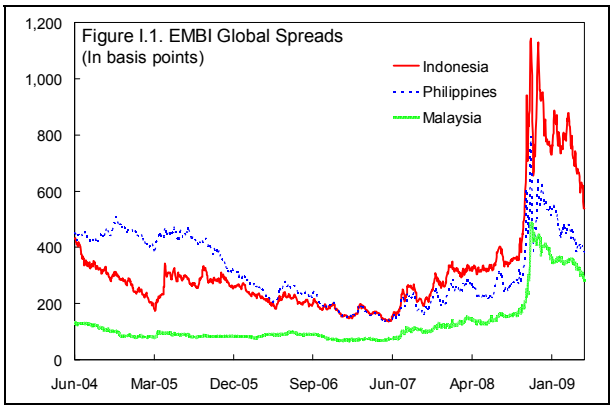
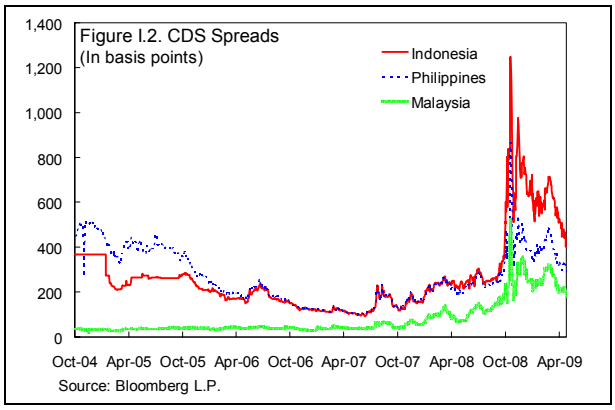
I. Explaining Indonesia's Sovereign Spreads[1]

Indonesia's external borrowing spreads increased by over 1,000 bps from mid 2007 to late 2008, before subsiding in recent months. The large increase in spreads, especially compared with Indonesia's peers, has prompted questions about whether the spreads adequately reflect the improvements in fundamentals made over the past few years. This paper examines the determinants of Indonesia's spreads, and finds that fundamentals can explain both the level of and the increase in spreads. Spreads could be lowered through further improvements in the policy framework, such as lowering the level and volatility of inflation and increasing the buffers to meet external financing needs.

A. Introduction

1. **Indonesia's external borrowing costs increased sharply during the global financial crisis in late 2008**. The EMBI spread and the CDS spreads co-moved closely, falling from 2004 to reach their lowest levels in mid 2007. With the onset of the global crisis in mid 2008, global risk aversion rose, and Indonesia's spreads began to rise. In late 2008, coinciding with the turmoil in international financial markets, Indonesia's spreads increased to nearly 1,200 bps, over 1,000 bps higher than the pre-crisis levels and higher than its peers.





2. **This increase in spreads comes against the backdrop of generally improved domestic fundamentals in recent years**. Over the past five years, public and external debt ratios have been halved to about 30 percent of GDP, primary fiscal surpluses have averaged 1½ percent of GDP per year, the external current account has been in surplus, and the financial sector has been strengthened with relatively large capital buffers, low nonperforming loans and improved provisioning. These improvements contributed to a decline in Indonesia's spreads through mid 2007, along with those of other emerging markets, as global financial markets were benign.

[1] Prepared by Rishi Goyal and Marta Ruiz-Arranz.

3. **The improved fundamentals and declining spreads—in line with other emerging markets prior to the crisis—raises the question as to why Indonesia's spreads have underperformed in the most recent period**. In particular, is the widening of Indonesia's spreads warranted by the fundamentals? And what, if anything, can be done to lower the spreads?

4. **To answer these questions, a cross-country panel regression model of emerging market sovereign spreads is used**. This model was developed recently at the IMF by Hartelius (2006) and Hartelius, Kashiwase, and Kodres (2008) and explains much of the movements in spreads across countries. The next section describes the model and its application to Indonesia and some comparator countries. Then, factors outside the model that potentially impact spreads are discussed, and policy conclusions are drawn.

B. Applying the Spreads Model to Indonesia

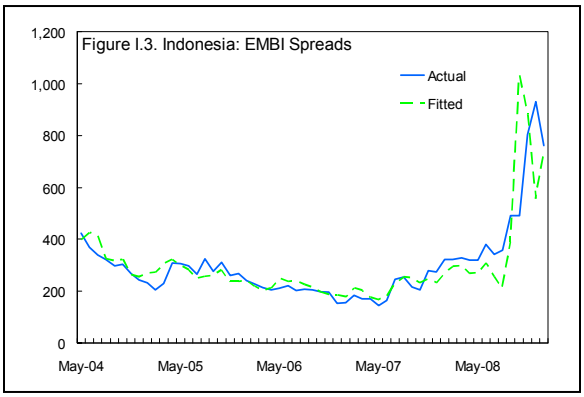
5. **The spreads model incorporates both external financial factors as well as domestic macroeconomic, financial and political variables**. The cross-country panel is based on 33 emerging markets, using monthly data spanning January 1998 to January 2009, with fixed effects. The dependant variable is the logarithm of the country's EMBI spread.[2]

- The external financial factors are: (i) VIX index (as a measure of global risk aversion), (ii) yield on 3-month Fed funds futures (as a measure of the U.S. monetary policy stance and international liquidity), and (iii) volatility of the Fed funds futures market (to measure the extent of uncertainty about future U.S. monetary policy).

- The domestic factors comprise macroeconomic, financial, and political risk ratings from the PRS Group's *International Country Risk Guide* (2009), aimed at measuring the strength of fundamentals and, consequently, risks. The economic risk rating assesses current economic strengths and weaknesses, and includes real GDP growth, annual inflation, overall fiscal balance as a share of GDP and the external current account to GDP. The financial risk rating measures the ability to finance external obligations, and includes external debt as a share of GDP, international reserves coverage of imports, and a measure of exchange rate stability. The political variable measures political risk, such as government stability, socioeconomic conditions such as unemployment and consumer confidence, conflict, corruption, law and order, and quality of the bureaucracy.

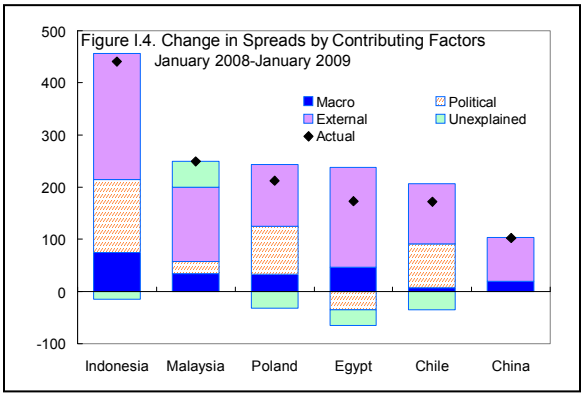
[2] For Indonesia, the EMBI series are available from mid 2004 onwards.

6. **The model fits Indonesia's spreads well, tracing both the declining trend through mid-2007 as well as the subsequent upturn**. From 2004 to mid 2007, benign external financial factors contributed about one-quarter of the reduction in spreads; improving domestic macroeconomic and financial factors contributed over 30 percent, while lower political risk also contributed about 30 percent to the reduction in spreads from over 400 bps in mid 2004 to a historic low of about 136 bps in June 2007. Subsequently, the deteriorating external financial environment contributed significantly to the increase in Indonesia's spread. From January 2008 to January 2009, external factors accounted for over 50 percent of the increase. The remainder can be accounted for by some deterioration in economic and financial indicators—the rupiah depreciated sharply, quarterly growth decelerated, and the current account swung into deficit— accentuated by relatively weaker initial conditions.



7. **The close fit of the model suggests that there is no puzzle behind the large increase in Indonesia's spreads**. Rather, the increase reflects how the worsening of the external financial environment can severely impact Indonesia. Continued improvements in Indonesia's policy framework—associated with lowering domestic macroeconomic, financial, and political risks—would help in further reducing spreads. Some of these factors are described in further detail below.

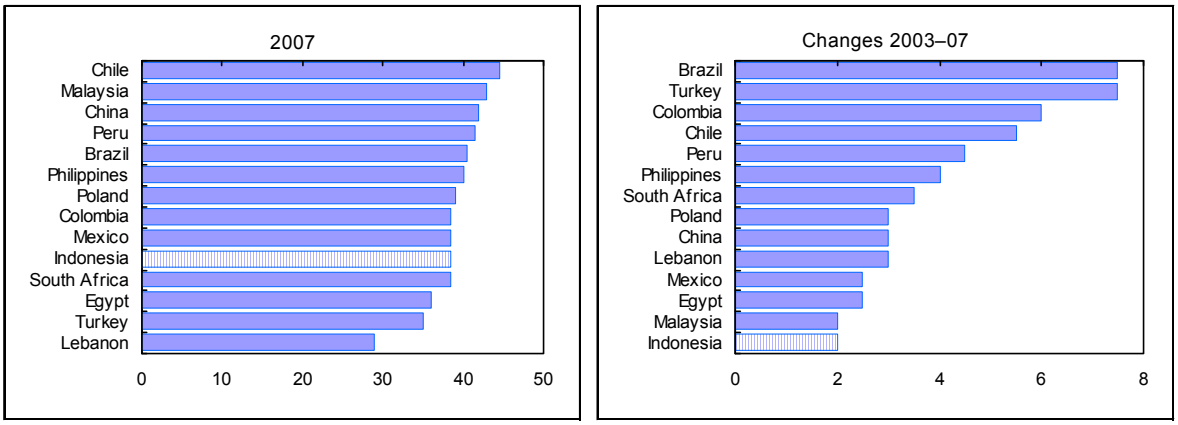
8. **A decomposition of the different factors across countries sheds further insights**. Consider countries that experienced relatively small increases in spreads during the market turmoil of 2008−09, which is the type of response that could be considered desirable. Unlike for Indonesia, where the increase from January 2008 to January 2009 was nearly 450 bps, China, Chile, Egypt, Malaysia, and Poland experienced increases in spreads of only 100−250 bps. What sets these countries apart from Indonesia is a smaller contribution of external factors, as well as smaller contributions of macroeconomic,



financial, and political risks.[3] These contributions are related to lower initial levels of spreads and to better risk indicators among the domestic risk factors.

9. **While Indonesia's economic risk ratings improved, the increase was not as strong when compared to "top performing" countries or others that might be considered its peers**. This relatively weaker performance along the economic indicators—growth, inflation, fiscal balance, and current account balance—can largely be attributed to a weak inflation performance. Indonesia's inflation over the past 5 years has averaged close to 9 percent, and the volatility of inflation has also been relatively high. Strengthening the monetary policy framework to lower inflation levels and volatility would not only contribute to improved welfare but also facilitate financial deepening, including development of the markets for longer-term financial instruments. If the improvement in Indonesia's economic risk rating had been at the top end of the range figured below, then the spreads could have been as much as 145 bps lower.

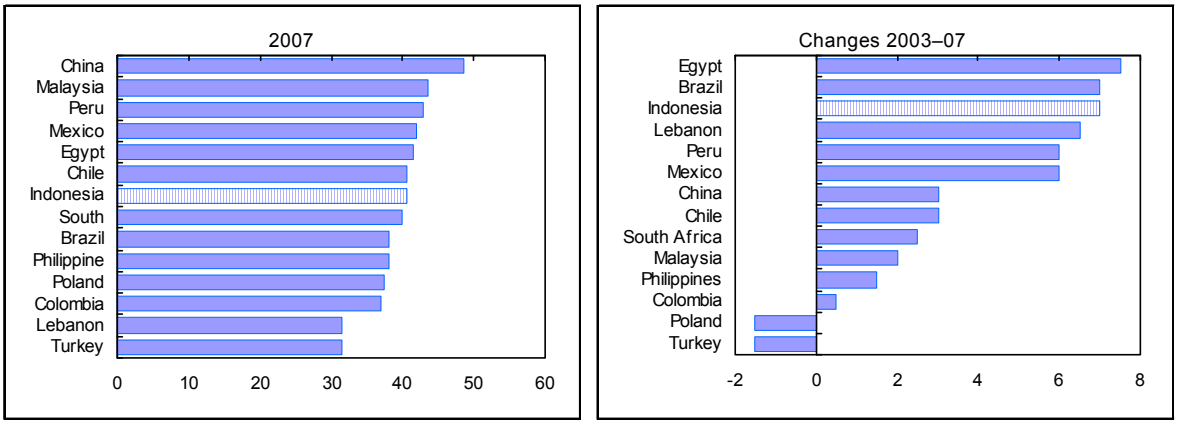
Figure I.5. Economic Risk Ratings



10. **The improvement in Indonesia's financial indicators has been relatively stronger, placing the economy in a better position at the start of the global crisis**. The sharp reduction in external debt in particular and the buildup in international reserves has created a useful buffer. In terms of ratings, however, the improvement in these indicators relative to other countries matters. Therefore, further building up of buffers—whether in the form of multilateral, regional, or bilateral insurance arrangements, which tend to be relatively less expensive, or alternatively the accumulation of further international reserves, which could be more expensive—would add to the strength of the external position. Deepening markets and the resilience of the economy, including through greater inflation stability, would also contribute to greater exchange rate stability.

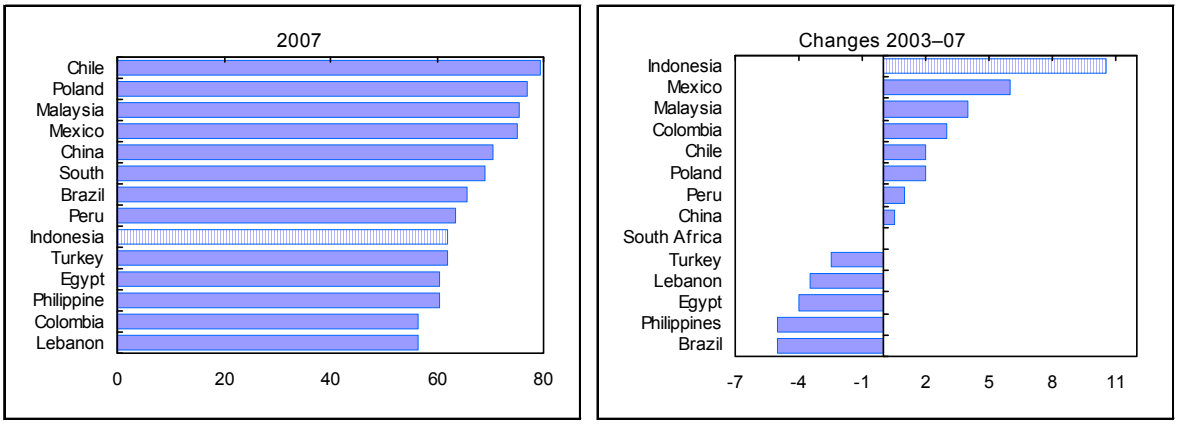
[3] Since the model is estimated in logarithms, the change in spreads depends on the initial level of spreads, or Δ EMBI = EMBI x Δ log(EMBI). Therefore, countries with higher initial level of spreads will, for the same external factors, have a higher contributing factor associated with that factor.

Figure I.6. Financial Risk Ratings



11. **Indonesia's political risk indicators have improved more than several other countries, but its level leaves room for further improvement**. Improvements were noteworthy in the dimensions of corruption, investment profile, and socio-economic conditions. Continued improvement in these dimensions of the political risk ratings, as well as in law and order and bureaucratic quality, would further lower political and policy risks. Even though the political risk indicators improved substantially in Indonesia, because the level of the rating was still lower than some comparators, the increase in the spread associated with this factor was higher.

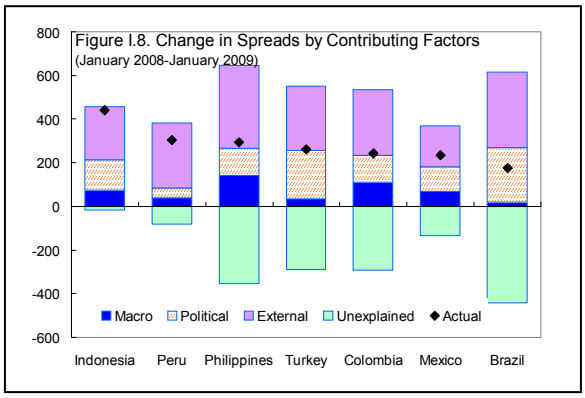
Figure I.7. Political Risk Ratings

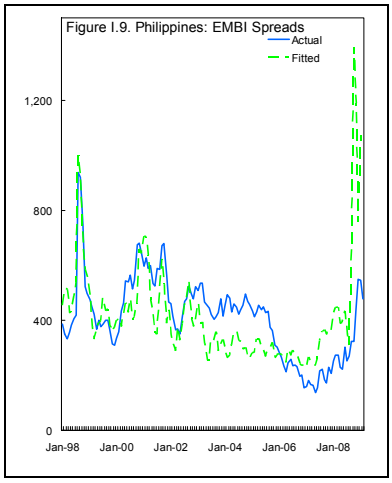


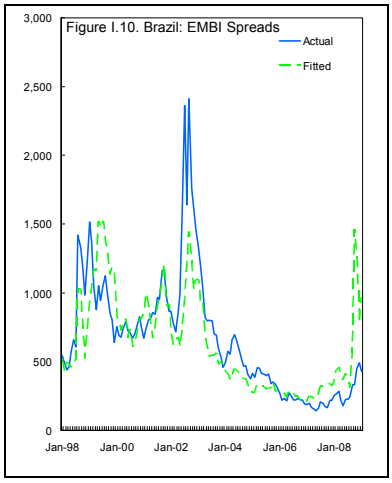
12. **To summarize, the model yields valuable insights into the pattern of Indonesia's sovereign spreads**. It fits well the decline in Indonesia's spreads from 2004 to mid 2007 and captures the subsequent rise. It also fits the pattern of spreads of several other countries. As such, there is no puzzle regarding the recent increase in Indonesia's spreads. The model accurately captures the quantitative impact on spreads of the worsening in global financial markets since mid 2007. This suggests that continued strengthening of Indonesia's policy framework, including with regard to price stability but also building additional international reserves buffers, would further bolster the credibility of policies and the economic and financial fundamentals.

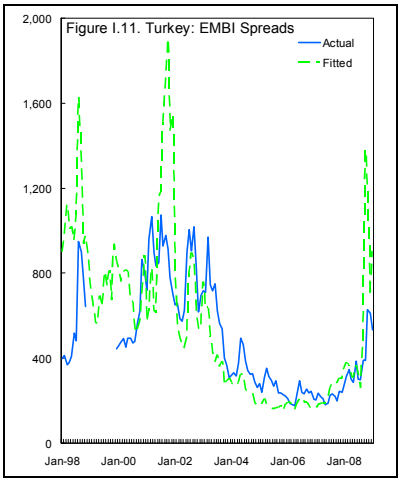
C. Beyond the Spreads Model: Discussion of Additional Factors

13. **While the model explains the spreads in most countries well, there are a few countries for which it does not account very well for the most recent period**. This set of countries includes the Philippines, which has a similar credit rating as Indonesia and is viewed by some in the region as a particularly important comparator. In the Philippines' case and the other cases, the model predicted a sharper increase in spreads than actually occurred, suggesting that relevant, additional explanatory factors are missing from the analysis.





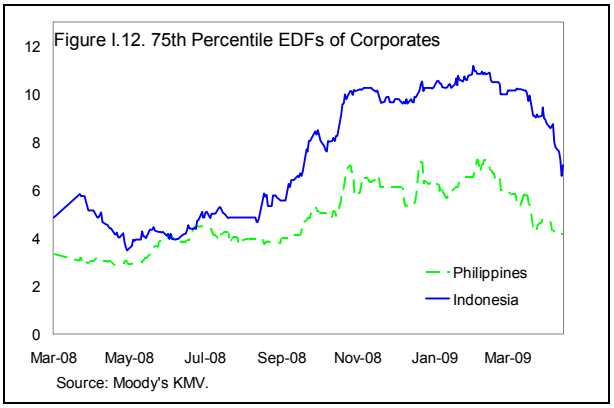


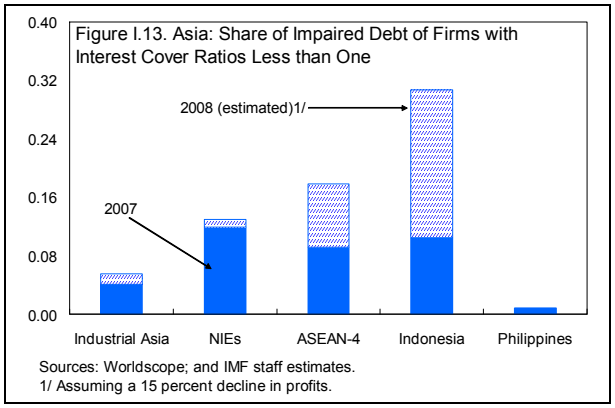


14. **This section discusses some additional factors that could help account for the behavior of spreads in these countries relative to Indonesia's**. Four factors are considered: (i) corporate sector vulnerabilities; (ii) liquidity in financial markets; (iii) a spending bias in fiscal policy; and (iv) behavior in past crises. Each is considered in turn.

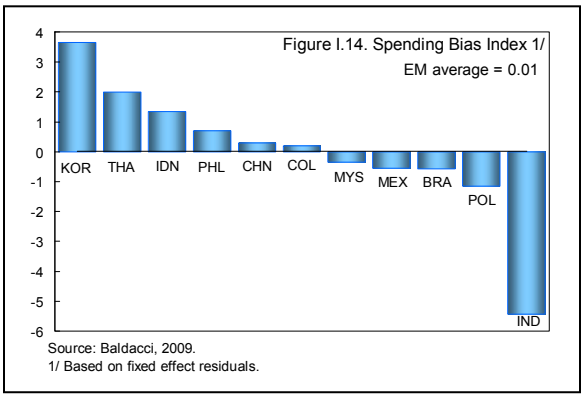
15. **Corporate sector vulnerabilities have been somewhat higher in Indonesia**. Although corporate sector leverage is low in Indonesia, estimates of default probabilities inferred from asset prices are a bit higher. Using Moody's KMV tool, one quarter of Indonesian corporates reached 1-year default probabilities of more than 10 percent, higher than some comparators, during late 2008 and early 2009. The asset price behavior was exacerbated by the default of a large conglomerate on its obligations and by general concerns about corporate governance and the external exposure of the corporate sector. Furthermore, the vulnerability to a shock to profits—as measured by the estimated impact on impaired debts—has also been somewhat higher in Indonesia. This reflects the larger number of firms

in Indonesia close to the distress level where cash flows are insufficient to cover the interest on debt at the end of 2007. Further strengthening corporate sector health and corporate governance, including through better collection and dissemination of data, could contribute towards lowering risks as well as the perceptions of risks in Indonesia.





16. **During the peak of the crisis, liquidity in Indonesia's financial markets fell sharply**. Transactions reportedly fell from $50−75 million daily in the CDS markets prior to the crisis to $20−30 million daily during late 2008 and early 2009. This limited liquidity exacerbated the price action. Financial deepening would help develop the liquidity of the markets for sovereign and corporate paper, though this is a longer-term agenda. In the near term, building adequate foreign exchange buffers and using these buffers to inject foreign currency liquidity in the markets during times of stress could lower spreads.



17. **The spending bias of fiscal policy is greater in Indonesia, potentially exacerbating volatility and raising spreads**. As noted in Baldacci (2009), Indonesia's spending bias is higher than in several other emerging markets. Lowering this bias, while undertaking structural fiscal reforms to enhance budgetary flexibility and public finance management and anchoring fiscal policy in a medium-term framework consistent with public debt sustainability, will contribute to the stabilization role of fiscal policy, lower volatility, and could potentially contribute to lower spreads.

18. **Finally, Indonesia has a history of volatility and distress during periods of global stress**. This volatility can be captured by the changes in Indonesia's sovereign ratings during these periods, which in the past decade were related to cases of debt restructuring. The Philippines and Turkey have similar credit ratings to Indonesia, but do not have the same history of external loan restructuring and volatility. Several Latin American countries and

South Africa are currently investment grade—higher than Indonesia's rating—and also do not have a history of loan restructuring. More consistent efforts at transparency and communication could help convey the substantial improvements in Indonesia's fundamentals in recent years, while limiting any lingering investor concerns that are rooted in the past.

D. Conclusions

19. **The decline in Indonesia's spreads from 2004 to mid 2007 and the subsequent increase in spreads can be accounted for quantitatively**. The benign external financing conditions in the first period, together with improvements in political and financial fundamentals, resulted in a sharp decline in sovereign spreads from over 400 bps in mid 2004 to less than 140 bps in mid 2007. The subsequent turmoil in the global financial markets led to a fairly sharp increase in Indonesia's spreads.

20. **Continued improvements in Indonesia's policy framework would help lower spreads**. In particular, achieving and maintaining low inflation would increase domestic welfare, enhance the credibility of the monetary policy framework, and contribute to financial deepening and lower spreads. Similarly, building adequate buffers to meet external financing needs—whether through multilateral, regional or bilateral cooperative arrangements, which are less expensive, or through relatively more expensive self insurance—would further contribute to lower spreads. These efforts could be bolstered by undertaking structural fiscal reforms to enhance budget flexibility and anchoring fiscal policy in a medium-term framework to facilitate a greater stabilization role.

21. **Additional steps could be taken to lower spreads**. More sustained efforts at gathering and disseminating information on the health of the corporate sector as well as on the fundamental improvements achieved in recent years could assuage investors' concerns, especially during periods of global stress. In the medium term, financial deepening would help improve the liquidity of sovereign and corporate bonds further limiting spreads volatility.

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II. Neither Sailing Against the Wind, Nor Going with the Flow: Cyclicality of Fiscal Policy in Indonesia[1]

Over 1993−2008, fiscal policy in Indonesia has not been countercyclical. While lack of countercyclicality is not uncommon among emerging market economies, in Indonesia the specific causes underlying limited fiscal responses to output fluctuations originate from structural weaknesses in public finance management and lack of budget flexibility. This result owes to a number of factors, including high dependence on revenue from natural resources, narrow and volatile tax bases, low discretionary spending, and problems with budget execution. Reforms to deal with existing vulnerabilities are needed to enhance the ability of fiscal policy to respond to shocks and provide fiscal space for infrastructure investment.

A. Introduction

1. **The recent global economic downturn has called for a greater cyclical role of fiscal policy**. Countries have adopted a variety of fiscal measures to stimulate aggregate demand in the short term, restore economic activity, and help households and corporate deal with the consequences of the negative global shock. Fiscal stimulus packages averaging about 4 percent of GDP over 2009−10 have been implemented in response to the collapse in global demand by the G-20 countries (IMF, 2009a).[2] It is expected that, as a result of these discretionary measures and the impact of automatic stabilizers, fiscal balances will be weaker by almost 6 percentage points of GDP and government debt will rise by over 14 percentage points of GDP in 2009 in these countries. While these effects are projected to be smaller for emerging market economies,[3] they are nonetheless important compared to the average budget size in these countries.

2. **Several studies point to the importance of countercyclical policies during crises**. Discretionary fiscal policy responses can have positive effects on the speed of growth recovery, although the size of the fiscal multipliers is generally small. In a sample of recession episodes for advanced economies, countercyclical discretionary fiscal expansions are estimated to have shortened the duration of output decline spells associated with financial crises. A 1 percent increase in real government consumption during the recession episode is associated with a 16 percent increase in the probability of exiting a recession. The average

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[1] Prepared by Emanuele Baldacci.

[2] Available via the Internet: http://www.imf.org/external/np/fad/2009/042609.htm.

[3] Fiscal balances are expected to weaken by over 3 percent of GDP in emerging markets, while public sector debt ratios are projected to deteriorate by 2 percentage points of GDP in 2009.

duration of the crisis is estimated to be shortened by three months when government consumption is expanded by one standard deviation (IMF, 2009b).

3. **Emerging markets, however, typically exhibit a high degree of fiscal procyclicality**. The fiscal balance is generally procyclical in these countries (Ilztetzki and Vegh, 2008; Ghosh and others, 2009). Liquidity constraints hamper government's access to credit during periods of economic turbulences. Credit rationing is a particularly acute problem when public debt is elevated and fiscal risks are high. Capital inflows provide incentives for procyclical spending, in particular in countries where per capita income is low and basic needs have to be fulfilled (Kaminsky and others, 2004; Ghosh and others, 2009), but are subject to sudden stops. Narrow tax bases compress automatic stabilizers and make budget responses more rigid during negative business cycles (Talvi and Vegh, 2005). Volatile revenues (e.g., from commodities) are also responsible for reduced budget control. Small budget size and low discretionary spending limit deficit expansions during recessions. Finally, political fragmentation and weak fiscal institutions can lead to higher procyclicality.

4. **In Indonesia, the fiscal policy response to slowing economic activity has been prompt**. Output is projected to decelerate sharply from 6 percent per year to less than 4 percent in 2009 as a result of weaker trade performance and lower investment. Building on existing fiscal space, the revised 2009 budget envisages a fiscal support package of about 1½ percent of GDP. Of this, about two thirds stem from lower income taxation and other tax exemptions and the rest from expenditure measures, among which capital outlays for infrastructure play a major role. Automatic stabilizers are expected to account for an additional 1 percent of GDP deficit expansion, resulting in an overall government deficit of about 2½ percent of GDP, up from a balanced budget in the previous year.

5. **The increasing role of public finances for aggregate demand support calls for a better understanding of fiscal policy cyclicality in Indonesia**. As budget policy is increasingly used to stimulate economic growth, it is important to assess the degree to which fiscal policy has responded to cyclical output fluctuations over time and how Indonesia compares with other emerging market economies. The scope of the Chapter is to address the following questions: (i) what has been the cyclicality of fiscal policy in Indonesia?; (ii) what is the cyclical behavior of the different components of the budget?; and (iii) how does Indonesia compare with other emerging markets in terms of fiscal cyclicality? The remainder of the chapter presents the econometric approach (Section B), and the empirical findings (Section C). The concluding section illustrates the policy implications of these results. The main conclusion of the chapter is that Indonesia could boost fiscal policy's countercyclicality by strengthening fiscal management and improving the budget composition.

B. Econometric Approach

6. **A three-pronged approach is used to assess the degree of fiscal cyclicality in Indonesia**. First, a descriptive analysis of the links between fiscal trends and output growth is carried out using 1993−2008 data on Indonesia budget results.[4] Correlation coefficients are calculated between the change in real fiscal variables and output growth.[5] Second, regression results are obtained using Lane's (2003) method to estimate the degree of budget cyclicality. The dependent variable in the regressions is the specific budget variable (e.g., government current expenditure). The change in the logarithm of these variables is regressed on real output growth accounting for AR(1) disturbances when needed. The estimated coefficient is the elasticity of the budget variable to output changes. We test the robustness of these results by using alternative estimation methods and different sample sizes.

7. **The third stage of the analysis compares Indonesia with a sample of emerging market economies**.[6] Panel estimates of fiscal cyclicality are obtained using Lane's (2003) model with AR(1) and heteroschedastic error correction and fixed effects to account for country-specific heterogeneity. We first estimate the panel elasticities for various categories of fiscal variables and compare them with estimates obtained by restricting the sample to Indonesia. We then compare indicators of fiscal cyclicality based on the fixed effects results for each country to assess the role of country-specific factors. Finally, we regress government bond yield spreads on a procyclicality indicator to assess its impact on credit rating and risk premia.

C. Empirical Results

8. **Indonesia has achieved a significant reduction in public sector debt since 2000**. Fiscal consolidation (an average primary balance of about 2 percent of GDP) along with sustained economic growth and declining interest rates helped bring public sector debt under control. During 1993−2008, the fiscal deficit was on average 1 percent of GDP (5.5 percent of GDP, excluding oil and gas revenue). Revenue growth was 19 percent per year, matched by government expenditure trends. However, volatility was elevated both in GDP growth and

[4] A separate issue to be investigated would be the discrepancy between fiscal policy intentions, as stated in the budget documents, and actual realization. Unfortunately, available time series do not allow such comparison for many years. Over the last five years, however, the difference between approved budget fiscal balances and actual realization has averaged ½ percent of GDP, peaking in 2008 at 2 percent of GDP. Underexecution of government expenditure and financing constraints have been the main cause of these results.

[5] The change in budget components is based on the natural logarithm of government expenditure and revenue deflated by annual CPI. Nominal output is deflated with GDP deflators. For the fiscal balance and public sector debt indicators we use the ratio to GDP following standard practice in the literature (Lane, 2003).

[6] The sample is the same used in Baldacci and others (2008) and consists of 30 emerging market economies that are included in JP Morgan Stanley's EMBIG index for the period 1994−2008.

fiscal variables: government spending was more volatile than revenue, with capital outlays the most volatile item in the budget (Table II.1).

Table II.1. Indonesia: Change in Fiscal Variables and Growth

Variable	Mean	Std. Dev.	Min	Max	CV
Real GDP	0.039	0.050	-0.136	0.082	1.29
Revenue and grants	0.191	0.119	-0.003	0.466	0.62
Revenue	0.192	0.119	-0.003	0.464	0.62
Oil and gas revenue	0.246	0.259	-0.253	0.692	1.05
Tax revenue	0.197	0.125	0.025	0.537	0.64
Direct tax revenue	0.214	0.154	-0.044	0.586	0.72
Indirect tax revenue	0.185	0.113	0.087	0.488	0.61
Nontax reveneue	0.191	0.194	-0.201	0.488	1.01
Grants	0.158	1.142	-0.939	3.111	7.24
Expenditure	0.191	0.175	-0.057	0.631	0.92
Current expenditure	0.206	0.236	-0.210	0.700	1.15
Wages	0.157	0.131	-0.083	0.368	0.83
Goods and services	0.239	0.230	-0.182	0.776	0.96
Interest	0.205	0.367	-0.193	1.127	1.79
Capital expenditure	0.118	0.248	-0.330	0.597	2.10
			(In percent of GDP)		
Fiscal balance	-0.008	0.117	-0.029	0.012	14.63
Primary balance	0.019	0.080	0.006	0.345	4.21
Non-oil and gas balance	-0.055	0.172	-0.092	-0.235	3.13
Public debt	0.606	0.212	0.323	0.913	0.35

1/ Data period 1993–2008. Variables are first difference in logarithm.
2/ Variables deflated with CPI index, except GDP for which GDP deflator is used.

9. **Both correlation and regression results point to lack of countercyclical fiscal policy in Indonesia**. For most budget items, real annual changes have insignificant relations to growth, highlighting the absence of a countercyclical behavior in fiscal policy and in some case outright procyclicality (Table II.2).[7] The only two items in the budget that exhibit a significant degree of cyclicality are government purchases of goods and services and debt service payments: the former are highly procyclical, while the latter is strongly countercyclical.

[7] The results for revenue could be interpreted as a sign of procyclical fiscal response if cyclicality on the tax side of the budget is measured with tax rates and not revenue collection (Kaminsky and others, 2004). In periods of negative growth, revenue collection should fall as a result of declining tax bases if tax rates remain unchanged (acyclicality). For revenue collection to be statistically independent of growth, it takes tax rates to rise during downturns: a sign of fiscal procyclicality. However, we tested for tax rate stability during economic cycles using the inflation tax as a proxy for tax rates. The results show that tax rates were acyclical in Indonesia during the period.

Table II.2. Indonesia: Cyclicality of Fiscal Variables

	Coefficient	Cyclicality Elasticity	P-value	
			Model A	Model B
Revenue and grants	-0.248	-1.701	0.393	0.094
Revenue	-0.253	-1.735	0.383	0.087
Oil and gas revenue	-0.306	-4.604	0.287	0.058
Tax revenue	-0.100	-0.722	0.735	0.640
Direct tax revenue	0.061	0.519	0.837	0.775
Indirect tax revenue	-0.272	-1.787	0.347	0.236
Nontax reveneue	-0.367	-4.145	0.197	0.009
Grants	0.189	11.592	0.600	0.600
Expenditure	-0.323	-3.074	0.260	0.087
Current expenditure	-0.322	-4.218	0.262	0.076
Wages	-0.118	-0.879	0.689	0.475
Goods and services	0.539	7.240	0.047	0.016
Interest	-0.606	-9.361	0.022	0.006
Capital expenditure	0.064	0.897	0.829	0.715
		(In percent of GDP)		
Fiscal balance	0.481	0.280	0.070	0.121
Primary balance	-0.051	-0.020	0.858	0.841
Non-oil and gas balance	0.504	0.467	0.055	0.126
Public debt	-0.306	-22.878	0.000	0.000

1/ Data period 1993–2008. Variables are first difference in logarithm.
2/ Variables deflated with CPI index, except GDP for which GDP deflator is used.
3/ Cyclicality elasticiy based on regressions of fiscal variables on growth.
4/ Model A: excluding year 1998; Model B: AR(1) and heteroschedastic error term and dummy variable for year 1998.

10. **Different factors are responsible for these results**. The interest bill countercyclicality stems from the nondiscretionary nature of debt service. Government bond premia tend to rise during downturns along with currency depreciation. As for government spending on goods and services, procyclicality is related to scaled-up spending on materials in years when deficit-financing constraints are less binding. The fiscal balance ratio to GDP has a weak countercyclical behavior. However, when the primary fiscal balance is considered, a better gauge of discretionary policy[8] as it excludes highly cyclical interest spending, the estimates point to acyclicality.[9] Robustness test with: (i) different estimation

[8] To check the robustness of this result we also ran regressions of the cyclically-adjusted primary balance and non-energy primary balance with an AR(1) and heteroschedastic error term. The results confirmed that these indicators of discretionary fiscal policy are acyclical.

[9] An insignificant relation between the fiscal balance ratio to GDP and output growth is not in itself a sufficient indication of either procyclicality or countercyclicality, as this is consistent with different cyclical behaviors of

(continued…)

methods; (ii) longer time periods (e.g., 1980−2008); and (iii) dummies to take into account the effect of the 1997−98 crisis and asymmetries between positive and negative output gap yield similar results.[10]

11. **Panel estimates confirm that fiscal policy is acyclical for Indonesia**. Both revenue[11] and expenditure exhibit procyclical patterns in the sample of emerging market economies,[12] with capital spending being the most cyclical component in the budget. This is not the case in Indonesia, where acyclicality prevails for the different budget categories (Table II.3). For the sample of emerging markets, fiscal policy is found to be mildly countercyclical when the budget balance indicator is considered (but not when the more appropriate primary balance is used). In the case of Indonesia, all summary fiscal indicators point to acyclicality. The fixed effect estimates resulting from the panel regression point to a larger impact of factors not associated with fiscal cyclicality on budget dynamics in Indonesia, compared to other emerging market economies. This means that both expenditure and revenue growth has been significantly above what the model would imply for emerging market countries. However, the difference between the fixed effects indicators highlights a potential spending bias. This could be explained by a combination of political economy and institutional factors leading to higher expenditure growth rates independent of the cyclical output position.

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tax rates and government spending. However, when the fiscal balance results are considered together with the revenue and expenditure outcomes of the regression, the evidence is consistent with a procyclical bias in budget policy (Kaminsky and others, 2004).

[10] We control for potential endogeneity of output growth to fiscal variables by using IVLS and GMM. We also test the robustness of the results for aggregate government expenditure and revenue variables using a longer sample spanning 1980−2008 drawn from the *Government Finance Statistics* database. Finally, we control for asymmetries in fiscal responses by running separate regression for periods in which growth was below and above trend output expansion. Results confirm the acyclicality of fiscal policy and the absence of statistically significant asymmetric responses to different growth conditions.

[11] The positive elasticity of revenue to output growth is in principle consistent with both procyclical and acyclical fiscal policy as tax receipts may fall during downturns even as tax rates remain unchanged (a measure of acyclical policy response). However, when combining spending and revenue coefficients in the results the ultimate effect is for fiscal policy to be procyclical in the sample.

[12] We tested the robustness of these results to endogeneity using the Baltagi's EC2SLS estimator using international reserves, stock market performance, and private consumption growth as instruments. Results confirmed both sign and significance of the coefficients.

Table II.3. Selected Emerging Markets: Cyclicality of Fiscal Variables Based on Panel Estimation

	Total sample			Indonesia			Relative
	Coefficient	t-value	P-value	Coefficient	t-value	P-value	Elasticity
Revenue and grants	0.721	4.35	0.000	-0.795	-1.61	0.138	-1.1
Expenditure	0.335	1.92	0.056	-0.960	-1.16	0.272	-2.9
Current expenditure	0.220	1.04	0.299	10.851	1.93	0.101	49.3
Capital expenditure	1.375	4.12	0.000	-27.024	-2.12	0.078	-19.7
				(In percent of GDP)			
Fiscal balance	0.150	4.09	0.000	0.053	0.97	0.352	0.4
Primary balance	0.026	0.70	0.482	0.080	1.47	0.172	3.1
Public debt	-0.436	3.12	0.002	2.021	1.32	0.235	-4.6

1/ Data period 1993–2008. Variables are first difference in logarithm. Sample is based on 30 countries included in the EMBIG index.
2/ Variables deflated with CPI index, except GDP for which GDP deflator is used.
3/ Results from panel regressions with fixed effects and AR(1) error.
4/ Relative elasticity is the ratio of Indonesia to total sample's elasticity .

12. **Lower countercyclicality also leads to higher borrowing costs**. Table II.4 shows that regressing the logarithm of the EMBI spread on a fiscal procyclicality indicator yields positive and significant coefficients for both expenditure and revenue categories. In countries where the procyclicality is positive and high—because government expenditure grows at a faster rate than GDP during upswings in economic activity—government bond risk premia tend to be higher. Where fiscal policy is countercyclical or only weakly procyclical the impact on spreads is lower.

Table II.4. Selected Emerging Markets: Impact of Fixed Effect on Government Bond Spreads

	Model A			Model B		
	Coefficient	t-value	P-value	Coefficient	t-value	P-value
Revenue and grants	4.609	4.90	0.000	20.428	3.56	0.000
Expenditure	4.223	4.86	0.000	14.655	3.43	0.001
Current expenditure	3.217	3.73	0.000	16.827	2.55	0.001
Capital expenditure	3.843	5.49	0.000	14.630	2.83	0.000
			(In percent of GDP)			
Fiscal balance	2.018	1.11	0.268	594.994	0.17	0.863
Primary balance	27.466	9.07	0.000	91.299	1.91	0.056

1/ Data period 1993–2008. Variables are first difference in logarithm. Sample is based on 30 countries included in the EMBIG index.
2/ Variables deflated with CPI index, except GDP for which GDP deflator is used.
3/ Results from regressions of the logarithm of EMBIG spreads to country fixed effects.
4/ Model A: OLS results; Model B: GMM results with Baldacci et al. (2008) index of political risk as instrument.

13. **The empirical findings point to the absence of countercyclical fiscal policy in Indonesia**.[13] The primary balance is acyclical. Revenue and expenditure are acyclical or procyclical. Spending on purchases of goods and services is highly procyclical, as this is one of the few discretionary items in the budget. The interest bill is countercyclical, with higher expenditure in bad economic times possibly reflecting higher risk premia and more depreciated exchange rate during downturns. Compared to other emerging markets, Indonesia fiscal policy is less procyclical. Moreover, institutional factors have stronger bearing on fiscal results in Indonesia than in a sample of emerging markets. This could also help explain persistent high risk premia on government bonds.

D. Why is Fiscal Policy Acyclical in Indonesia?

14. **Several factors adversely affect fiscal policy as a countercyclical tool in Indonesia**. First, the narrow tax base does not provide sufficient fiscal space, with non-oil and gas tax revenue at about 11 percent of GDP. This is low in comparison to other countries with similar income levels and is particularly problematic as it represents only ⅓ of public sector debt. Overall, revenue collection is about half the average for a sample of largest emerging market economies at 15 percent of GDP. Second, dependence on oil and gas taxation is still high at about ¼ of total revenue. Natural resource revenue are characterized by high volatility: the standard deviation of their real annual growth rate is about 100 percent of the average revenue growth during 1993−2008. Third, the small share of discretionary spending (less than ⅓ of total expenditure) reduces the space for direct expenditure intervention.

15. **Weak budget execution is another hampering factor**. Budget execution problems remain high, with 30−50 percent of annual outlays disbursed in Q4 during 2002−08. Weak capacity to execute the budget also reduces the effectiveness of measures to support aggregate demand in the short term. Furthermore, limited diversification of debt instruments and the investor base reduce access to financing in bad times, when procyclical risk premia tend to rise. Thin secondary market volumes for government securities put downward risks on the price of sovereign paper when risk appetite deteriorates in financial markets.

16. **Additional structural weaknesses limit the budget's response capacity in periods of economic stress**. Exposure to terms of trade shocks remains elevated, reflecting the dependence of budget revenue on natural resources and non-energy exports. This results in output volatility, which has been reduced over time but is still elevated. Larger growth fluctuations are at the same time a consequence and a cause of reduced countercyclical capacity of budget policy, as countries with lower volatility are more able to implement fiscal policies to correct the negative business cycle effects.

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[13] While output fluctuations here are approximated by real GDP growth, using an estimate of the output gap based on HP-filtered GDP series yields empirical results similar to those presented in the text.

17. **Budget size matters**, **as well as fiscal anchors**. The small size of automatic stabilizers on the expenditure side of the budget—as most transfers are procyclically linked to energy prices—reduce the scope for intervention to support private consumption. Limited use of medium-term budget frameworks to make fiscal developments consistent with long-term objectives, and remaining weak links between current and development budget are two additional factors of vulnerability.

E. Measures to Strengthen the Fiscal Framework

18. **Promoting a sounder fiscal framework entails implementing reforms that strengthen fiscal management**. This includes: (i) creating adequate fiscal space for countercyclical measures in the case of a negative shock by continuing to adopt prudent fiscal policies anchored to medium-term budget frameworks; (ii) enhancing budget flexibility both on the revenue and on the expenditure side; (iii) strengthening public financial management systems; and (iv) managing fiscal risks. Recent fiscal reforms in these areas may already be showing results creating scope for a countercyclical policy response in 2009. Maintaining reforms should provide further scope for moving in this direction in coming years.

19. **A medium-term fiscal strategy is important**. Continuing debt consolidation would help limit the credit rationing constraints on fiscal policy. This entails anchoring fiscal policy through a medium-term fiscal framework by adopting multi-year budgeting to ensure consistency of annual targets with fiscal stability. A gradual reduction in public debt[14] is warranted in light of the perceived exposure of Indonesia's sovereign risk premia to sudden changes in risk appetite and global conditions. However, scope for expanding the development budget needs to be accommodated. These objectives can be achieved within a medium-term strategy that provides resources for investment in infrastructure including by enhancing the budget composition, while preserving fiscal sustainability through a non-negative primary balance.

20. **Generation of fiscal space through revenue reforms is a priority**. Expanding non-energy tax revenue collection with a view to making recent progress in revenue performance more sustainable is important. This entails among other things, broadening the base of existing taxes (e.g., income tax) and removing exemptions (e.g., in VAT). The proposal to amend the VAT law currently with parliament is an opportunity to move rapidly in this direction. Continued support to revenue generation measures through tax administration reforms will provide for less volatile collection results. Reforms in the areas

[14] Following the approach to debt intolerance in emerging markets developed in Reihnart and others (2003) "safe" public debt levels for a country like Indonesia with a narrow non-commodity tax base, high inflation history, exposure to currency depreciation, and volatile energy revenue would be in the range of 25 percent to 30 percent of GDP. In emerging markets, over the last three decades, more than one third of sovereign defaults happened in countries with public sector debt below 40 percent of GDP.

of arrears collection; taxpayer registration; customized taxpayers services, and improved audit functions will be crucial to lock in important progress made in this area in the past half decade. Credibility of the reform agenda and avoidance of one-off measures is paramount to fostering voluntary compliance.

21. **Another strand of reforms could focus on the expenditure side of the budget**. Reducing poorly targeted subsidies and expanding more countercyclical cash transfers programs directed to the poor would increase the role of government expenditure as a macroeconomic stabilizer and enhance its effectiveness. Reallocating public expenditure towards priority areas such as health, education, and infrastructure is also likely to help increase the discretionary portion of budget outlays. However, stronger project execution is essential to making approved budgets a better fiscal management tool. Consideration should be given to investing in technical absorptive capacity before introducing new programs. Another priority is expanding expenditure execution capacity also at subnational government levels, which account for more than one third of general government expenditures.

22. **Better management of public resources can improve the fiscal response capacity**. Currently government deposits at the central bank hover at 2−3 percent of GDP during the year. While a recent agreement between the Ministry of Finance (MoF) and the central bank introduced the remuneration of these accounts since 2009, the yield remains below market prices. This entails a significant cost related to excessive reserve accumulation during the year (in part reflecting the strong seasonality of the budget, as well as a tendency to frontload financing for the year). Smoother cash management is therefore warranted to ensure more efficient use of public resources and minimize risks to the budget. Continuation of reforms to strengthen cash management systems will benefit from the completion of treasury reform programs. Important measures comprise the inclusion of off-budget accounts in the single treasury account, strengthening cash forecasting capacity, and coordination in the cash and debt management strategies. The latter would facilitate access to capital markets and smooth deficit financing.

23. **Empirical results show that greater accountability reduces the scope for procyclical fiscal behavior and enhances fiscal stability**. Scaling up efforts in budget reform, including budget preparation, program budgeting, medium-term expenditure programs, and accounting frameworks is a key area of development. Expanding monitoring of off-budget entities whose activities can have fiscal impacts, including SOEs and PPPs can help mitigating risks. (The DSA exercise shows that contingent liabilities are the most significant source of risk to debt consolidation). Finally, continued efforts are needed to improve fiscal transparency through stronger internal and external audit of public sector entities. Results show that greater accountability reduces the scope for procyclical fiscal behavior and enhances fiscal stability.

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III. External Shocks and Macroeconomic Performance in Indonesia[1]

Indonesia's macroeconomic performance prior to the crisis was strong, in part owing to benign external conditions. As these conditions have deteriorated over the past year, however, Indonesia's performance too has deteriorated. This paper uses vector autoregressions to quantitatively relate the external factors to domestic macroeconomic performance. It finds that global risk aversion, the terms of trade, and global growth matter importantly for Indonesia's growth; forecasts for these external variables point to average growth of 3−4 percent in 2009. It also finds that monetary transmission in Indonesia takes 2−4 quarters.

A. Introduction

1. **External factors appear to be important determinants of Indonesia's macroeconomic performance**. Against the backdrop of generally favorable global financial and economic conditions in 2004−07, Indonesia's sovereign spreads declined, growth averaged 5½ percent annually, the current account surplus increased, and the real effective exchange rate (REER) appreciated. As global conditions deteriorated in late 2008, however, Indonesia's performance worsened as well—trade collapsed, the balance of payments came under some stress, and growth slowed.

2. **This paper quantitatively assesses the impact of external factors on Indonesia's performance**. Specifically, it examines the impact of growth in Indonesia's partner countries (or "global" growth), global risk aversion (as measured by the VIX, which is the implied volatility of S&P 500 index options), and terms of trade on Indonesia's real GDP growth. It also examines their relationship—and that of Indonesia's growth—with domestic inflation, interest rates, sovereign spreads, and the REER.

3. **The assessment is undertaken using an unrestricted vector autoregression (VAR)**. This approach not only allows for a decomposition of the factors accounting for each of the macroeconomic variables, but also facilitates making short-term forecasts. It complements modeling work done during the 2008 Article IV consultation (Reichold, 2008) as well as work underway at Bank Indonesia and the IMF (Andrle and others, 2009). The next section presents simple graphical relationships between variables, followed by the VAR analysis and forecasts. A final section concludes.

B. External Factors and Domestic Macroeconomic Variables: Graphical Analysis

4. **Growth in Indonesia has tended to track growth in its partner countries**. Quarterly seasonally-adjusted data is used starting in 2000, so as to exclude the 1997−98

[1] Prepared by Rishi Goyal.

crisis period as well as the immediate post-crisis recovery. A graphical analysis suggests a fairly close relationship between the two variables: as partner country growth has slowed or accelerated, growth in Indonesia has also tended to slow or pick up. There are no discernible breaks in the data over this sample period.

5. **Similarly, Indonesia's sovereign spreads have tended to track the VIX**. As discussed in Goyal and Ruiz-Arranz (2009), Indonesia's EMBI spreads have co-moved closely with global financial variables such as the VIX. Given that data on Indonesia's spreads are available from mid 2004 onwards and given the high level of accuracy of the spread calculated by Hartelius (2006) and Hartelius and others (2008), the actual EMBI is used from mid 2004 onwards whereas the calculated spread is used from 2000 through mid 2004.

Figure III.1. Indonesia and Partner Country Growth, 2000Q1–2009Q1

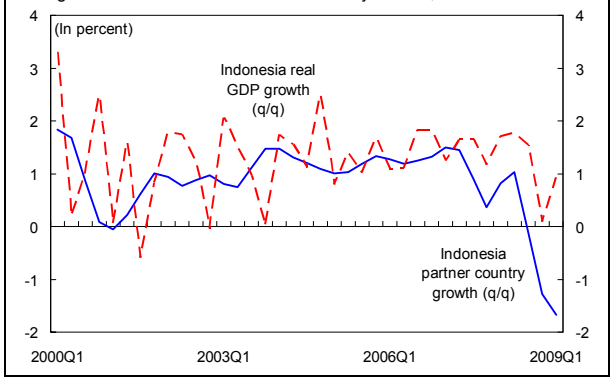
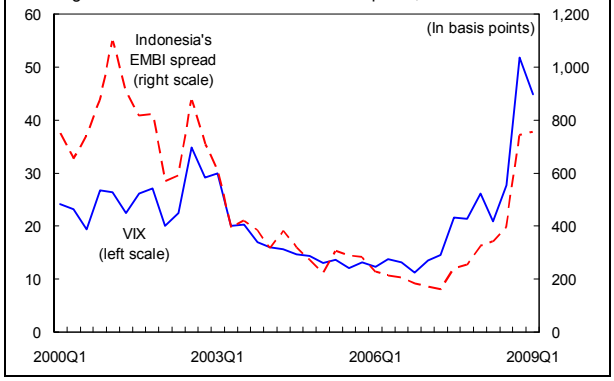


Figure III. 2. VIX and Indonesia's EMBI Spread, 2000Q1–2009Q1



6. **The real exchange rate has co-moved with the terms of trade, though the relationship has not always been strong**. As Indonesia's export commodity prices have risen (fallen) and its terms of trade have strengthened (weakened), particularly since 2002−03, the REER has tended to strengthen (weaken). Of the domestic nominal variables, the policy interest rate appears to have responded to quarter-on-quarter, annualized inflation.

Figure III.3. Indonesia: Terms of Trade and Real Effective Exchange Rate, 2000Q1–2009Q1

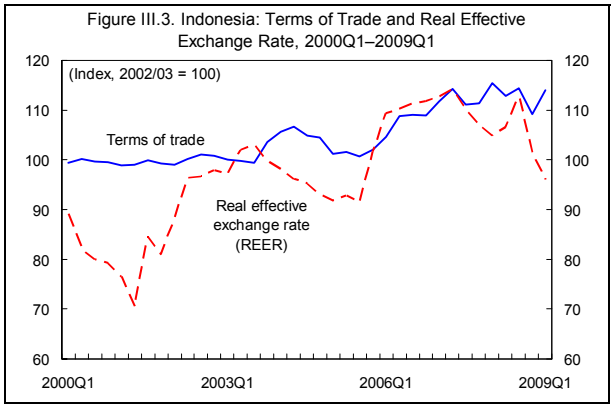
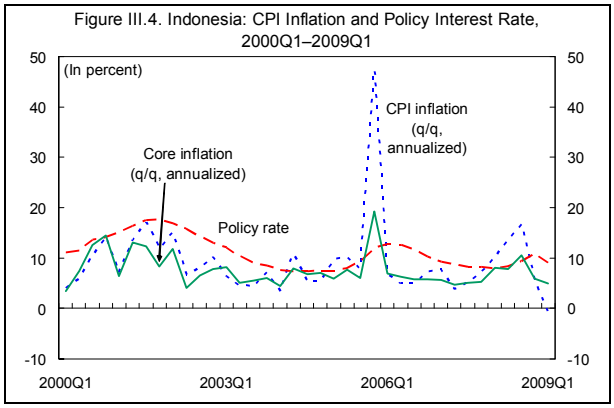


Figure III.4. Indonesia: CPI Inflation and Policy Interest Rate, 2000Q1–2009Q1



C. Vector Autoregression Analysis

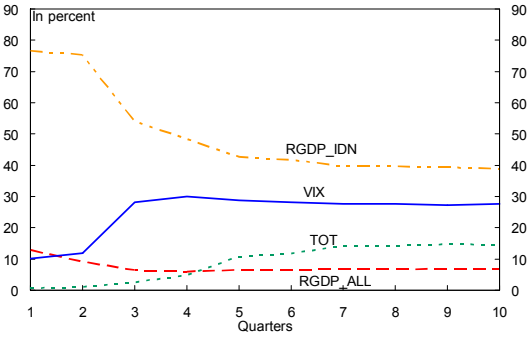
7. **Putting all the variables together in a single VAR can yield insights into the overall macroeconomic relationships**. A VAR is estimated with 2 lags, using global growth, VIX, terms of trade, domestic growth, inflation, interest rates, EMBI spreads, and the REER. In other words, the external variables—global growth, VIX, and terms of trade—are ordered first, given that they are exogenous to Indonesia-specific variables. These global variables are followed by a parsimonious structure for the Indonesian macroeconomy, namely, growth, inflation, interest rates, spreads, and the REER.

8. **As a first step, the plausibility of the model estimates is established on the basis of impulse response functions**. The model produces impulse response functions in line with expectations: all else equal, an increase in global growth translates into an increase in Indonesian growth, a decline in sovereign spreads, and an appreciation of the REER. An increase in global risk aversion, on the other hand, leads to a deterioration in sovereign spreads and higher domestic interest rates and depresses Indonesian growth. An exogenous deterioration in sovereign spreads (EMBI) also results in a weaker REER and higher domestic interest rates as well as lower growth. Finally, an improvement in the terms of trade positively impacts the REER, resulting in downward pressures on prices and interest rates; subsequently, however, the REER depreciates with upward price responses and interest rate action, though the impact is somewhat insignificant quantitatively.[2]

9. **Having established the plausibility of the model, a variance decomposition exercise permits an analysis of the key factors that account for the variation in the main macroeconomic variables**. The real variables are considered first, followed by the nominal variables:

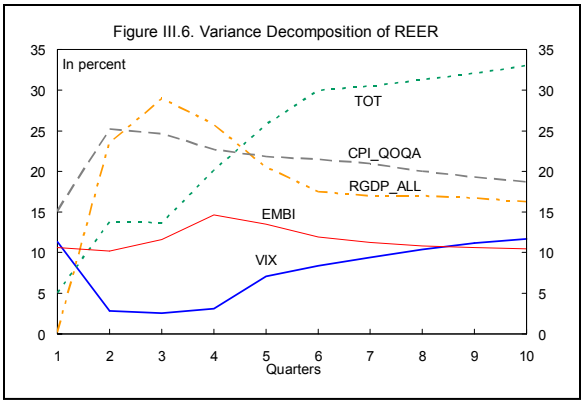
- *Growth*: While the strength of domestic demand in Indonesia has helped support growth more than in many other emerging markets, external factors can still have a significant impact on performance. Over a 2-year horizon, the decomposition shows that external factors account for nearly ½ of the variation in Indonesia's growth. Global risk aversion (VIX) accounts for nearly ⅓ of the variation in growth. Global growth helps account for over 10 percent of the variation on impact, but this

Figure III.5. Variance Decomposition of Indonesian Real GDP



[2] The low significance could partly be due to measurement error in computing the terms of trade. In the absence of firm estimates from the authorities based on detailed trade data, staff estimates of the terms of trade are used.

contribution declines over a 1 year horizon. Terms of trade account for less than 15 percent of the variation.



- *REER*: External factors account for over 60 percent of the variation in Indonesia's real effective exchange rate. The terms of trade and global growth, in particular, are important. Among the domestic variables, inflation plays an important role in accounting for the REER.

- *Interpretation*. These decompositions illustrate that external conditions, particularly related to risk aversion, can impact Indonesian growth. As long as global financial conditions remain strained, the impact of a pickup in regional or global growth on Indonesia's growth may be constrained. Furthermore, improved terms of trade should boost growth, unless accompanied by increased financial volatility; so, if a depreciation in the U.S. dollar boosts commodity prices and the terms of trade but is accompanied by greater uncertainty and financial market turmoil, then the growth impact of the higher terms of trade may be offset. It should also be noted, however, that domestic variables, such as lagged growth, continue to significantly affect growth. Rising domestic demand, therefore, owing for instance to countercyclical fiscal policy, can help to buffer growth against adverse external shocks.

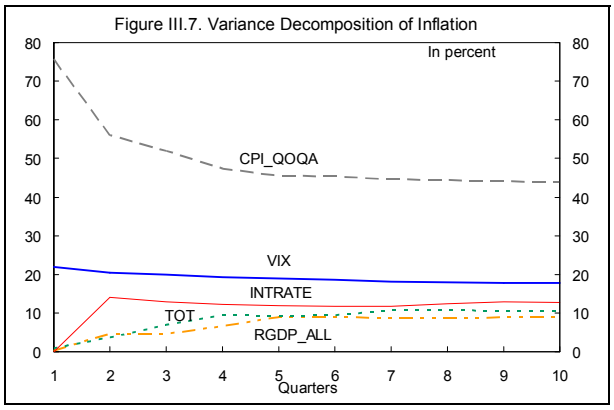
10. **The behavior of inflation and interest rates can also be assessed, thereby permitting an analysis of Indonesia's monetary transmission mechanism**.

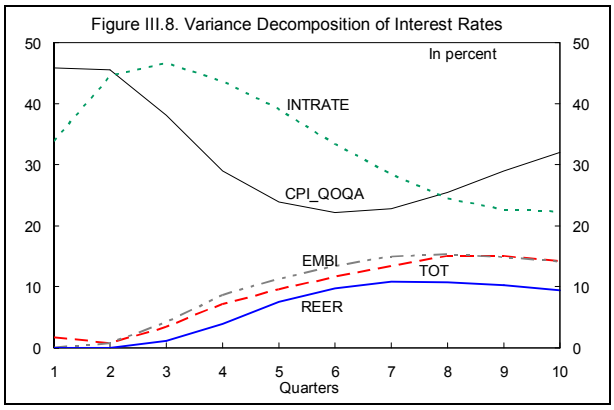
- *Impulse response*. An increase in interest rates, all else equal, results in lower growth in 3−4 quarters, and an appreciation in the REER in about 1 quarter. The impact on inflation is noted in 2 quarters.[3]

- *Variance decomposition*. The variance decomposition suggests that domestic factors account for over 60 percent of the variation in inflation and the bulk of the variation in interest rates. Lagged inflation remains the key explanatory variable for both inflation and interest rates. Lagged interest rates also matter importantly for accounting for interest rate variation. This close relationship of inflation and interest

[3] As in VARs estimated for other countries, such as the United States, the VAR estimated here demonstrates an "inflation puzzle," which refers to a seemingly counter-intuitive increase in inflation in the impulse response of an interest rate increase. This can be explained by the pattern in the data whereby interest rates react to inflation increases, and so rates rise when inflation rises.

rates suggests that stabilization of inflation can occur even against the backdrop of a strained external environment.





D. Forecasts

11. **Near-term conditional forecasts can be made using the model**. Given the path for partner country (or global) growth and commodity prices (hence, terms of trade) from the World Economic Outlook, and assuming a broadly constant path for global risk aversion (VIX), a baseline projection can be made for 2009 Q2-Q4. These projections may be modified on the basis of some upside risks and downside risks to ascertain upside and downside forecasts.

12. **Average annual growth of 3−4 percent can be expected for 2009**. Should growth in partner countries be somewhat higher than expected, with improved terms of trade and lower global risk aversion, an outcome in the upper end of the range can be expected. Similarly, should the external factors be worse than expected—with lower partner country growth, weaker terms of trade, and higher global risk aversion—a growth outcome in the lower end of the range would be expected.

13. **On the basis of the monetary stimulus in the pipeline, the model suggests the potential for some inflation pick up in the second half of the year**. With lags of 2−4 quarters in the monetary transmission mechanism, the easing cycle that commenced in December 2008 is expected to impact growth and inflation in the second half of 2009. This suggests a cautionary stance of monetary policy going forward, with, at a minimum, a pause in the easing cycle to assess how conditions evolve.

E. Conclusions

14. **The empirical analysis presented in this paper suggests that external factors can matter importantly for Indonesia's macroeconomic performance**. Global risk aversion, in particular, is found to have a significant quantitative impact on growth. The terms of trade also are found to affect growth. Growth in partner countries and the terms of trade are found to affect the REER systematically. The analysis points to caution in interpreting the impact of

higher terms of trade, if accompanied by higher risk aversion. To the extent that U.S. dollar depreciation would lead to improved terms of trade but, at the same time, is accompanied by greater uncertainty in financial markets and ultimately higher risk aversion, then the growth impact of higher terms of trade could be offset.

15. **Monetary transmission is found to take 2−4 quarters**. Therefore, the impact of the monetary easing cycle that commenced in December 2008 would be expected to impact macroeconomic variables during the second half of 2009. These are the normal lags in the transmission process. Inflation and interest rates are also found to largely be determined by themselves (or their lagged variables), suggesting that stabilization of inflation could occur even against the backdrop of unsettled external conditions.

16. **Model forecasts for growth in 2009 are in the 3−4 percent range**. A modestly better external environment would be expected to result in a growth outcome in the upper end of the range, while a weaker-than-expected environment would result in an outcome in the lower end of the range. The model also forecasts that inflation could pick up somewhat in the second half of the year, suggesting the need for a cautionary stance of monetary policy going forward.

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