RELATIVE EFFECTIVENESS OF INDONESIAN POLICY CHOICES DURING FINANCIAL CRISIS[1]

Tumpak Silalahi[2] and Tevy Chawwa[3]

Abstract

The objective of this paper is to review the impact of crisis and policy measures taken during the crisis, to evaluate the effectiveness of those measures and to analyze the exit strategy in Indonesia. The econometric model was used to evaluate the impact of monetary and fiscal policy to economic output using quarterly data from 1990 - 2010. The result shows that monetary and fiscal policies have significant impact to economic output. In the short run the changes in real GDP is significantly affected by changes in real monetary supply in the previous three quarter and real fiscal expenditures. The lesson learned from this research among other are that cooperation and coordination among the policy makers and the timely responses are very important in tackling the crisis; an effective conventional monetary policy in normal times may become less effective in a crisis thus unconventional monetary policy indeed necessary as timely policy response and the improvement for more timely disbursement of government expenditure is important to increase the effectiveness of this policy to stimulate economic output. Moreover, several Indonesian exit strategy and policies to face future challenges are very important to reach the ultimate objective of sustainable economic growth while maintaining macroeconomic stability.

JEL Classification*: E52, E62, E63*

Keywords: monetary policy, fiscal policy, financial sector policy, global financial crisis.

---

1 This is a collaborative research project with several central banks coordinated by SEACEN Research and Training Centre.

2 Associate Senior Economist at Directorate of Economic Research and Monetary Policy - Bank Indonesia, email : silalahi@bi.go.id

3 Junior Economist at Directorate of Economic Research and Monetary Policy - Bank Indonesia, email : tevy@bi.go.id . The views expressed in this paper are those of the authors and do not reflect the views of Bank Indonesia

I. INTRODUCTION

Prior to the global crisis, particularly during 2007, optimistic expectation about Indonesian economy was a general mindset of the economic forecasters. This expectation was supported by various macroeconomic indicators which showed a remarkable achievement of the Indonesian economy in 2007 after the Asian crisis in 1997. Indonesian GDP growth trend was increasing continuously since 2005 and for the first time after crisis, the GDP growth reaches more than 6% in 2007. Basically, the growth in 2007 was driven by robust domestic consumption and external demand which led to a surplus in the current account. In addition, positive sentiment accompanied by attractive yield on rupiah portfolio investment helped encouraged capital inflows. Shifting funds into emerging market assets contributed to a positive appreciation of currency in the region. The surplus in current account and the rise of portfolio capital inflows in 2007 had increased Indonesian foreign currency reserves to 13% of GDP or sufficient to cover import of goods and services for an average of seven months.

Indonesia financial market and institutions were also in a stronger condition based on financial indicators. Lessons learned from the 1997 crisis resulted in a fairly strict implementation of prudential regulations in the corporate and banking sectors as a result of which led Indonesian banking industry became much sounder with a more robust foundation to absorb various shocks in the economy. Demand pressure in 2007 was relatively high indicated by positive output gap, although it was still far below output gap in 1996. Moreover, the government had tried to reduce its dependency on foreign debts, both short-term and long-term. All of these improvements resulted in Indonesia been assessed as a low risk country and it achieved the highest ICRG (International Country Risk Guides) scores since 1997.

In 2007, fiscal policy was targeted at maintaining price stability for energy and staple needs, while also delivering an economic stimulus. Escalating world oil prices in combination with below-target lifting of domestic oil led to a considerable pressure in the government budget deficit. In the monetary policy, BI's stance could be divided into 2 periods, the period of decline in the BI Rate (January-July 2007) and the period of flat movement in the policy rate (August-November 2007). Bank Indonesia also applied a flexible exchange rate policy, allowing the rupiah to move in line with economic fundamentals. To manage the volatility in the rupiah, Bank Indonesia conducted foreign exchange market interventions on a limited scale. Although many improvements such as better monetary and fiscal coordination were introduced to strengthen the effectiveness of policy choices in Indonesia, the disturbances from external shocks such as the rise in commodity/oil price and internal shocks such as crop failures or seasonal events were important factors that influenced the Indonesian macroeconomic conditions.

The global financial crisis in 2008 had reversed the previous optimistic mindset of economic forecasters. The pressures in the global liquidity had caused a massive short term portfolio capital outflow followed by a decline of Indonesia's financial market performances. In the real sectors, reflecting the input of global slowdown, exports declined and it had an indirect impact on household and private sector's income, leading to a decline in Indonesia's consumption and investment. As a result, Indonesia's GDP growth'in 2009 declined to 4.5% (yoy).

Some policy measures were implemented in monetary, fiscal and financial sectors to deal with the global financial crisis. Bank Indonesia had implemented an accommodative monetary policy in order to keep a moderate growth achieve at least by maintaining financial markets liquid which was facilitated by relatively low inflation. The policy rate was brought down in December 2008 with the intention to decrease banks' lending rates. Some unconventional monetary policy measures such as narrowing the interest rate corridor for standing deposit and lending facility had also been taken to address liquidity issues. On the fiscal side, the government provides policy response to keep domestic demand by several fiscal stimulus and trade policies. There were also coordination between Ministry of Finance, Central bank and other institutions in order to maintain financial and macroeconomic stability.

With this background, this paper is aimed at reviewing the policy measures taken during the crisis, evaluating their effectiveness and analyzing the exit strategy to reach the ultimate objective of sustainable economic growth while maintaining macroeconomic stability in Indonesia. In turn this is expected to make a contribution to a comprehensive evaluation of the effectiveness of the policy measures in SEACEN Economies. To handle the broad issues in the paper, two methodologies are adopted: firstly, by descriptive analysis using simple statistics and graphics; and secondly, by econometric model to analyze the relative effectiveness of policy choices.Second session of this paper discusses the theory and the empirics of the crisis, session three discuss methodology while session four present result and analysis. Session five will give conclusion and close the presentation.

II. THEORY

As a small open economy, Indonesia could not be immune from external shock impact. The integration in financial sector has left many countries particularly for open economy to contagion risk. An empirical study by Santoso et al (2009) shows that Indonesia has a contagion relationship with several countries in Asia, such as Japan, Taiwan, Korea, Hong Kong and India. The domestic financial market moves closely with the movements in global financial markets. The research also showed that there is no direct contagion between Indonesia stock exchange

and the Dow Jones index and NASDAQ index. Thus, if Indonesia is affected by the global crisis, it is not a direct effect from the US market but rather indirect effects from capital markets in Asia that share a direct relationship with the US capital market. Furthermore, the research indicated that Indonesia is a shock absorber rather than shock transmitter, particularly with regard to developed countries (Japan, Australia, Germany, United Kingdom and the US).

In the real sector, Indonesian export is also affected by external condition. Research by Kurniati's et al (2008) study show that Indonesia's exports are most sensitive to the economic growth of Singapore (1.19), followed by the US (0.84), Japan (0.81) and China (0.3).

Related to the current global financial crisis, Kurniati and Permata (2009) found that a shock in global risk aversion have immediate negative impact on capital inflows to Indonesia, particularly from portfolio investments that leading to rupiah depreciation. The impacts through financial channel on financial variables are temporary and relatively faster to recover (self-market correction). The second round effects of global crisis occur through trade channel. Negative shock of US GDP growth leads to contemporaneous decline in Indonesia's exports which subsequently result in decreasing domestic real GDP growth, capital outflow and rupiah depreciation. The impacts on exports seem to persist and need policy responses from the authorities.

The effectiveness of monetary policy depends on the environment of domestic economy and the disturbance from external shock. Study done by Arifin (1998) which analyze effectiveness of interest rate policy for rupiah stabilization during crisis 1997/1998 in Indonesia conclude that interest rate policy is effective for rupiah stabilization only if there are no disturbance from other non-economic factor, such as negative rumors, mass mobilization and riots. Thus, interest rate policy becomes less effective for reducing inflation level because inflation is also affected by supply factor pressures such as production and distribution.

The current research done by Simorangkir and Adamanti (2010) examines the impacts of fiscal stimulus and interest rate cut on Indonesian economy during global financial crisis using *Financial Computable General Equilibrium* (FCGE) approach. The simulation results showed that the combination of fiscal expansion and monetary expansion boosts economic growth of Indonesia effectively. Relative to the effectiveness of fiscal expansion without monetary policy expansion or monetary expansion without fiscal expansion, the combination of those two policies is more effective. Another result of this paper showed that looking into the components of GDP, the combination of fiscal and monetary expansion has a large multiplier effect, boosting aggregate demand through increasing consumption, investment, government expenditure, exports and imports. Meanwhile, from production side, the combination of fiscal and monetary

expansion has positive effects on increasing production of all economic sectors. This effect comes from fiscal incentive (lower tax, lower import duties, etc) in increasing investment. Moreover, the increase in aggregate demand also encourages enterprises to increase their production. This paper also found that institutionally fiscal stimulus and monetary easing has increased income and purchasing power of the poor and rich households in rural and urban area. This increase in turn results in higher all household consumption.

Several other research related to the effectiveness of fiscal policy during crisis noted that the important thing to concern when government gives fiscal stimulus are: (i) the coordination between central and local government and (ii) the ability of local and central government to disbursing the money quickly. In order to reach this, the complicated procurement processes and administration practices will need to be simplified and made more transparent.

Survey done by The SMERU Research Institute in 2009 investigating the roles of Social Safety Net programs and Fiscal Stimulus Program (especially infrastructure and labor intensive program) in mitigating the impact of global financial crisis (GFC) found that:

- There are several problem related with the implementation of social safety net programs that disturbing its effectiveness: (i) most local government officials lack of specific information on the impact of GFC to the community, (ii) no information system on the socioeconomic condition of community available and provided in hierarchical, periodic & systematic way, (iii) lack of responsiveness on prices changes or other signs of crisis.
- Related with fiscal stimulus programs (FSP), several problems happened are: (i) Central government does not formally socialize FSP to the local governments, (ii) There is no linkage between the level of impact of GFC and the fund allocation to the regions, (iii) There is no linkage between the impacted sector and the funded sector projects, (iv) There is important role of Central MP to inform local governments on the availability of projects to be funded, (v) Fund allocated to the regions also depend on the active role of local governments efforts to lobby Central Government.

These problems also pointed in Yudo et al (2009) analysis about social safety net program, known as JPS (*Jaring Pengaman Sosial*) that Indonesian government introduced to response to the 1997/1998 crisis. An evaluation of this anti-poverty program which encompassed food security, employment and income maintenance, and preservation of access to education and health showed that in many cases the target groups had largely been missed and that the effectiveness of the efforts varied across programs and regions. This suggested that some districts were better than others in implementing common national program, further highlighting the need for large improvements in program implementation, in particular in targeting the

beneficiaries of a particular program and raising coverage within the target groups. Further research reaffirmed the earlier conclusion on the heterogeneity of performance both across programs and regions. This could be due to programmed design, budget allocation across programs and regions, and regional capacity to implement the program. One main lesson to be drawn from these assessments is that targeting requires detailed administrative guidance as well as community involvement if it is to be both effective and socially and politically acceptable. Furthermore, static administrative targeting was unable to capture the newly poor or shocked households.

As a part of emerging market economies, Indonesia was impacted by the global financial crisis which resulted in a sudden stop in capital inflows into emerging market countries and a decline in global economic growth. The impact on macroeconomic indicators can be grouped into the first and second round effects as follows:

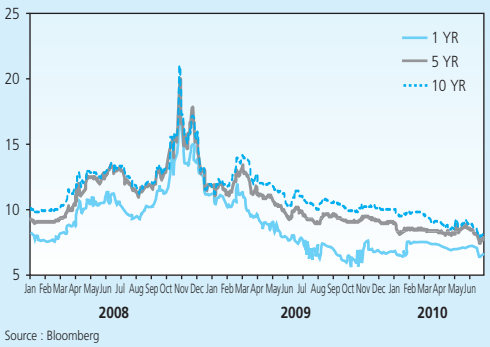
2.1. First Round Effects of Global Financial Crisis

2.1.1 Impact on BOP and Exchange Rate Movements

During quarter III 2008, global economic developments placed pressure on the Indonesia's balance of payments. The pessimistic outlook for the global economy in 2008 signaled by international institutions reinforced pessimism among market actors. Investors saw gloomier prospects and higher risk in fund placements in emerging market, including Indonesia. The high risk perceptions of Indonesian market could be seen in indicators such as Credit Default Swap (CDS) and Government Bond Yield that increased significantly (Figure 1 and 2). Then, in order to avert risk, the investors moved their funds to the safe haven of US Treasuries.

Source : Bloomberg

Figure 1.
CDS (Credit Default Swap)



Source : Bloomberg

Figure 2.
Government Bond Yield

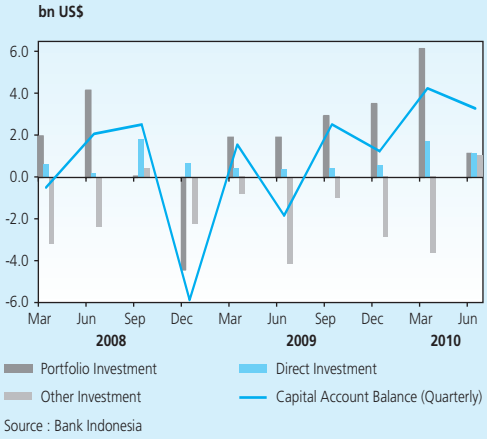


Figure 3.
Financial /Capital Account

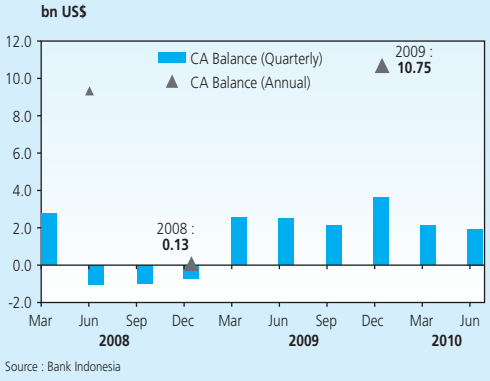
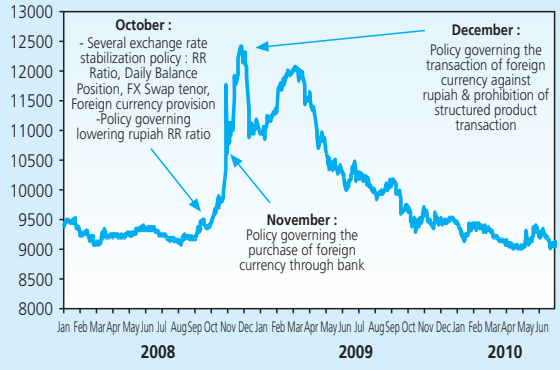


Figure 4.
Current Account

A negative sentiment caused by the turbulence in global financial markets prompted a wave of capital outflows as seen in Figure 3. At that time, foreign investors cut back their holding of Indonesian government securities by Rp 4.4 trillion or approximately US$ 387 million. The foreign investors' behavior to terminate their portfolio investment then followed by domestic investors drawing their assets and these actions brought the portfolio investment in quarter IV-2008 to a recorded net outflow. Further, the domestic agents moved their accounts from domestic banks to overseas banks and some of them had failed to get new foreign financing as indicated by the other investment component that recorded a deficit. The increased deficit of other investment also explained by higher drawing on corporate lines of credit spurred by heavy corporate foreign exchange demand to pay for imports in 2008. In contrast, direct investment still recorded as net surplus due to acquisition of activities of domestic banks by foreign investors.

Global financial crisis also weakened the performance of Indonesian current account in the quarter II until quarter IV 2008 (Figure 4). This escalation in the current account deficit resulted primarily from falling exports as global economy contracted and the falling of export commodity prices. Current transfers buoyed by worker remittances were also decreasing although remain positive. In 2008, incoming transfers from worker remittances generated a surplus of US$ 5.2 billion then decreased to US$ 4.8 billion in 2009.

The downturn in the BOP in turn triggered a strong exchange rate depreciation accompanied by high volatility. Demand pressure for foreign currency which was derived from foreign portfolio capital outflow and the drop in foreign currency supply because of the collapse



Source : Bank Indonesia

Figure 5.
Exchange Rate Movements

of export led to heavy depreciating pressure on the exchange rate. Downward pressure was also sustained by regional currencies that weakened from the spillover effects of external turbulence. Additionally, the side effect of Bank Indonesia's policy in lowering reserve requirement ratio may also gave effects to the excess rupiah liquidity in the market and led to the depreciate rupiah values decreased. These developments placed to put pressure on the rupiah, fell to its lowest level of Rp 12,400 per US$ in November 2008 (Figure 5).

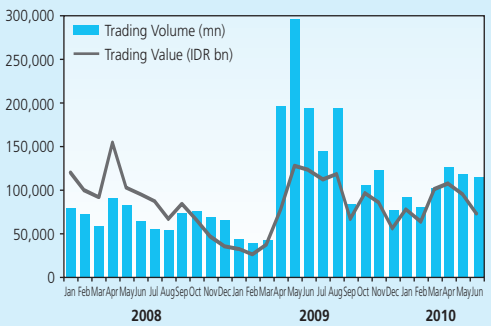
Bank Indonesia responded by issuing a series of policies to ease the pressure and prevent excessive volatility in the rupiah such as exchange rate stabilization, policy governing the purchase of foreign currency through banks, policy governing the transaction of foreign currency against rupiah and prohibition of structured product transaction. These policies will be discussed in detail in the next section.

2.1.2 Impact on Stock Market

The investor's behavior to withdraw their funds from emerging countries during global crisis led to fall in the stock market index of emerging market including Indonesia. The falling of mining and agricultural commodity prices on the world market also affected the stock market index adversely. The Indonesian Composite Index (IDX) continued to decrease sharply and closed at 1.355 at the end of the period 2008, a drop of 50.64% compared to the quarter II 2008 (Figure 6). With this worst performance, Indonesian Stock Exchange was placed at level 5 in Asia and the Pacific, after Vietnam, Shanghai, Shenzhen and Mumbai.

Source : CEIC

Figure 6.
Jakarta Stock Index



Source : CEIC

Figure 7.
Trading Volume & Value

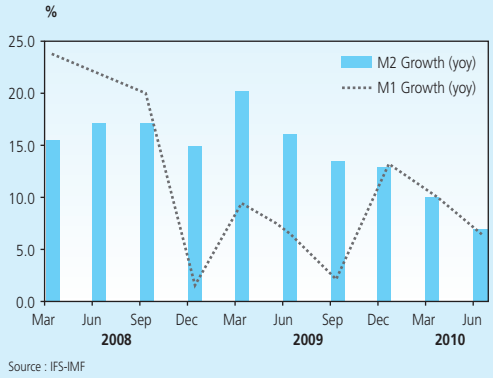
The disappointing performance of the IDX has led to a fall in both the volume and value of transactions in the stock market especially in the fourth quarter of 2008 (Figure 7). Number of firms who already held principle permits to issue shares also decided to postpone their share issuances.

To avoid further fall on the stock market performances, government decided to suspended IDX trade on 9th and 10th October 2008, issued regulations regarding buyback, banned short selling and limited margin trade. These policies were intended to provide time for investors to think rationally amidst the financial market turbulence caused by the crisis.

2.1.3 Impact on Market Liquidity

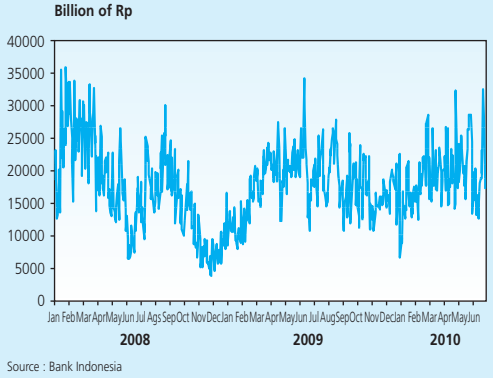
The global financial pressures also led to a liquidity shortage in the domestic money market, which was reflected in a slower pace of growth in narrow money (M1) and broad money (M2) (Figure 8). In quarter IV-2008 average M1 and M2 growth slower at 1.5% (yoy) and 14.9% (yoy), decline from 19.9% (yoy) and 17.2% (yoy) in the preceding quarter.

Strong perception of tight bank liquidity and spillover from global conditions was also reflected in the rising liquidity premium, which widened progressively for longer tenors. With the tightened conditions on the money market, some banks who customarily supply liquidity, reviewed their credit lines and credit limits to individual counterparties. This resulted in more uneven distribution of liquidity on the market tending towards greater segmentation, due to loss of confidence in transaction. The movement in the overnight interbank rate remained above the policy rate (BI Rate) during July-October 2008, alongside drastically reduced transaction



Source : IFS-IMF

Figure 8.
M1 and M2 Growth



Source : Bank Indonesia

Figure 9.
Daily Interbank Market Volume

volume and a growing spread between the highest and the lowest overnight rate (Figure 9). Following this, banks with long positions on the money market chose to shift their liquidity to Bank Indonesia short term investment.

2.1.4 Impact on Financial Institutions

The impact of financial crisis on Indonesian financial institutions was not as severe as in other countries because Indonesian banks and national financial institutions' exposure to subprime mortgages was minimal. One of the contributory factors in this regard was the characteristics of Indonesian banks and financial institutions, which still leaned towards conventional instruments of investment. Another factor was the quality of surveillance in the banking sector and non-bank financial institutions as well as the capital market which has been improved. The lessons from Asian crisis 1997 had caused Bank Indonesia to strengthen Indonesian banking structure under Indonesian Banking Architecture as a part of financial landscape. Beside, the banks were well disciplined in following prudent regulations which led to limit their exposure to the larger problems associated with derivative products.

However, the tight liquidity in the money market had made it difficult for banks to manage their fund. On October 2008, three state banks proposed a liquidity support from the government in amount of Rp 15 trillion in total (approximately US$ 1.36 billion). Medium and smaller banks also had more severe problems as depositors moved their fund to bigger banks because they worried of possible bank liquidations as experienced in 1997. Under the circumstances, banks competed to attract deposits by offering high deposit interest rates. In turn, lending rates were

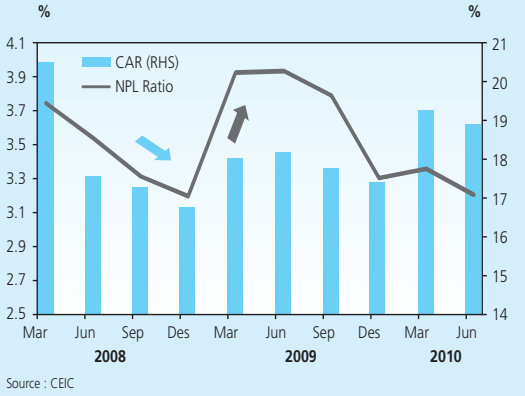


Figure 10.
Commercial Bank Performances

also increased. These conditions led to a decrease of the banks' performance as indicated by Capital Adequacy Ratio and Non Performing Loans (Figure 10).

2.2 Second Round Effects of Global Financial Crisis

2.2.1 Impact on Exports

The weakening global demand and collapsing world commodity prices had deteriorated Indonesia's export earnings significantly, especially in quarter I 2009 (Figure 11). The growth of exports dropped drastically to -18.73% yoy from 13.64% yoy in the same quarter 2008 (Figure

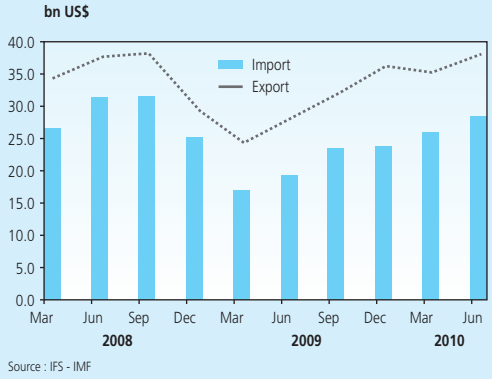


Figure 11.
Export and Import

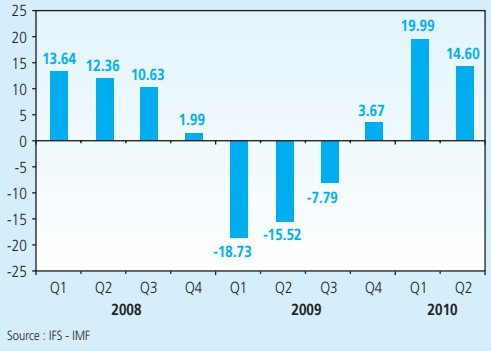


Figure 12.
Export Growth (yoy)

12). Indonesia's exports were concentrated in a select group of countries and relatively lacked of diversification of export commodities and there was a higher degree of the vulnerability of Indonesia's export to external shocks.

Even though there was a shift in the main destination of Indonesia's exports to China since 5 years ago, but the Japan and the US markets still become the most destination of Indonesian export. Prior to crisis in 2007, based on destination country, the proportion of Indonesian export to Japan was 21.71% and to USA was 10.67% from total exports (Figure 13). The next main destinations were Singapore (9.65%), China (8.89%) and South Korea (6.97%). The implication of this concentration is that any slowing of economic growth in the major export destinations as experienced in the global crisis will have an adverse impact on Indonesian exports.

Unlike other developing countries in Asia in which exports are dominated by electronic appliances and office machinery, the structure of Indonesia's export is dominated by oil and gas as well as low technology industrial product. Accordingly, the primary sector especially oil, natural gas, mining and agricultural commodities accounts for a substantial portion in Indonesia's export. This dependency on primary sectors made Indonesian export more vulnerable to external shocks especially fluctuations in international commodity prices.

The growth in export volumes in all main export's sectors decreased (Figure 14). Annual growth of mining sector's export decreased sharply from 47.83% in 2006 to 7.98% in 2007 and become -0.43% in 2008. The growth of agriculture and manufacturing sectors continued to remain negative in 2009, but export in mining sector turned positive and recorded a growth of 13.79%.

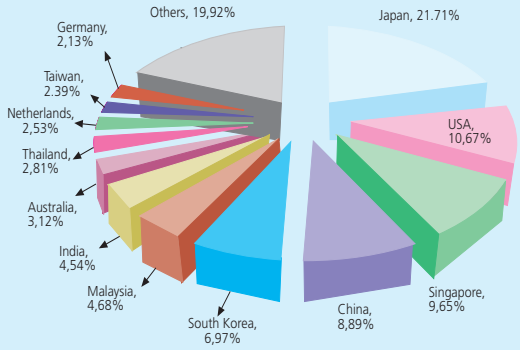
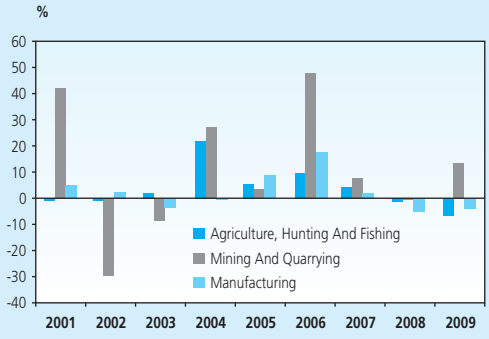


Figure 13.
Indonesian Export Destinations in 2007

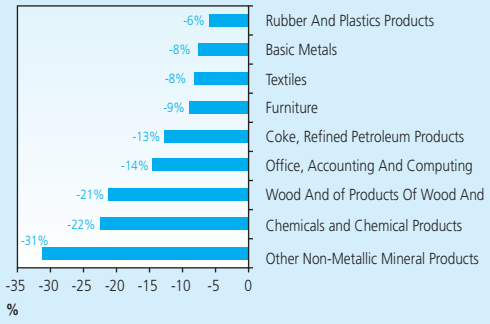


Source : Bank Indonesia

Figure 14.
Growth of Export Volumes by Sectors

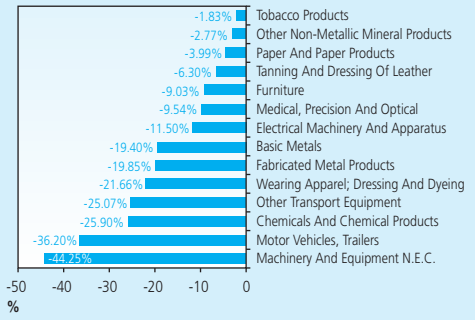
2.2.2 Impact on the Industrial Sector, Unemployment and Poverty

Tradable sectors were affected worst by the fall in exports during the crisis. During quarter I 2008 until quarter III 2009, the growth of manufacturing sector declined from above 4 % to 1.5% (yoy) on average, in line with the deterioration in manufacturing products export. Subsectors that impacted deeply in 2008 were other non-metallic products, chemicals products and products of wood, which their export volumedeclined by 20 – 30% from previous year. In 2009, volume of exports in machinery and motor vehicles decreased by 44% and 36% compared to export in 2008 (Figure 15 and 16).



Source : Bank Indonesia

Figure 15. Volume of Export Decrease in Manufacturing Subsector 2008



Source : Bank Indonesia

Figure 16. Volume of Export Decrease in Manufacturing Subsector 2009

The slowdown of tradable sector's performance in turn led to a reduction in employment. Pressure from the global crisis compelled several companies to make changes in their operations and upgrade business efficiency. Consequently some factories were closed or began laying off workers, driving down purchasing power even further in 2008. According to Ministry of

Table 1.
Impact of Export Deterioration on Labor Absorption

Scenario	Labor Absorption (%)	
	All Sector	Industrial Sector
Export total decreased by 1%	-0.166	-0.416
Agricultural export decreased by 1 %	-0.009	-0.001
Mining export decreased by 1 %	-0.005	-0.002
Manufacture export decreased by 1 %	-0.091	-0.400

Source: Indonesia Economic Outlook, January 2008

Manpower and Transmigration, total number of workers that had been temporarily laid off was of 10,306 until December 2008. Bank Indonesia's analysis using Indonesia Input Output Table shows that for each 1% decline in Indonesian exports resulted in 0.42% reduction in industrial employment (Table 1).

The fallout in the export dependent sectors from the global financial crisis seems to have put considerable pressure on prosperity levels. The impact of reductions in working hoursand dismissals in some industries caused many households to lose their income. Additionally, farmer's income in the estate sector began to suffer in October 2008, following the collapse in commodity prices. The high inflationary pressure in 2008 has also produced a reduction in real wage levels for workers. Fortunately, the relatively buoyant economic growth until QIII-2008 helped bring improvement in various indicators of welfare such as poverty and unemployment. Government program designed to combat unemployment, such as the National Community Empowerment Program (PNPM) for block grants, disbursement of Grassroots Business Credit (KUR), the Unemployment Reduction Movement and distribution of Direct Cash Transfers, also seems to have some positive influence in the improvement of welfare indicators.

2.2.3 Impact on GDP Growth

The decline in exports, deterioration in production and lower income simultaneously reflected in the decline of Indonesia's economic growth from 6.3% in 2007 to 6.0 in 2008 and 4.55% in 2009. Compared to other countries in the world, Indonesian GDP performance during crisis were relatively remarkable. The GDP growth in 2009 was the third highest in the world

Table 2.
GDP Growth by Sector (% yoy)

	2008					2009					2010	
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Agriculture	6.44	4.81	3.25	5.12	4.83	5.91	2.95	3.29	4.61	4.13	3.00	3.08
Mining and Quarrying	(1.62)	-0.37	2.32	2.43	0.68	2.61	3.37	6.20	5.22	4.37	3.08	3.77
Manufacturing	4.28	4.23	4.31	1.85	3.66	1.50	1.53	1.28	4.16	2.11	3.70	4.29
Electricity, Gas and Water Supply	12.34	11.77	10.41	9.34	10.92	11.25	15.29	14.47	13.99	13.78	8.18	4.76
Construction	8.20	8.31	7.76	5.88	7.51	6.25	6.09	7.73	8.03	7.05	7.05	7.18
Trade, Hotels and Restaurant	6.75	7.68	7.59	5.47	6.87	0.63	-0.02	-0.23	4.17	1.14	9.36	9.63
Transportation and Communication	18.12	16.57	15.64	16.12	16.57	16.78	17.03	16.45	12.22	15.53	11.92	12.91
Financial, Rental and Business Services	8.34	8.66	8.60	7.42	8.24	6.26	5.33	4.90	3.77	5.05	5.34	6.10
Services	5.52	6.51	6.95	5.93	6.23	6.70	7.19	6.04	5.69	6.40	4.62	5.25
GDP	6.21	6.30	6.25	5.27	6.01	4.53	4.08	4.16	5.43	4.55	5.69	6.17

Source: Bank Indonesia

Table 3.
GDP Growth by Demand Side

	2008					2009					2010	
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Consumption	5.47	5.49	6.34	6.42	5.94	7.28	6.27	5.44	5.91	6.21	2.52	3.12
Gross Fixed Capital Formation	13.88	12.16	12.30	9.40	11.86	3.46	2.37	3.24	4.18	3.32	12.45	10.13
Export	13.64	12.36	10.63	1.99	9.53	-18.73	-15.52	-7.79	3.67	-9.70	19.99	14.60
Import	17.99	16.11	11.10	-3.73	10.00	-24.42	-21.04	-14.67	1.62	-14.97	22.60	17.74
GDP	**6.21**	**6.30**	**6.25**	**5.27**	**6.01**	**4.53**	**4.08**	**4.16**	**5.43**	**4.55**	**5.69**	**6.17**

Source: Bank Indonesia

after China and India. This achievement was supported by the performance of some sectors not related to external developments such as electricity, gas and water utilities, construction, transport and communications, and the services sector. Growth in the electricity, gas and water utilities sector reached 13.78% and growth in transport and communications sector reached 15.53%, respectively (Table 2). On the demand side, economic expansion in 2009 was driven by strong domestic demand, especially consumption of both households and government that grew by 6.21% (Table 3).

2.3 Comparison between 1997/1998 Crisis and 2007/2008 Crisis

During the last ten years, Indonesia and most other Asian countries had experienced two financial crises. The first, Asian crisis occurred in 1997 and the second crisis known as global financial crisis occurred ten years later in 2008. In magnitude and breadth, there are similarities between those crises. Therefore, computation of the duration, amplitude, slope and cumulative losses of each of the two crises will show the big picture of those events.[4]

Compared to 1997/1998 crisis, the impact of the current crisis on the real sector was relatively smaller. In 1997/1998 crisis, the GDP growth continued to decline for 8 quarters and the amplitude of the decrease was -28.53%. In fact, the GDP growth was negative in 5 quarters. Under the GDP growth declined by 2008/2009 crisis for 3 quarters and the amplitude was only 2.16%.

As indicated by the cumulative losses, the impact of the recent financial crisis on domestic credit was smaller than that of the 1997/1998 crisis. The figure shows the cumulative losses

4 The more explanation about similarities and differences of 1997 crisis and 2008 crisis could be seen in Appendix

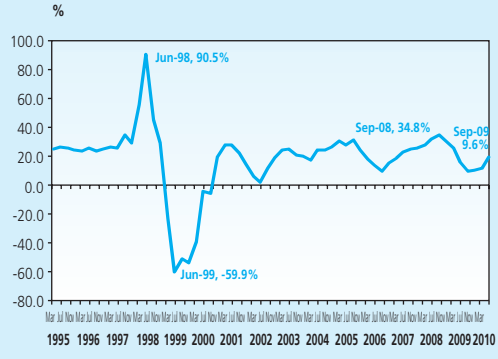
Table 4. Duration, Period, Amplitude, Slope and Cumulative Losses for Recent Crisis And 1997/98 Crisis

	1997/1998 Crisis	2008/2009 Crisis
Economic Growth Recession (% yoy)		
Duration	8 quarters	3 quarters
Period	Q1 1997 – Q4 1998	Q4 2008 – Q2 2009
Amplitude	28,53%	2,2%
Slope	4%	0,72%
Cummulative Losses	115,16%	4,86%
Domestic Credit Growth (% yoy)		
Duration	4 quarters	4 quarters
Period	Q3 1998 – Q2 1999	Q4 2008 – Q3 2009
Amplitude	150,4%	25,2%
Slope	37,6%	6,3%
Cummulative Losses	370,8%	56,8%
Stock Prices (Index)		
Duration	5 quarters	4 quarters
Period	Q3 1997 – Q3 1998	Q1 2008 – Q4 2008
Amplitude	448	1390
Slope	90	348
Cummulative Losses	1411	2999

Source : CEIC, estimated

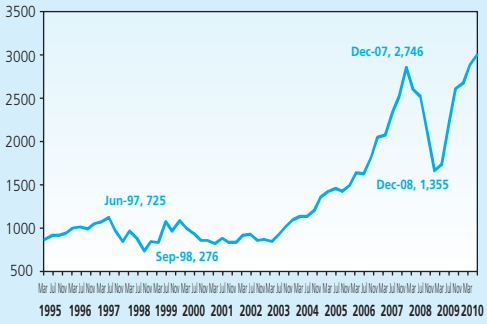
Source : CEIC, estimated

Figure 17a.
Peak and Trough of GDP Growth



Source : CEIC, estimated

Figure 17b.
Peak and Trough of Credit Growth



Source : CEIC, estimated

Figure 17c.
Peak and Trough of Stock Market Index

consecutively by 370.8% and 56.8%. Even the duration of the credit decline was almost equal at 4 quarters, the amplitude of 2008/2009 crisis was lower (25.2%) than that of 1997/1998 crisis (150.4%).

In the financial market, although it seems that the impact of recent crisis was bigger because the stock market index decreased by 1390 points, in relative terms (percentage change) it was lower (50,6%) than that of 1997 crisis (61,9%). The duration was also shorter.

III. METHODOLOGY

In examining the relative effectiveness of both monetary and fiscal policies on economic growth, we use the Engle and Granger two step estimating procedure which allows an explicit testing of co-integration and specification of the Error Correction Model (ECM).

Empirical model in this paper is aimed at testing the relationship of economic growth with monetary policy, fiscal policy and other control variables.

$$Yt = f(MP_t, FP_t, Z_t) \tag{1}$$

where Y is a measure of economic activity, MP, a measure of monetary policy, FP measure of fiscal policy and Z is other control variables that may affect economic activity. Finally, the general form of the Error Correction Model (ECM) specification in this paper is:

$$\Delta Y_t = \sum_{j=1}\sum_{k=0} \beta_{1jk} \Delta X_{jt-k} + \sum_{k=0} \beta_{2k} \Delta Y_{t-k-1} + \lambda ECM_{t-1} + C + e_t \quad (2)$$

Where:

Y = dependent variables (economic output)

X = independent variables, consists of monetary variables, fiscal variables, and other control variables

ECM = residuals from long run relationship between variable

n = number of explanatory variable in the model

p = number of lags used to represent the short run dynamics in the model

There are several variables which could be used as proxies for of economic activity, fiscal policy, monetary policy and control variables as outlined in the table below. We use quarterly data from 1990 Q1 to 2010 Q2. To capture the effect of financial crisis period to the effectiveness of policy choices, we add interaction variables of dummy recession and policy variables. Some of variables were adjusted for seasonality using Census X12 method.

Table 5.
List of Variables

Indicator	Variable	Sources	Notes
Growth	GDP Real	IFS, staff estimated	
	GDP Nominal	IFS	
Fiscal	Fiscal Balance	BI	
	Government Revenue	BI	
	Government Expenditure	BI	
	Primary Expenditure	1.1.4.1.1.1	Government Expenditure – Interest Payment
	Primary Balance	BI	
Monetary	M1	IFS	
	M2	IFS	
	Policy Rate	BI	Prior to Q3 2005, we use SBI 1 month as proxy for policy rate
Inflationary Effect	GDP Deflator	IFS, staff estimated	
	CPI	BI	
External Sector	Exchange Rate	IFS	
	Current Account Balance	IFS	
Dummy Recession	1997/1998 Recession	Estimated	Q1 1997 – Q4 1998
	2008/2009 Recession	Estimated	Q4 2008 – Q2 2009

Notes: all variable are in logarithm, except Fiscal balance, primary balance, current account balance (because they contains negative values) and dummy recession (binary 1/0)

IV. RESULT AND ANALYSIS

4.1. Empirical Result

To characterize the time series property of the variables, we utilize the Augmented Dickey-Fuller (ADF) and the Phillips Perron (PP) methods. This PP approach is more appropriate than ADF since the data shows a structural break as effect of 1997/1998 crisis. Both of the ADF and PP test indicate that most of the series are non-stationary when the variables are defined in levels, except Fiscal Balance, Primary Balance, Policy Rate and Current Account Balance. But first-differencing the series removes the non-stationary components in all cases and the null hypothesis of non stationary is clearly rejected at the 5% significance level suggesting that all variables are integrated of I(1). Thus, the next step of testing for possible cointegration relationship will be done only with the I(1) variables.

Table 6.
Unit Root Test for Variables

Variables	Abbreviation	ADF Test Result					Phillips Perron Test Result				
		Level		1st difference		Level of integration	Level		1st difference		Level of integration
		t-stat	p-values	t-stat	p-values		t-stat	p-values	t-stat	p-values	
Real GDP	RGDP	-2.631	0.268	-2.139	0.032	I(1)	-2.327	0.415	-8.320	0.000	I(1)
Nominal GDP	NGDP	-2.038	0.572	-5.929	0.000	I(1)	-2.117	0.529	-5.491	0.000	I(1)
Real GDP_Adjusted	RGDP_SA	-2.214	0.475	-5.216	0.000	I(1)	-1.921	0.634	-5.159	0.000	I(1)
Nominal GDP_Adjusted	NGDP_SA	-1.913	0.639	-1.957	0.049	I(1)	-1.869	0.661	-2.939	0.004	I(1)
Fiscal Balance	FB	-4.231	0.006	-6.526	0.000	I(0)	-9.025	0.000	-29.488	0.000	I(0)
Government Revenue	GR	5.943	1.000	-17.544	0.000	I(1)	2.972	0.999	-42.299	0.000	I(1)
Government Expenditure	GE	5.327	1.000	-20.666	0.000	I(1)	2.100	0.991	-36.833	0.000	I(1)
Primary Expenditure	PRIM_GE	5.137	1.000	-20.657	0.000	I(1)	1.976	0.988	-42.757	0.000	I(1)
Primary Balance	PB	-5.436	0.000	-6.289	0.000	I(0)	-7.132	0.000	-26.702	0.000	I(0)
Fiscal Balance_Adjusted	FB_SA	-3.074	0.003	-12.525	0.000	I(0)	-8.552	0.000	-20.894	0.000	I(0)
Government Revenue_Adjusted	GR_SA	4.040	1.000	-15.234	0.000	I(1)	3.211	1.000	-15.292	0.000	I(1)
Government Expenditure_Adjusted	GE_SA	3.562	1.000	-10.192	0.000	I(1)	4.154	1.000	-18.761	0.000	I(1)
Primary Expenditure_Adjusted	PRIM_GE_SA	4.400	1.000	-11.337	0.000	I(1)	3.046	0.999	-18.449	0.000	I(1)
Primary Balance_Adjusted	PB_SA	-1.843	0.063	-12.502	0.000	I(0)	-7.297	0.000	-23.681	0.000	I(0)
M1	M1	-2.348	0.404	-1.880	0.058	I(1)	-2.369	0.393	-7.610	0.000	I(1)
M2	M2	-0.933	0.947	-8.250	0.000	I(1)	-0.933	0.947	-8.248	0.000	I(1)
M1_Adjusted	M1_SA	-1.496	0.823	-3.371	0.001	I(1)	-1.641	0.768	-5.250	0.000	I(1)
M2_Adjusted	M2_SA	-0.864	0.955	-6.885	0.000	I(1)	-0.941	0.946	-3.738	0.000	I(1)
Policy Rate	PR	-3.265	0.020	-7.633	0.000	I(0)	-3.000	0.039	-7.646	0.000	I(0)
GDP Deflator	GDPDEFL	-2.125	0.524	-4.443	0.000	I(1)	-1.871	0.661	-4.293	0.000	I(1)
GDP Deflator_Adjusted	GDPDEFL_SA	-2.271	0.444	-3.798	0.000	I(1)	-1.849	0.672	-3.798	0.000	I(1)
CPI	CPI	-2.402	0.376	-3.049	0.003	I(1)	-2.208	0.478	-4.278	0.000	I(1)
Exchange Rate	ER	-1.845	0.673	-5.637	0.000	I(1)	-1.221	0.899	-6.479	0.000	I(1)
Current Account Balance	CAB	-3.021	0.003	-11.764	0.000	I(0)	-3.021	0.003	-16.024	0.000	I(0)
GDP US	USGDP	-0.215	0.992	-2.199	0.028	I(1)	-0.249	0.991	-3.144	0.002	I(1)
GDP Japan	JPGDP	1.014	0.917	-3.321	0.001	I(1)	1.351	0.955	-16.482	0.000	I(1)

Following the Engle and Granger two step-method, in the next step we estimate the long run equilibrium relationship among variables by OLS and test for stationary of the residuals, using critical values for the Engle - Granger Cointegration Test provided in Enders (2004). After estimating several alternatives model based on the variables, we found the best long run cointegration equations as follow:[5]

$$\begin{array}{lccccc} RGDP\_SA = & 5.13 & + & 0.88\ RM1\_SA & + & 0.20\ RGE\_SA \\ & (0.05)^{***} & & (0.03)^{***} & & (0.25)^{***} \end{array} \quad (3)$$

R2 = 0.94

The critical value of residual unit root test from this equation is -6.61, and given the critical value of Engle - Granger Cointegration Test for 2 variables which is -4.123 for significance at 1%, then variables real GDP, real M1 and real government expenditures are said to be cointegrated.

We next switch to a short run model with an error correction mechanism in the form:

$$\Delta RGDP\_SA_t = \sum_{j=1}\sum_{k=0}\beta_{1jk}\Delta X_{jt-k} + \sum_{k=0}\beta_{2k}\Delta RGDP\_SA_{t-k-1} + \lambda ECM_{t-1} + crisis + crisis^{*}\sum_{k=0}\beta_{3jk}\Delta X_{jt-k} + C + e_t \quad (4)$$

Where $\mathbf{X}$ consists of real $\mathbf{M1}$, real government expenditure and other control variables, meanwhile ECM is residuals from equation (3). To address the impact of crisis, we also use dummy recession variables CR97 and CR08 and interaction variables between recession in 2008 and policy measures. With general to specific approach to several combinations of cointegrated variables and lags, we found the best models as follows:

---

5 RM1_SA defined as real seasonally adjusted M1 which equal to nominal M1/GDP Deflator. RGE_SA defined as real seasonally adjusted government expenditure which equal to nominal government expenditure/GDP Deflator. *value in ( ) shows standard error. *** significant at a = 1%, ** significant at a = 5%, * significant at a = 10%*. We realize that there might be endogenityrelationship between RM1_SA and GDP_SA, but to be inline with the agreed methodology we assume the one-way relationship between them and use ECM. For robustness, we also use VECM and found the long run relationship between those variables.

Table 7.
Error Correction Models

Variable	Dependent : Real GDP		
	Coefficient	t-stat	
Real M1(-3)	0.06	1.83	*
Real Gov_Exp	0.03	3.80	***
ECM(-1)	-0.07	-2.04	**
Exchange Rate (-1)	-0.05	-3.00	***
Inflation (-1)	-0.29	-5.47	***
Crisis 1997	-0.01	-2.04	**
Crisis 2008	0.01	0.75	3
Real M1(-3)*Crisis 2008	0.14	0.51	4
Real Gov_Exp * Crisis 2008	0.08	0.42	5
Constant	0.02	11.36	***
R2	0.66	6	7
DW-Stat	1.98	8	9
SIC	-5.40	10	11

*** significant at $\alpha = 1\%$, ** significant at $\alpha = 5\%$, * significant at $\alpha = 10\%$

The empirical results show that Real GDP cointegrated with real M1 and real fiscal expenditure. On the basis of this information, an error correction model was developed which was shown to be well-specified relative to its own information set and capable of parsimoniously representing the data set.

From the error correction models, we could conclude that in the short run the changes in real GDP is significantly affected by changes in real fiscal expenditures and real monetary changes. The previous real GDP changes are not significant to affect real GDP changes. The crisis 1997 decrease the real GDP significantly, meanwhile the crisis 2008/2009 effect is not significant. The model shows that in the period of 2008 crisis, the impact of M1 changes and fiscal expenditure to output relatively similar with the impact in the normal period. Thus, both of variables are still significant in affecting output although in crisis period.

The result also shows a well-defined error correction term, and indicates a feedback of 7% of the previous quarter's disequilibrium from the long run money supply, and fiscal expenditure to economic activity. To evaluate the goodness of the model, we did some in sample forecasting and compared the result with the actual data. The result was quite good as shown in Figure 20. The root mean square error (RMSE) of the forecast was only 0.01.

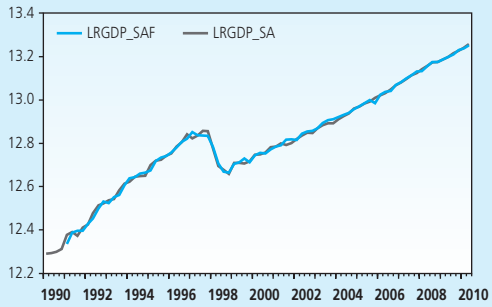


Figure 18.
Evaluation of Model

The relative effectiveness of policy actions are determined by the size of the contribution of policy instruments implemented to limit the severity of the downturn in order to achieve a more positive outcome. While some economists believed that monetary policy should be the first line of defense during the turbulence, others argued that fiscal policy has a more important role particularly when conventional monetary policy measures were not sufficient in addressing losses in output due to vulnerable in a weakening economy. Although it is not specific in the crisis period, but the lag in the effect of monetary changes relative to fiscal policy as shown in table 6 indicates that the impact of fiscal policy on GDP is relatively faster than monetary policy.

This result is in line with the Elmendorf and Furman (2008) which consider that a key potential advantage of fiscal stimulus relative to monetary stimulus was that it could boost economic activity more quickly, and true fiscal stimulus implemented promptly can provide a larger near-term impetus to economic activity than monetary policy.

4.2. Analysis

In the empirical model above, we use M1 for indicator of monetary policy and real government expenditure for indicator of fiscal policy. Meanwhile, after implementing Inflation Targeting Framework (ITF) in July 2005 BI has shifted the focus of monetary operation toward short term interest rate, replacing the former operating target of monetary base.

At operational level in the ITF, the monetary policy stance is reflected in the setting of the policy rate (BI Rate) with the expectation of influencing money market rates and in turn the

deposit rates and lending rates in the banking system. At early stage of implementation of BI Rate, BI rate was intended to only be reflected in the discount rate of Bank Indonesia one-month paper (known as 1-month SBI). Since late January 2008, some gradual steps have been taken to focus more on managing short term market interest rates around the BI Rate level.

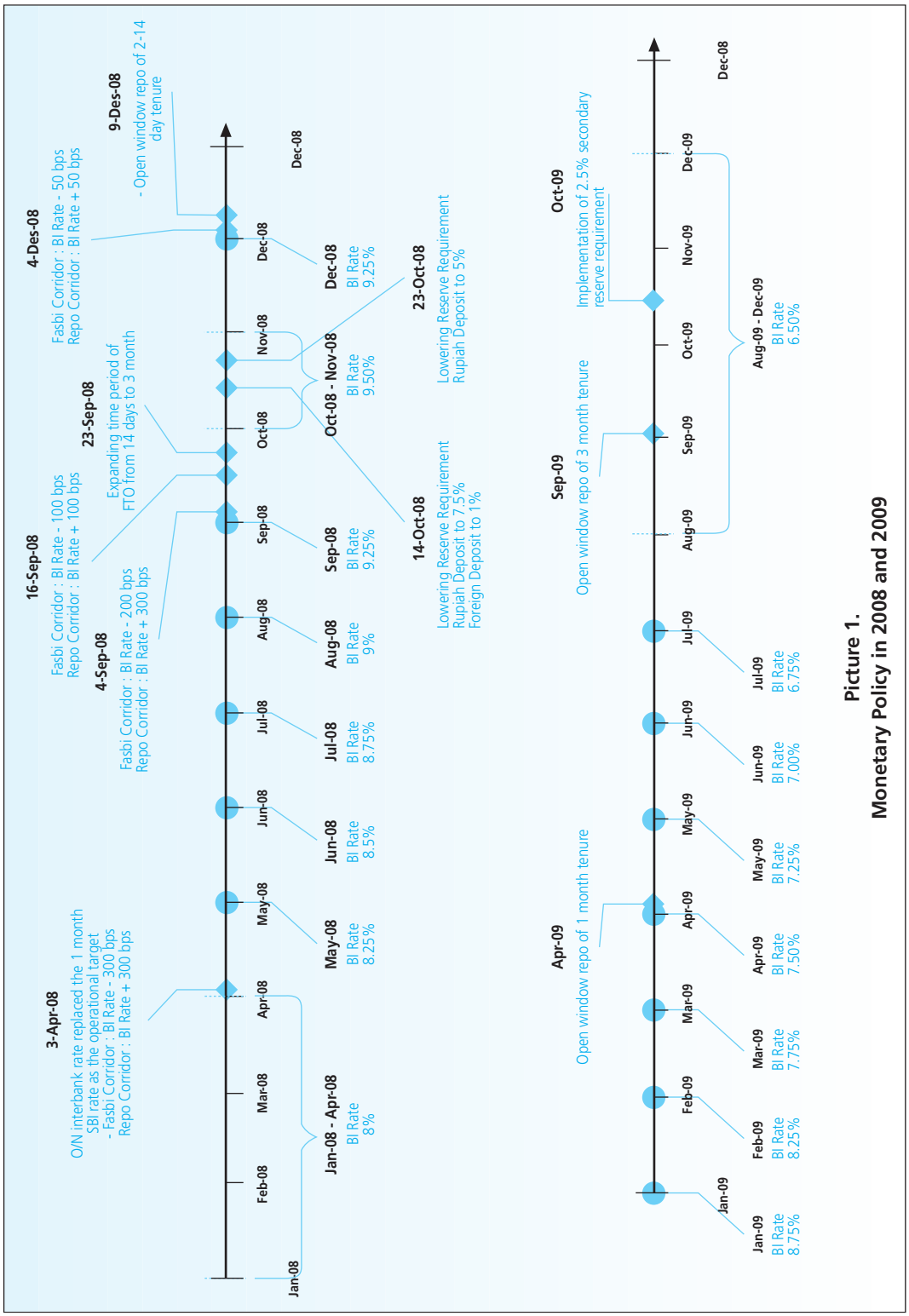
Effective from June 9, 2008, BI has officially changed the operating target from 1-month SBI rate to overnight (O/N) interbank money market rate (PUAB O/N). Changes in these rates will influence output and inflation.

Beside those rates, there are also several monetary instruments used in controlling the agregate demand of the economy. Regarding to that, in this part, the analysis of the monetary policies and fiscal policies that have been done will be broaden, not only M1 and government expenditure. Because exchange rate also significant in affecting output, there will be analysis about foreign exchange policy.

4.2.1 Monetary Policy

Bank of Indonesia took a series of policy measures in response the global financial instability. Generally, the monetary policy measures are decided by taking into considerations, economic circumstances and macroeconomic characteristic.As shown in the figure below, during the period from January 2008 to November 2008, Bank Indonesia increased the policy rate from 8% to 9.50% in order to constrain the pressure of hiking CPI. Although the pressure from financial stability point of view was higher as indicated by the high overnight interest rate, banking interest rates and yield rate of government bonds were increasing due to shortage of global liquidity at the time, BI decided to increase the policy rate in view of concern on inflation. In line with slow down economic growth, inflation was also declined during 2008 – 2009. Accordingly, the policy rate has been adjusted downward since December 2008.

Further, as a response to the global financial crisis Bank Indonesia took some measures to address liquidity issues in the financial sector. Following the declared bankruptcy of Lehman Brothers in September 2008, the interbank market rose sharply from 6.98% to 9.37% Q-1 to Q-III 2008. Beside that the volume of interbank rupiah transaction declined by 41% during the period due to falling of market confidence among the banking institutions. The main objective of the unconventional policy as shown in the table 4 was to bring the interbank interest rate to the policy rate and feasibility its convergence with the policy rate. In order to reduce excessive volatility in the interbank money market the interest rate corridor was narrowed on 4 September 2008 and on 16 September 2008.



Picture 1.
Monetary Policy in 2008 and 2009

Like other emerging central banks, Bank Indonesia also responded to the liquidity problem in the financial sector by reducing reserve requirement, followed by providing liquidity facility in order to flow the fund into the financial market. Furthermore, there were coordination between the central bank and the government taken to address confidence issues and also to respond to the asset price burst. Several policies also had been taken to address confidence issues and asset price burst. The description of policies taken by Bank Indonesia during the global crisis could be seen in the appendix.

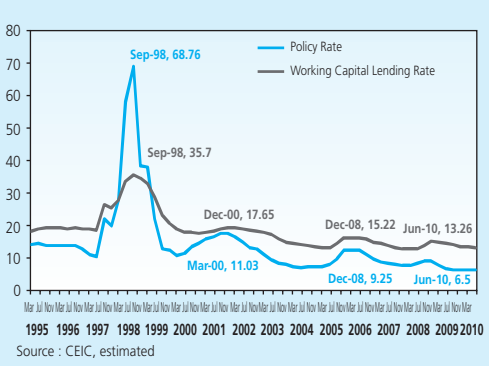
a. Evaluation of Interest Rate Policy

There were significant differences between the movements of the policy rate in 1997/1998 crisis and the recent crisis. To contain the inflation pressure which was very high in the 1997/1998 crisis (almost 83% in Q-IV 1998), the central bank increase the SBI rate significantly to 68% and then gradually brought down to 11.03% in Q-I 2000. Meanwhile, prior to the recent crisis, the inflation pressure was not so high, and hence, the policy rate was raised only up to 9.25%. At that moment, BI Policy to increase the policy rate in quarter II, III and IV 2008

Table 8.
Duration, Period, Amplitude and Slope of Interest Rate and Inflation

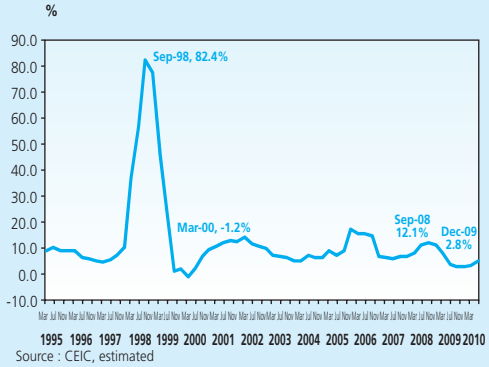
	1997/1998 Crisis	2008/2009 Crisis
Policy Rate (%)		
Duration	6 quarters	more than 6 quarters
Period	Q4 1998 – Q1 2000	Q1 2009 – Q2 2010 (still not increase yet)
Amplitude	57.73%	2.75%
Slope	10%	0.46%
Lending Rate (%)		
Duration	9 quarters	more than 6 quarters
Period	Q4 1998 – Q4 2000	Q1 2009 – Q2 2010
Amplitude	18.1%	2.0%
Slope	2.0%	0.3%
Inflation (% yoy)		
Duration	6 quarters	5 quarters
Period	Q4 1998 - Q1 2000	Q4 2008 - Q4 2009
Amplitude	83.6%	9.36%
Slope	13.9%	1.9%

Source : CEIC, estimated



Source : CEIC, estimated

Figure 19a.
Peak and Trough of Interest Rate



Source : CEIC, estimated

Figure 19b.
Peak and Trough of Inflation

was contrary to other central banks in the region and across the world as then policy was to lower their interest rates to address liquidity issues and reduce economic activity. BI commenced gradually reducing its policy rate in QI 2009 and now it l stays in 6.5%.

During both of crisis periods, the magnitude of the decline in average lending rate in the banking sector was much smaller than the decline of BI Rate which could be seen in the wider spread between lending rate and policy rate. From micro perspective of banks, some factors contributing to the lending rate movements included the cost of fund and risk premium which tended to rise during the crisis, and profit margin. A previous study has showed that the decrease in the aggregate banking cost of fund throughout 2009 tended to be slower than the decline in BI Rate. Furthermore risk premium in the economy was still perceived to be high and there were indications that the banking industry preferred to maintain their profit margin. All of these contributed to reduce the power of policy rate pass through to lending rates.

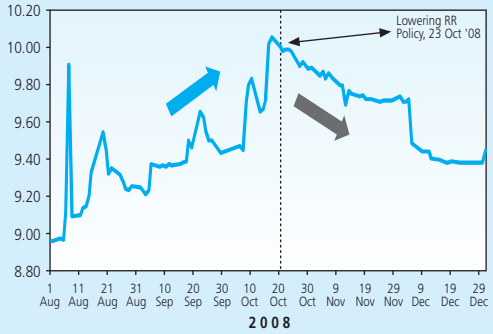
Table 9.
Average Spread between Lending Rate and Policy Rate During Expansion Period

Non - Crisis	Crisis
Q2 1996 - Q1 1997	Q2 1999 - Q1 2000
6.12 %	**8.23 %**
Q1 2006 - Q4 2006	Q1 2009 - Q4 2009
4.29 %	**7.41 %**

b. Evaluation of Lowering Reserve Requirement

Reserve Requirement Policy was affected to provide more rupiah liquidity to the banking system to achieve liquidity constrain and reduce volatility in the interbank market. Its impact could be seen in the interest rate of interbank market which declined after the policy announcement. The volatility of interbank interest rate also decreased. As measured by the standard deviation, during the period of 1 month before the implementation of the policy, the volatility of interbank interest rate was 0.22% and it was decreased to 0.08% during the 1 month period after the implementation of the policy.

The volume of interbank transactions also increased although the impact was not as immediate as that on the interest rate. One of the reasons for lower increase in the interbank market transaction could be expansion in the fine tuning operations of the Central bank at that time, which enhanced the access to liquidity from the Central bank and hence reduce the need for borrowing from the interbank market. This was also supported by the amendment of liquidity facility for commercial banks from central bank which provide wider access for banks to receive funding for a longer time horizon than the usual inter-day facility. Another reason was to reduce the loan disbursement by commercial bank which was in line with the lower demand of credit at that time due to global crisis and hence the lower need to borrow funds.



Source : Bank Indonesia

Figure 20.
Interbank Market Interest Rate

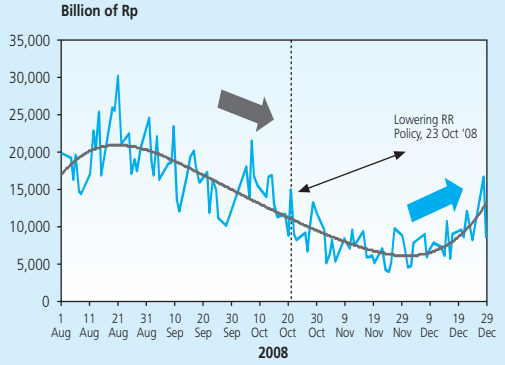
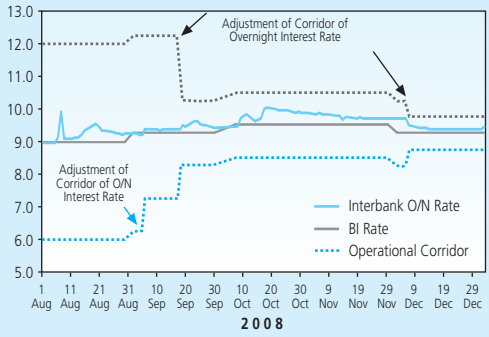


Figure 21.
Volume of Interbank Market Transaction

However, there is a side-effect of this policy. The increasing supply of rupiah has led to the rise of money in circulation in the market (M0), and this could cause a depreciation of rupiah.

c. Evaluation of Narrowing the Interest rate corridor for Standing Deposit Facility/ Lending Facility (Repo)

This policy was aimed to reduce excessive volatility in the interbank money market and increase credibility of Bank Indonesia. The lower spread between interbank interest rate and policy rate indicate as higher degree of credibility of central bank.



Source : Bank Indonesia

Figure 22.
Interest Rate Corridor (%)

Table 10.
Spread of Policy Rate and Interbank Market Rate

Period	Spread	Notes
1 week before the 1st adjustment	9.08 bps	
1 week after the 1st adjustment	11.72 bps	Higher
1 week after the 2nd adjustment	27.42 bps	Higher
1 week before the 3rd adjustment	35.57 bps	
1 week after the 3rd adjustment	17.59 bps	Lower

Note:
1st : 4 September 2008; 2nd : 16 September 2008; 3rd : 4 December 2008
Source: Bank Indonesia, estimated from daily data

From the figure above, we could see that after the first and second adjustment of the corridor, the spread between interbank market rate and policy rate was relatively higher and it contradicted with the purpose of the policy. One of the reasons would be the increasing pressure of liquidity because of higher risk perception in September following the bankruptcy of Lehman Brother. Meanwhile, the third adjustment was successful to decrease spread between interbank

market and policy rate (Table 10). For comparison, best practices of this spread in several ITF countries are about 20bps.

4.2.2 Fiscal policies

Like other countries, Indonesia launched fiscal policy measures as a countercyclical measure to fight the slowdown direct effect on aggregate demand. In order to reduce the impact of current crisis, the Indonesian government took ten steps for the purpose of economic stabilization and securing the state budget. Additionally, the government offered a fiscal stimulus package amounting to 73.3 trillion Rupiah or 7.56 billion US$ (2.6% of GDP) with following aims,

a. Maintaining household purchasing power to keep consumption growth above 4%.
b. Improving real sector resilience and competitiveness to prevent more worker layoffs.
c. The government issued some traded policies.
d. Creating job opportunities for unemployed/laid-off workers by launching labor –intensive infrastructure projects
e. Social protection and poverty alleviation has decided to state in the budget for 2009.

In the period of crisis, the realization of fiscal balance at the end of 2008 was a significant improvement with a marginal deficit, while in 2009, fiscal stimulus and the lower government revenue due to economic slowdown leads to a higher fiscal deficit of 1,6% of GDP (Figure 23). Based on its component, the largestgovern,entexpenditure in 2008 and 2009 were transfer to region and subsidies (Figure 24).

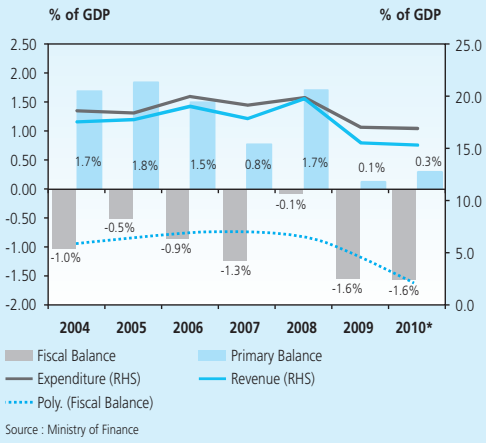


Figure 23.
Government Finance Operation

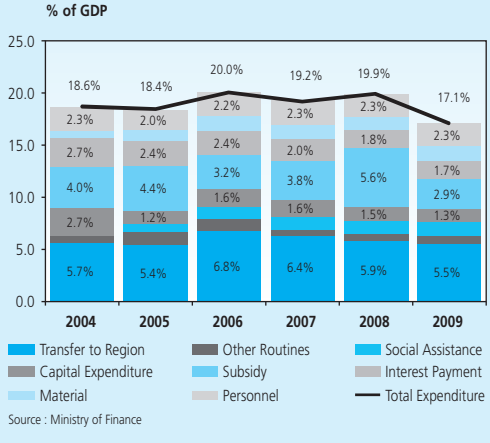


Figure 24.
Total Expenditure Component

Table 11.
Fiscal Stimulus Plan and Realization

No	Description	Plan (IDR Trillion)	Realization (IDR Trillion)	% of Realization
1	**Tax Savings**	43.0	20.5	47.7%[1)]
	Reductions in Income Tax Rates	32	18	56.3%[1)]
	Lower Corporate Tax Rate	18.5	12.8	69.2%[1)]
	Lower Personal Income Tax Rate	13.5	5.2	38.5%[1)]
	Income tax-free band raised to IDR 15.8 million	11	2.5	22.7%[1)]
2	**Tax/Import Duty Subsidies for Business/Targeted Households**	13.3	3.7	27.8%[1)]
	VAT on oil/gas exploration, cooking oil	3.5	2.5	71.4%[1)]
	Import duties on raw materials and capital goods	2.5	0.3	12.0%[1)]
	Payroll tax	6.5	0.1	1.5%[1)]
	Geothermal tax	0.8	0.8	100.0%[1)]
3	**Pro-business/Jobs subsidies + budget expenditures**	17	14.0	82.2%
	Reduced price for automotive diesel	2.8	2.8	100.0%[1)]
	Discounted electricity billing rates for industrial users	1.4	1	71.4%[1)]
	Additional infrastructure expenditures+subsidies+government equity injection	12.2	10.18	83.4%[2)]
	Upscaling of Community Block Grants (PNPM)	0.6	n/a	
	TOTAL	73.3	38.2	52.1%

Notes : 1) Realization until October 2009, more updated data is not available
2) Realization until December 2009
Source: Ministry of Finance and other sources

The success of the government to hold fiscal sustainability during the financial crisis in 2008 was attributed to (1) over the past ten years, fiscal policy actions have reduced the high public debt ratio. (ii) The government has taken significant measures to reduce domestic fuel subsidies enabling it to increase spending at both the central and local government levels. (iii) The government has increased the total spending on education.

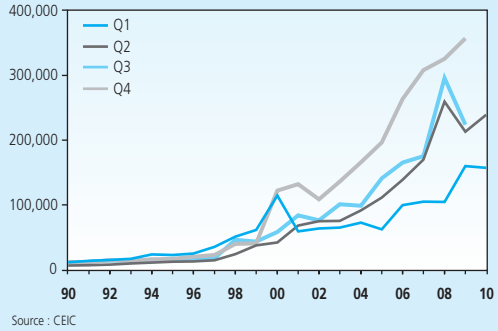
However, in the Indonesian case, the problem in the fiscal stimulus package was that regional government has a limited ability to complete their budgets on time. Therefore, the stimulus package hadn't used optimally as can be interpreted from the data for October and December 2009 which show that only 52.1% of fiscal stimulus plan was realized. Lack of socialization, frugal spending and slow regulation implementation led to this low absorption of the fiscal stimulus. Thus, to increase the effectiveness of fiscal policy, it is needed to configure an effective and understandable standard operating procedure for fiscal policy implementation, both in central and regional areas.

To analyze the effectiveness of fiscal policy to boost economic activity after the crisis is not an easy task, thus we try to adopt the evaluation of fiscal stimulus (FS) principles based on Elmendorf and Furman (2008) as follows:

Table 12.
Evaluation of the Effective Fiscal Stimulus Principles

Principles	Explanation	Explanation Measure for Indonesia's Fiscal Stimulus
Timely	FS should not be enacted prematurely, delayed too long, or consist of tax cuts or spending increases that would take too long to be implemented or to boost output	• Although government immediately gave instruction for FS, there were problems that delayed the implementation or disbursement of the fund. • The government expenditure was mostly disbursed in Q-4 (Figure 26). It would have been better if the disbursement in each quarter were quite balanced. Thus in terms of the timely principles, the Indonesia's fiscal stimulus was less effective.
Targeted	Tax cuts and spending increases should be directed so that they provide the greatest benefit to people who are affected most adversely by an economic slowdown	• The biggest proportion of the FS was tax reductions. This could stimulate economic output from investment and indirectly would increase employment and wages. Then, there will be increases in consumption and economic output. • Moreover, the big spending in infrastructure was good because it would boost a sustainable growth in longer term instead of only short term. • Thus from the targeted principles, the Indonesia's fiscal stimulus was effective.
Temporary	The FS should not increase the budget deficit in the long run	• The source of fund for fiscal stimulus came from the excess of budget utilization (SILPA)[7] in 2008 and debt. • Fund from excess of budget utilization won't affect the next government budget but the usage of debt, in the long term could impact the budget deficit. • Additionally, the budget deficit plan in 2010 still relatively high (1.6% GDP) (Table 15). Thus from the temporary principles, the Indonesia's fiscal stimulus was quite effective

Note: The effectiveness of means is based on authors' opinion.



Source : CEIC

Figure 25.
Government Expenditure by Quarter

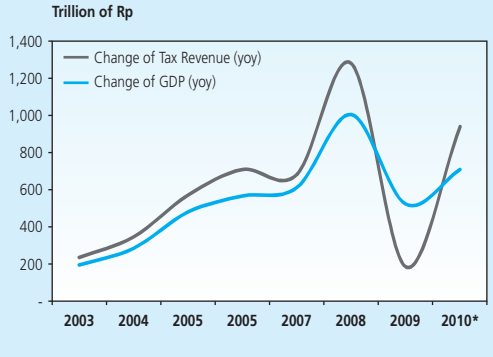


Figure 26.
Tax Revenue versus GDP Changes

7 SILPA: Excess of government budget utilization in the previous year

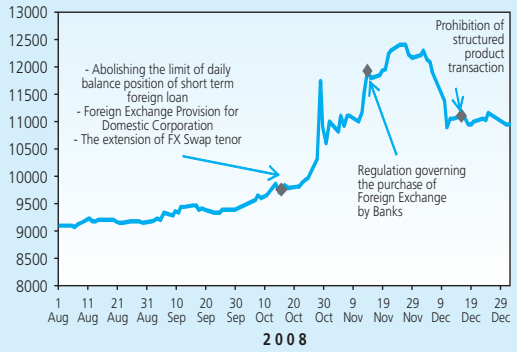
Table 13.
Impact of Fiscal Policy on Government Budget

Period	Fiscal Balance as a% of GDP	Primary Balance as a % of GDP
1990-1996 Average	0.26%	2.05%
1997-1998 Average	-1.45%	1.13%
1999	-2.84%	1.05%
2001-2008 Average	-1.16%	1.92%
2009	-1.56%	0.12%
2010 Estimates	-1.59%	0.28%

Source: Ministry of Finance

4.2.3 Foreign Exchange Policy

To address and avoid more Rupiah depreciation, Bank Indonesia also introduced following foreign exchange policy measures such as extending FX swap tenor, issuing regulation about the purchase of foreign exchange by banks, etc (details could be seen in Appendix).The foreign exchange policy measures were effective to reduce the volatility of exchange rate during the crisis. Although in term of level, rupiah currency continue to depreciate after several exchange rate policy measures in October and November 2008 because of the massive capital outflow, the volatility of the exchange rate became relatively lower after the introduction of policy measures.



Source : CEIC, Estimated

Figure 27.
Impact of Foreign Exchange Policy

Table 14.
Volatility of Foreign Exchange after Policy

FX Policies	Std Deviation of Rp/US$		Result
	1 week before	1 week after	
15 October's policies	94.58	69.61	Lower
13 November's policies	349.90	244.21	Lower
16 December's policies	338.22	73.40	Lower

4.2.4 Condition of Indonesia Economic after the Crisis

There have been improvements in Indonesian economy during 2009 and 2010 which boosted optimism over the sustainability of the ongoing economic recovery. The positive economic performances include an improvement in the risk indicators, performance in stock market, balance of payment, the strengthening of rupiah, and the fairly high economic growth.

Economic growth in quarter II 2010 has increased to 6.17%, which was 2.07% points higher than economic growth in the same quarter on the previous year. From the demand side, the highest contribution to economic growth came from domestic demand especially from investment (gross fixed capital formation) 2.35% and consumption 2.06%. From sector perspectives, the main contributors were transportation and communication (1.13%); trade, hotel and restaurants (1.61%) and manufacturing (1.12%).

Table 15.
Sector Contribution to GDP Growth 2010

Sector	2010	
	Q1	Q2
Agriculture	0.42	0.43
Mining and Quarrying	0.25	0.31
Manufacturing	0.97	1.12
Electricity, Gas and Water Supply	0.06	0.04
Construction	0.45	0.45
Trade, Hotels and Restaurant	1.55	1.61
Transportation and Communication	1.02	1.13
Financial, Rental and Business Services	0.52	0.58
Services	0.44	0.50
GDP	5.69	6.17

Sumber: Bank Indonesia

Tabel 16. Demand Side Contribution to GDP Growth 2010

Demand	2010	
	Q1	Q2
Consumption	1.65	2.06
Gross Fixed Capital Formation	2.82	2.35
Net Export	1.18	0.42
Export	7.85	6.02
Import	6.67	5.60
Statistic Discrepancy	0.04	1.34
GDP	5.69	6.17

Sumber: Bank Indonesia

The indications that the global recovery is proceeding sooner than previously expected have boosted optimism over Indonesian economic outlook. Such optimism is also supported by domestic economic resilience that endured the effects of the global crisis. The increased optimism over Indonesian economic outlook is confirmed by the upgrading of Indonesia's rating by international rating agencies in early 2010. These positive conditions support the empirical result of this research that both monetary policies and fiscal policies give significant impact to the economic output.

However, there are several challenges for Indonesian economic development. From the external side, the challenge is primarily related to the impacts of likely strategies developed countries to unwind the measures adopted by them in response to the global crisis, which included monetary easing and fiscal expansion, the polarizing trend of global trade and the

large imbalances in global economic performance. From the domestic side, challenges are related to several issues that could disrupt the effectiveness of monetary policy, such as excess bank liquidity, the dominance of short-term inflows in the structure of capital inflows, the potential asset price bubble, a shallow financial market and numerous structural problems in the real sector.

V. CONCLUSION

Indonesia has been affected by sudden stop of capital inflow into emerging market countries and declining on global economies growth following global financial crisis. Their first and second round effects on macroeconomic indicators were identified. The first lesson from the recent crisis is that Indonesia as an emerging country clearly demonstrated the effectiveness of timely monetary, fiscal and financial sector policies which helped Indonesia to recover from the economic crisis. Indonesia and most Asian countries had experienced the two financial crises during the last ten years. The first Asian crisis episode occurred in 1997, led to introduce significant reforms both policy reforms and institutional reforms in the financial sector, However, in the second crisis ten years later known as global financial crisis occurred in 2008, the reforms introduced can be categorized as soft reform compared to those in the first Asian crisis.

The second lesson is that the closer cooperation and coordination among the policy makers is very important in identifying and dealing with challenges posed by a global crisis. As the Central Bank authority, Bank Indonesia had implemented an accommodative monetary policy in order support a moderate growth with a relatively low inflation. The policy rate commenced sliding on December 2008 with the intention to decrease bank's lending rates. Some unconventional monetary policy had also been taken to address liquidity issues. On the fiscal side, the government responded to keep domestic demand by several fiscal stimulus and trade policies. There were also coordination between Ministry of Finance, Central bank and other institutions in order to maintain financial market and macroeconomic stability.

The policy measures taken during the crisis had been formulated in a timely manner with the ultimate objective of sustainable economic growth while maintaining macroeconomic stability in Indonesia. Based on error correction models, we concluded that in the short run the changes in real GDP is significantly affected by changes in real money supply in the previous three quarter and real fiscal expenditures. This indicated that the impact of fiscal policy to GDP is relatively faster than monetary policy.

As conclusion of this research, policy implications that should be concerned in the future are as follows:

1. The cooperation and coordination among the policy makers and the timely responses are very important in tackling the crisis. Thus, in addressing the crisis, monetary policy could not stand alone but requires coordination with fiscal policy and other sectoral policies.
2. An effective conventional monetary policy in normal times may become less effective in a crisis because of the high degree of uncertainty particularly with pressure from external circumstances. Thus, unconventional monetary policy indeed is necessary as timely policy response.
3. Regarding to fiscal policy, more timely disbursement of government expenditure is important to increase the effectiveness of this policy to stimulate economic output.

REFERENCES

Arifin, Syamsul, (1998), "Effectiveness of Interest Rate Policy for Rupiah Stability during Crisis, *Bank Indonesia Buletin Ekonomi Moneter dan Perbankan*, December 1998. (Available on Bahasa).

Bank Indonesia, Indonesian Economic Outlook 2009-2014, "Global Financial Crisis and the Impact on Indonesian Economy"

Enders, Walter, (2004), "Applied Econometric Time Series", John Wiley"& Sons, Inc, USA

Elmendorf, Douglas and Furman Jason, (2008),""If, When, How: A Primer on Fiscal Stimulus", Bookings Institution, The Hamilton Project Strategy Paper

Kurniati Y, et all, (2008), "Sensitivity of Mainstay Export Commodities to Slowing Trading Partner Growth and Changing International Prices", *Bank Indonesia Research Notes*: October. (Available on Bahasa)

Kurniati Y and Meily Ika Permata, (2009), "Transmission of External Shock to Indonesian Economy".*Bank Indonesia Working Paper*.(Available on Bahasa).

Santoso et all, (2009), "Impact of Contagion Risk on the Indonesian Capital Market". *Bank Indonesia Financial Stability Report* No 12: March.

Simorangkir, Iskandar and JustinaAdamanti, (2010), "The Role of Fiscal Stimulus and Monetary Easing in Indonesian Economy during Global Financial Crisis: Financial Computable General Equilibrium Approach", Presented at Call for Papers - EcoMod2010, Istanbul, July 7-10, 2010.

Yehoue, Etienne B et all, (2009), " Unconventional Central Bank Measures for Emerging Economies". IMF Working Paper No. 09/226

Yudo, Teguhet all, (2009),

"The Impact Of The Global Financial Crisis On Indonesia's Economy". Centre for Strategic and International Studies (CSIS)

Bank Indonesia (2008) Economic Report On Indonesia. Bank Indonesia Annual Publication

Bank Indonesia (2009) Economic Report On Indonesia. Bank Indonesia Annual Publication

APPENDIX

Table A. 1 Key Indicators : Measuring Vulnerability of Economy to External Shocks – 1997/98 and 2008/09 Recession				
Indicator	**1996**		**1997**	
	US $ Billions	**% of GDP**	**US $ Billions**	**% of GDP**
GDP (Current)	227.37		432.04	-
Exports of Goods and Services	50.19	22%	118.01	27%
Foreign Currency Reserves	17.82	8%	54.74	13%
Imports of Goods and Services	44.24	19%	85.26	20%
Average Monthly Imports	3.69	-	7.10	-
Months of Imports Covered	4.83	-	7.70	-
Balance on Current Account	-7.80	-3%	10.49	2.4%
Total Government Debt			147.51	34.1%
Foreign Debt	110.17	48%	141.18	32.7%
Composition of External Liability				
Short term	22.03	9.7%	27.49	6.4%
Long term	88.14	38.8%	113.69	26.3%
Debt Service Payment (foreign)	2.82	1.24%	2.8	0.7%
Primary Balance	4.55	2.00%	3.3	0.8%
Fiscal Deficit	1.73	0.76%	-5.5	-1.3%

Indicator	**1996**	**1997**
Bank Loan to Deposit Ratio (LDR)	109.26	69.22
Non Performing Loan %		4.64
Bank Capital Adequacy Ratio	11.82	19.30
ICRG	70.00	70.50
Stock Market Index (last position)	637.43	2,745.83
GDP Growth (yoy)	7.8%	6.3%
S & P Rating		BB -
Inflation	5.12%	5.60%
Output Gap*	149,293	10,852

Note : * calculated by HP Filter Method using annual Real GDP data in Billion Rp
Source : IFS, CEIC, Bank Indonesia and staff estimates

Table A. 2 Similarity and Difference between 1997/1998 Crisis and 2008 Global Crisis in Indonesia

Similiarity	Difference
• Both crisis were the consequence of the global economy, because of the economic and financial interdependence among countries; • The impact of the crisis led to falling value of the rupiah against foreign currencies; • The impact of the crisis will affect the economic sectors which resulted in losses for the community.	• 1998 crisis was multidimensional with economic crises, political, social, ideological, defense and security , meanwhile global crisis is tend to caused by financial and economic crisis; • 1998 crisis started from currency crisis in the Bath-Thailand while the global crisis started from the breakdown of Sub-Prime Mortgage in the United States; • 1998 economic crisis led to on society anarchism action while the global crisis did not; • 1998 crisis led to the demanding for change of leadership, while global crisis did not; • The focus of monetary policy in 1998 crisis was tightening, meanwhile in global crisis was loosening.

Table A. 3
Monetary Policies Taken During Financial Crisis 2008 - 2009

Conventional Monetary Policy	
Policies	**Objectives**
• Policy rate increased gradually to 9.25% on September 2008	• To contain prevent inflationary pressure such as second round effect of the fuel price hike and food prices on other goods.
• Policy Rate (BI Rate) increased to 9.5%(October and November 2008, decrease to 9.25% (December 2008) and then decreased gradually to 6.75% in July 2009	• To sustain business momentum amid the global economic slowdown while safeguarding macro-economic stability
• Lowering Reserve Requirement for Rupiah currency from 9.1% to 7.5% consist of 5% primary reserve (cash reserve) and 2.5% secondary reserve (23 October 2008)	• To provide more rupiah liquidity in to the banking system
• Lowering Reserve Requirement for foreign currency from 3% to 1%. (23 October 2008)	• To increase USD liquidity availability to be used by banks in their transactions with customers.
Unconventional Monetary Policy	
Policies	**Objectives**
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 200 bps (from BI Rate - 300 bps and maintain Lending Facility (Repo) at BI Rate + 300 bps (4 September 2008)	• To reduce excessive volatility in the interbank money market
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 100 bps and Lending Facility (Repo) to BI Rate + 100 bps (16 September 2008)	• To reduce excessive pressure in the interbank money market and maintain sufficient liquidity in banking industry sufficiently.
• Expanding time period of Fine Tuning Operation from 14 days to 3 month (23 September 2008)	• To provide a wider flexibility for liquidity management in interbank money market
• Amendment of Regulation regarding the Liquidity Facility for Commercial Banks (18 November 2008).	• To smooth the operation of the payment system supported by high-value, liquid collateral • To provide wider access to banks by offering funding with a longer time horizon than the inter-day funding facility • To allow banks suffering from insufficient liquidity to remain solvent and avoid systemic impacts
• Open Standing Facility(repo) of 2-14 day tenure (9 December 2008)	• To facilitate the longer-term bank liquidity requirement
• Regulation regarding a Liquidity Facility for Rural Banks (BPR) (10 December 2008)	• To provide an equal opportunity for rural banks to make use of this funding facility if a short-term liquidity shortfall is experienced
• Narrowing the interest rate corridor for Standing Deposit Facility (Fasbi) to BI Rate - 50 bps and Lending Facility (Repo) to BI Rate + 50 bps (4 December 2008)	• To resolve the issue of segmentation in the interbank money market
• Open 1 month window repo (FTE) (17 April 2009)	• To facilitate the longer-term bank liquidity requirement.

Table A. 4
Policies Taken to Address Confidence Issues and Asset Price Burst

Joint Policies	Objective
• Executing Government Bond buyback and preparing a state-owned enterprise equity buyback program.	• To reduce the high risk perception in Indonesian financial portfolio which can distort the monetary policy transmission mechanism, The Minister of Finance has bought back IDR41 billion (US$3.89 million) worth of Government Bond using the government fund in the central bank account.
• Allowing alternative security evaluation technique such as discounted cash flows beside marked to market value (Joint press release- Bank Indonesia, Bapepam,-LK and Accounting Association). • Allowing commercial bank to switch bond portfolio from trading and available for sale categories to held to maturity category.	• To provide market confidence for the government bond particularly when no market prices are available. • To minimize the impact of Indonesian Financial turbulence by providing an opportunity to the commercial bank to arrange portfolio categories.
• Maintaining a sufficient level of foreign reserves.	• To support the rupiah and focused more on preventing too volatile movement of the rupiah.
• Putting some restrictions on short-selling on the capital market. Limiting purchases of foreign currency without underlying transaction to US$100.000 to curb speculation.	• To reduce high risk perception
• Banning trading on banks' structured product/ derivative products that provide chances for bank customers to purchase foreign currencies including dual currency deposits that are callable forward.	• To reduce speculation and exchange rate volatility expectation.

Table A. 5
Foreign Exchange Policy

Policies	Objectives
• Abolishing the limit of daily balance position of short term foreign loan (13 October 2008)	• To decrease pressures in USD purchase due to transfer of rupiah account to foreign currency account by foreign customers.
• Foreign Exchange Provision for Domestic Corporation through Banks (15 October 2008)	• To enhance assurance in fulfilling foreign currency demand by domestic companies
• The extension of FX Swap tenor from a maximum of 7 days to a maximum of 1 month (15 October 2008)	• To fulfill the temporary demand for USD currency and in order to provide sufficient adjustment time for banks/market players before actually adjusting their portfolio composition
• Regulation governing the purchase of Foreign Exchange by Banks (13 November 2008).	• To support the balance of supply and demand condition of foreign exchange in the domestic market • To moderate excessive pressure on rupiah exchange rate • To mitigate foreign currency purchase for speculative purposes • To support banks' prudential actions through Know Your Customer Principle (KYC).
• Amendment to Bank Indonesia Regulation on Concerning Derivative Transaction (prohibition of structured product transaction) (16 December 2008)	• To minimize speculative foreign currency transaction
• Coordination with Other Central Banks, such as : - Signing of a Bilateral Currency Swap Arrangement (BCSA) between Bank Indonesia and People's Bank of China (23rd March 2009) - Signing of the agreement on an increase in the maximum amount of the Bilateral Swap Arrangements between Japan and Indonesia under the Chiang Mai Initiative (6 April 2009)	• To improve trade and direct investment between both countries • To assist in providing short-term liquidity for financial market stabilization and help Indonesia address tight international liquidity.

This page is intentionally left blank