

MONETARY POLICY, FINANCIAL SECTOR DEVELOPMENT AND POVERTY REDUCTION IN INDONESIA*

Didi Nuryadin

Universitas Pembangunan Nasional "Veteran"

didi_nuryadin@yahoo.co.in

Yulia Indrawati

Universitas Jember

y_indrawati02@yahoo.com

Abstract

This paper aims to analyze the relationship between the role of monetary policy, financial sector development and poverty reduction in Indonesia. Specifically, the purpose of this study investigates how the interrelationship of financial sector development and poverty reduction. This aims related with implementation of monetary policy to show further how the response of monetary policy through interest rate instrument to achieve stability of macroeconomic that is inflation, growth and poverty reduction.

The financial sector is primary conduit through which monetary policy affects real economy sector and monetary policy determines the resources available to financial institution. Therefore, there is coordination between financial sector development and monetary policy in order to achieve final goal that is inflation, in turn, it has implication on growth and poverty reduction.

The data was used in this study using time series annual data from 1970 – 2005. The source of data was taken from International Financial Statistic and Central Bank of Indonesia. The data which identified contain 3-months deposit interest rate, consumer price index, gross domestic product, domestic credit as percentage of GDP and consumption per capita as household indicator (measure of poverty). The method of analysis is vector error correction model. Impulse response and variance decomposition analysis was used to show the dynamic effect relationship within variables.

The result of this study shows that domestic credit affects the poverty reduction statistically significant and positively in the long run. But in the short run, the effect of domestic credit negatively and the response of domestic credit to interest rate is positively. It is because, there is high spread interest rate margin between borrowed and lending rate, in the other side, it were caused financial intermediaries having not expand credit to the pro-poor sectors of

economy thus, it will influence poverty rate. The interest rate as instrument of monetary policy responds inflation significantly and it giving sign to the domestic credit. Therefore, interest rate policy must be done carefully and it needs synergy with other macroeconomics policy.

Keywords: interest rate, domestic credit, poverty reduction

I. INTRODUCTION

The financial development and implementation of monetary policy have important impact on poverty reduction. The interaction between financial development and poverty can be examined by considering that financial development make contribution to the growth performance in economy. This, in turn, has implication on poverty level. The important role of financial development can be shown from the efficient and well-developed financial market. Financial liberalization led interest rate liberalization and the entrant of new player. The outcome of liberalization can be reflected in financial development indicator such as domestic credit as percentage of gross domestic product.

To generate the reduction of poverty and sustainable economic and macroeconomic stability, the role of policy is needed to encourage the goal of macroeconomic. Monetary policy is one of the macroeconomic policies which conduct by central bank which mission to achieve the goal that were stability of inflation, maintained growth and reduced unemployment. However, the impact of monetary policy through transmission mechanism to provide the

development of financial sector, that finally impact also on poverty reduction. This relationship is closely. The financial sector is primary conduit through monetary policy affects real economy sector and monetary policy determined the amount and distribution of resources available to financial institution. Hence, there must have coordination between financial sector and monetary policy.

Indonesia's monetary policy implement single goal that is inflation targeting since May, 1999 that implicitly in UU No.23, 1999 with amandement UU No.3, 2004 about Central Bank of Indonesia. Implementation policy with interest rate channel was being chosen and make surely more viable to be applied than monetary aggregate as instrument to achieve the final goal of monetary policy. The interest rate channel has important role of giving sign on intermediate interest rate in banking system. This mechanism will impact on real economy sector through the expansion of banking credit.

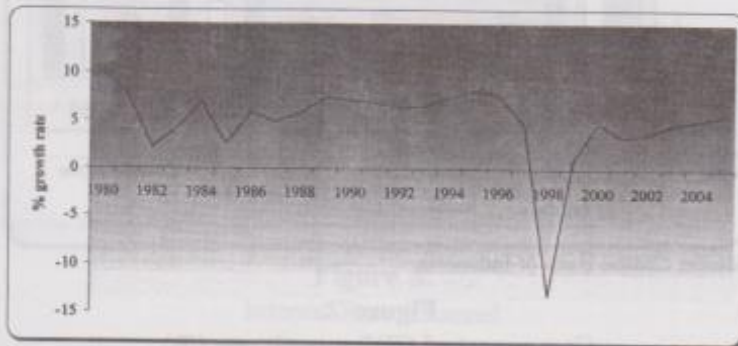
This paper attempts to show the interrelationship between financial sector developments, the role of monetary policy and poverty reduction programmed in Indonesia. Specifically, it shows how financial sector

development has impact on poverty reduction and how monetary policy must be conducted to achieve the goal of macroeconomic stability. The report of this paper is organized as follows. The next section provides the stylized facts Indonesia's macroeconomic condition that contains first sub section about the growth and poverty trend before and after crises. The next sub section analyzed about Indonesia's monetary policy and financial sector development. Section 3 present literature reviews that related with the link between financial sector development and poverty. Section 4 present the method of analysis that be used in this study. Section 5 shows the finding of study and detailed discussion. Lastly, section 6 present conclusion and policy implication.

II. STYLIZED FACTS OF INDONESIA'S MACROECONOMIC

A. Growth and Poverty

Before financial crises in 1997- buffeted Indonesia and almost of Asian countries, Indonesia was widely regarded as one of the East Asian miracle economics. The growth increases rapidly within ASEAN countries. During 1970-1996, Indonesia grew by about seven percent per year and can reduce poverty incidence from over 70 percent to about one third of the population. The government channeled considerable resources into agriculture and rural development and build up labor intensive export oriented industries that generated widespread employment (McKinley et.al, 2004).



Source: Central Bank of Indonesia

Figure 1.
GDP Growth Rate

Since the crises hit Indonesia in 1997, Indonesia's economic growth decline sharply reach in negative value. The growth rate of GDP reversed almost 18 percentage points, from a positive 4.7 percent in 1997 to a negative 13.1 percent in 1998. Economic crises were source from exchange rate crises

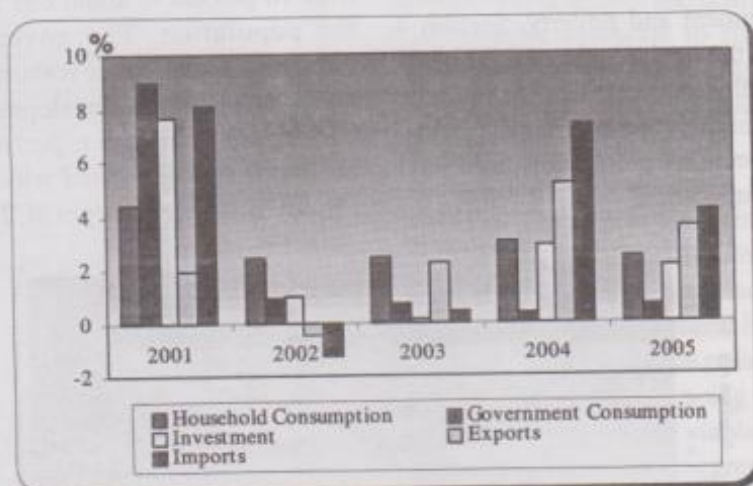
that firstly happened in Thailand and it contagious in other countries includes Indonesia. Root of crises that were source from depreciation Rupiah have been caused multidimensional impact and mostly in financial sector. One of impact on bankruptcy that caused financial intermediary function

becomes weakness and useless. This phenomenon impacts on real economy sector, and globally Indonesia's economy.

During the crises, poverty increased by 50 percent. The income of the near poor those only moderately above the poverty line, slumped badly and vulnerability spread to about half of the population. As inflation shot up, real wage nose-dived by 40 percent and a large share of the workforce was pushed into low paid under employment

in agriculture and the urban informal sector.

Since 2000, Indonesia has been on the road to recovery, albeit at a slow pace. Its average annual rate of growth of GDP during 2000-2002 has been less than four percent a little over half its rate of growth during 1991-1996. In 2002, GDP growth was 3.7 percent a rate that could provide jobs to only about half of the new entrants into the labor force. As a result, unemployment continues to rise, as does the number of informal sector jobs.



Source: Central Bank of Indonesia

Figure 2.
Component of GDP growth rate (%)

The recovery remains fragile since the main impetus for growth has been consumption. A troubling sign is that in 2003, consumption growth began to slow. At the same time, other components of aggregate demand do not provide an alternative source of growth. In 2002, gross domestic fixed capital formation decline by 0.2 percent

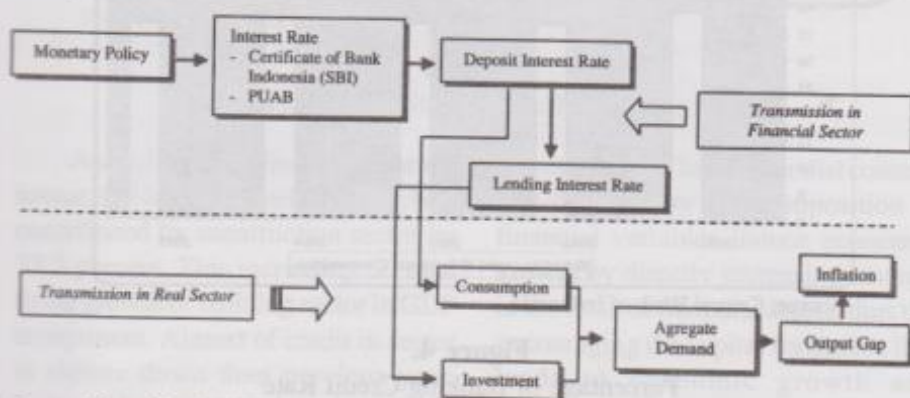
and shows no signs of recovering in 2003. Net exports contributed more to growth in 2002 than in 2001 but only because imports contracted by over eight percent. Export themselves declined by 1.2 percent.

Growth of household consumption is propping up GDP growth. In 2002, this component grew by 4.7 percent,

accounting for about 90 percent of GDP growth. Government consumption grew much faster than private consumption but made a much smaller contribution to overall growth. Recognizing the fragility of the recovery, the government has provided another fiscal stimulus in 2003, mainly in the form of tax cuts. Yet, current projection suggests that economic growth will reach only 3.4 percent in 2003, far too slow to boost employment or significantly reduce poverty. But, in 2005, poverty rate decrease becomes 16 percent than in 2003 which reach 17.4 percent.

B. Monetary Policy and Financial Sector Development

The role of monetary policy to achieve the final goal of policy such as price stabilization and economic growth, it can be shown by the transmission mechanism of monetary policy. Interest rate channel is one of transmission mechanism channel. This channel works to conduct monetary policy to give sign on financial sector transmission, in turn; it transmitted to final goals. This transmission mechanism can be shown in figure 2.3 as follows.



Source: Central Bank of Indonesia

Figure 3.
Interest Rate Channel

During crises, interest rate was kept high in order to stabilize the exchange rate. While the government has lowered policy rates of interest since the crises, more efforts need to be focused on bringing lending rate of interest. Applying the so called 'golden rule' namely attempting to align the real interest rate with the sustainable rate of growth and per capita income, would imply bringing real interest rate down

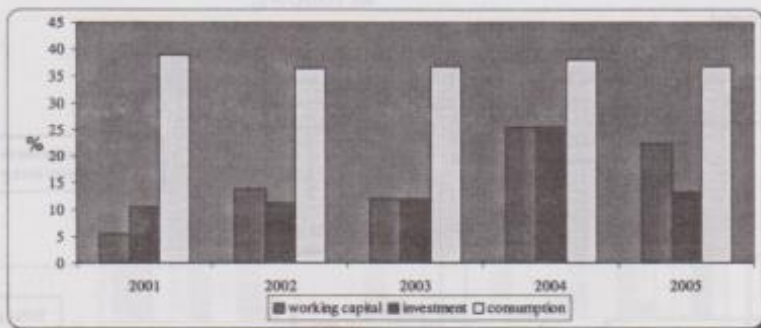
to 3 – 4 percent. Although in decline overall, the real central bank rate has remained higher than this and has contributed to nullifying some of stimulus for faster growth.

In 1999, since implement implicitly of inflation targeting to below 10 percent, has contributed to increase real interest rate. But historically, inflation rates above 10 percent have not been detrimental to rapid economic

growth. Under current conditions of dampening of aggregate demand, attempting to lower inflation further is likely to be counter productive.

While banking sector development, after recovery process, financial intermediary function operates increasingly can be shown that loan deposit ratio (LDR) increase in 2001-2005. The increasing of credit about 135,1 trillion provide in rise of LDR ratio 61.8 percent in 2004 up to 64.7 percent in 2005. At the same period, mobilization of saving increase greater than credit

about 164.8 billion Rupiahs, it provide from the increasing of interest rate. But this condition indicates that not all of funds lead for credit and it caused the increasing of excess banking liquidity. In short term, excess liquidity risk can be reduced but not surely in long term. The banks find the placement of credit in low risk to reduce mismatch risk. It is shown by increase in consumption and working capital credit. Thus, in the future, it needs formation structure source of banking fund in long term in order to provide investment credit.

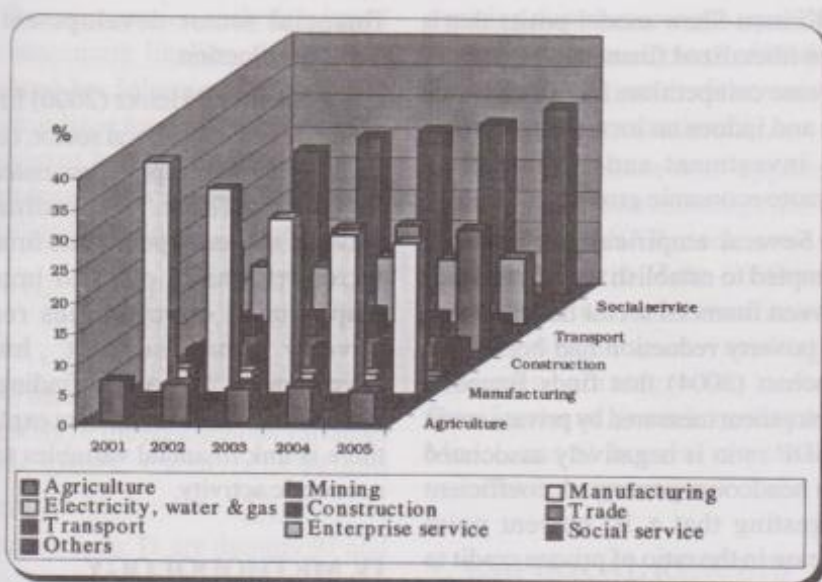


Source: Central Bank of Indonesia

Figure 4.
Percentage of Banking Credit Rate

Related with expand of credit, consumption credit has grew faster than others. The growth of consumption credit reach by 36.8 percent more slowly than previous year that reaches 38.1 percent. It is because consumption credit has characteristic in short term and has low risk. Investment credit increased although it is slower from about 25.6 percent to 13.2 percent. In 2005, working capital credit still dominates in credit expansion.

According classified per economy sector, the highest level of credit was contributed by construction sector by 35.3 percent. This increasing is equal to the growth of building sector in GDP component. Almost of credit in sector is slower down than previous year. Industrial credit has the most shares about 24.6 percent from the total credit. This increasing moves along to economic condition in 2005 that more concentrates on industrial sector.



Source: Central Bank of Indonesia

Figure 5.
 Percentage Share of Banking Credit

According classified per economy sector, the highest level of credit was contributed by construction sector by 35.3 percent. This increasing is equal to the growth of building sector in GDP component. Almost of credit in sector is slower down than previous year. Industrial credit has the most shares about 24.6 percent from the total credit. This increasing moves along to economic condition in 2005 that more concentrates on industrial sector.

III. LITERATURE REVIEW

The link between financial sector development, economic growth and poverty reduction can be examined by the channels of financial sector development that it can influence economic growth. Theorist can be subdivided into two broad school of thought: (i) the structuralist and (ii) the

repressionists. The structuralist contend that the quantity and composition of financial variables induce economic growth by directly increasing savings in the form of financial assets, thus the encouraging the capital formation that leads to economic growth and consequently poverty reduction.

The financial repressionists led by McKinnon (1973) and Shaw (1973) often referred to as the McKinnon-Shaw hypothesis contend that financial liberalization in the form of an appropriate rate of return on real cash balance is a vehicle for promoting economic growth. The essential tenet of this hypothesis is that a low or negative real interest rate will discourage savings. This will reduce the availability of loanable funds for investment, which in turn, will lower the rate of economic growth. Thus, the

McKinnon-Shaw model posits that a more liberalized financial system will increase competition, increase interest rate and induce an increase in savings and investment and consequently promote economic growth.

Several empirical studies have attempted to establish the relationship between financial sector development and poverty reduction had been done Honohan (2004) that finds financial development measured by private credit to GDP ratio is negatively associated with headcount poverty. A coefficient suggesting that a 10 percent point increase in the ratio of private credit to GDP should reduce poverty ratios by 2.5 to 3 percentage points.

Jalilian and Kirkpatrick (2001) examine the link between financial development and poverty reduction by using data for a sample of 26 countries, including 18 developing countries. Indicator of financial development was used that bank deposit money assets and net foreign assets. The result suggests that 1 percent change in financial development raises growth in the incomes of the poor in developing countries by almost 0.4 percent.

Quartey (2005) investigates the interrelationship between financial sector development and poverty reduction in Ghana using data from 1970-2001. The main findings are the first that even though financial sector development does not granger cause savings mobilization, it induces poverty reduction and second, that saving Granger cause poverty reduction. Another finding is that there is a long run cointegration relationship between

financial sector development and poverty reduction.

Epstein and Heintz (2006) finding structure of the financial sector, central bank policy and employment outcomes in Ghana. There is coordination between monetary policy and financial sector reforms in order to improve employment opportunities reduce poverty and support human development. The others finding that the determinant of investment explicitly there is link financial variables to real economic activity.

IV. METHODOLOGY

A. Definition variables and Data source

This study used annual time series data from 1970-2005 that collected from International Financial Statistic and Central Bank report. The data that identified were 1) 3-months deposit interest rate (it represent transmission of policy rate to banking sector that is Bank Indonesia Certificate (SBI) or PUAB), 2) consumer price index (CPI) as measurement of inflation rate, 3) Gross Domestic Product (GDP) as measurement of economic growth, 4) Domestic credit as percentage of GDP, 5) consumption per capita as household welfare indicator (measure of poverty reduction).

B. Specification Model

The tool of analysis were used is vector error correction model (VECM) to examine long run cointegration between variables in the system and dynamic effect within variables in short

run. The cointegration analysis is based on a maximum likelihood approach proposed by Johansen (1995). The system utilized for cointegration can be represented by a VECM for the long run endogenous variables that can be formulated as follow.

$$\Delta Z_t = \Pi Z_{t-1} + \sum_{i=1}^{r-1} \Gamma_i \Delta Z_{t-i} + \mu + \psi D_t + \varepsilon_t$$

$$t = 1, \dots, T$$

Where $Z_t = (z_1, z_2, \dots, z_n)'$ is now, a 6x1 vector of the endogenous variables LPOV, DEP3, CRDGD, LCPI and LGDP., $\Pi = \sum_{i=1}^r \Pi_i - I$, $\Gamma_i = -\sum_{j=i+1}^r \Pi_j$, μ is a constant term, D_t are dummy 97 and ε_t is an independent identically distributed error term. $\Pi_{6 \times 6}$ is the long run coefficient matrix, which can be decomposed into r distinct cointegrating vectors of $\beta'_{r \times 6}$ and an adjustment (feedback) matrix $\alpha_{6 \times r}$ ($\Pi = \alpha\beta'$). In this respect, testing for cointegration is investigating the number of r linearly independent columns in Π . The elements of $\hat{\alpha}$ indicate the speed of adjustment of a particular variable when

there is a disturbance in the equilibrium relation, while the elements of $\hat{\alpha}$ indicate the long run responses of the variables in the equilibrium relationship.

The procedure was applied as follow. 1) unit root test using ADF test, 2) lag length VAR decision using Likelihood ratio (LR), 3) Granger causality test to examine the relationship between variables, 4) Johansen cointegration test, 5) Specification of Vector Error Correction Model, and 6) Impulse response and variance decomposition.

V. EMPIRICAL RESULTS

A. Stationarity test

First step in the cointegration analysis is to investigate the individual characteristic of the series used in the model by utilizing the augmented Dickey Fuller test for a sample period 1970-2005. The plots of the series in levels exhibited in figure, may give some idea about stationary and non-stationary of these series.

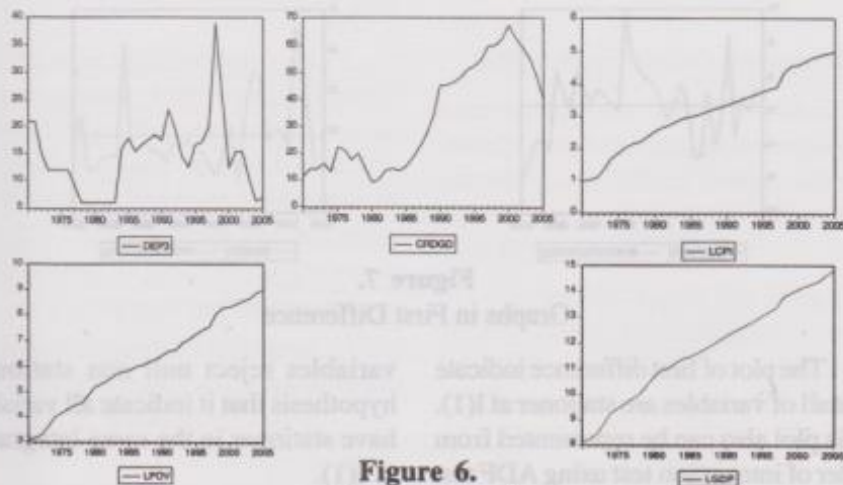


Figure 6.
 Graphs in Level

Based on figure (5.1) that all variables not stationer in level. The figures show that there is a positive trend in variable except the interest rate. This plot can be considered with formal conclusion about the integration

properties of the series can be arrived at using the unit root test at table (5.1) using Schwarz Information Criterion for considered lag length and used maximum at ninth lag.

Table 1.
Augmented Dickey Fuller Unit Root Test

Variable	Lag	Statistic Test (<i>Level</i>)		
		τ_1	τ_a	τ
Poverty (Lpov)	0	-1.9915	-0.7886	8.0188
Interest Rate (Dep3)	0	-2.5332	-2.4821	-1.3837
Credit Domestic (CRDGD)	1	-1.0205	-1.1783	-0.1831
Inflation (LCPI)	0	-1.9090	-1.3805	5.7881
Growth (LGDP)	1	-3.2682	-2.0919	10.0506

Note: ***, **, * significance at $\alpha = 1\%$, 5% and 10%

The result test shows that all variables not stationer at level based on confidence level $\alpha = 5$ percent. Because the series not stationer at

level, so that it needs integration test at first difference. The plot data in first difference exhibited figures 6.2 follow.

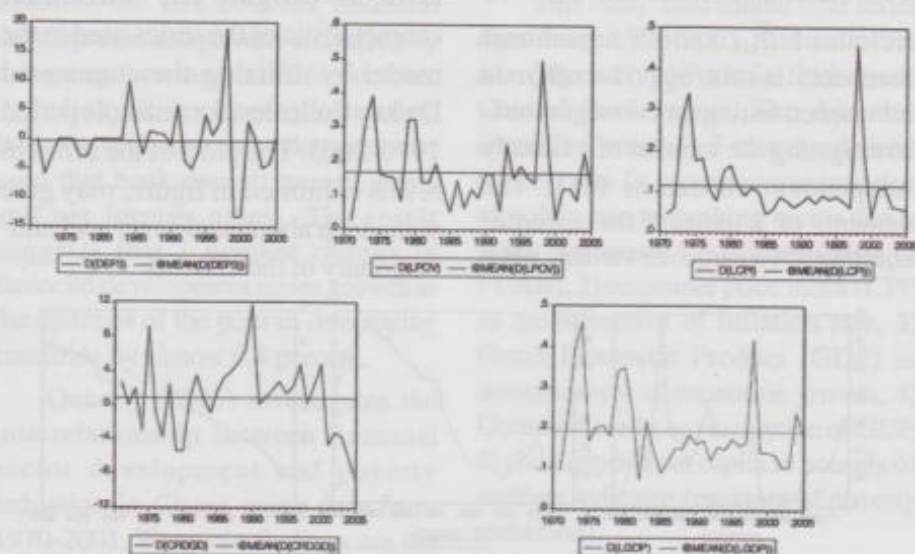


Figure 7.
Graphs in First Difference

The plot of first difference indicate that all of variables are stationer at I(1). This plot also can be represented from order of integration test using ADF test as follow. The result shows that all

variables reject null non stationary hypothesis that it indicate all variables have stationer in the same integration at I(1).

Table 2.
 Order of Integration Test using ADF

Variable	Lag	Statistic Test (Level)		
		τ_1	τ_n	τ
Poverty (Lpov)	0	-5.0911*	-5.0234*	-1.1325*
Interest Rate (Dep3)	1	-5.7880*	-5.8736*	-5.9437*
Credit Domestic (CRDGD)	0	-3.5619*	-3.5304*	-3.5673*
Inflation (LCPI)	0	-4.3803*	-4.2189*	-2.1683*
Growth (LGDP)	0	-4.7417*	-4.2215*	-1.1777*

Notes: ***, **, * significance at $\alpha = 1\%$, 5% and 10%

B. The system tests of Congruency

The essential step to develop a structural model of a system is to achieve a congruent representation of the data. In this regard, congruency requires a correctly specified lag-structure for the system of which the residuals are well behaved and the parameter constancy is satisfied. In determining the lag structure of the VAR system, Likelihood Ratio test is utilized. The outcome is supported by LR test shows that the lag length decision is made in favor of VAR (2) in this study.

C. Granger Causality test

In order to see how the relationship among variables, granger causality tests is utilized and these results are reported in table 5.3. Based on table 5.3, there is bi-directional between interest rate and domestic credit. Domestic credit as percentage of GDP can predict inflation, growth and poverty reduction. The poverty reduction granger caused inflation at $\alpha = 5\%$. The key issue from this test is financial sector development affects poverty reduction and interest rate induces domestic credit. This, in turn has implication on poverty reduction.

Table 3.
Granger Causality Test

Pairwise Granger Causality Tests

Sample: 1970 2005

Lags: 3

Null Hypothesis:	Obs	F-Statistic	Probability
DEP3 does not Granger Cause CRDGD	33	3.50456	0.0294**
CRDGD does not Granger Cause DEP3		4.52132	0.0111**
LCPI does not Granger Cause CRDGD	33	0.65875	0.5848
CRDGD does not Granger Cause LCPI		4.11466	0.0163**
LGDP does not Granger Cause CRDGD	33	1.28987	0.2988
CRDGD does not Granger Cause LGDP		3.66348	0.0252**
LPOV does not Granger Cause CRDGD	33	1.08190	0.3741
CRDGD does not Granger Cause LPOV		3.98212	0.0185**
LCPI does not Granger Cause DEP3	33	2.14588	0.1187
DEP3 does not Granger Cause LCPI		1.02868	0.3961
LGDP does not Granger Cause DEP3	33	0.64106	0.5955
DEP3 does not Granger Cause LGDP		0.98692	0.4143
LPOV does not Granger Cause DEP3	33	0.74036	0.5376
DEP3 does not Granger Cause LPOV		0.25131	0.8597
LGDP does not Granger Cause LCPI	33	0.83300	0.4879
LCPI does not Granger Cause LGDP		0.38491	0.7647
LPOV does not Granger Cause LCPI	33	4.47735	0.0116**
LCPI does not Granger Cause LPOV		2.25556	0.1056
LPOV does not Granger Cause LGDP	33	0.76042	0.5265
LGDP does not Granger Cause LPOV		0.61750	0.6099

Notes: ***, **, * significance at $\alpha = 1\%$, 5% and 10%**D. Johansen Cointegration Test**

Table (5.4) exhibits the cointegration test, this system includes impulse dummy at 1997 to capture the outlier effect of economic crises at 1997.

These result indicate with utilized Pantula principle that the presence of rank = 2 cointegrating vectors in the system and utilized model 4 since the maximal eigenvalue and trace statistics reject the null hypothesis of $r = 2$, but do not reject the null that there are the most three cointegrating vectors, $r \leq 1$. Model 4 represent there is linear trend in level data and cointegrating equation.

Table 4.
 Johansen Cointegration Test

LR Test	Null	Alternative	Model2	Model3	Model4
Trace Statistic	$r = 0$	$r = 1$	142.5474**	121.8564**	132.5451**
	$r \leq 1$	$r = 2$	86.1037**	67.6993**	78.2049**
	$r \leq 2$	$r = 3$	47.2709**	31.6196*	40.4603
	$r \leq 3$	$r = 4$	20.2588*	4.6958	13.4377
	$r \leq 4$	$r = 5$	4.6538	0.0008	2.8134
Maximum Eigen Value	$r = 0$	$r = 1$	56.4436**	54.1570**	54.3402**
	$r \leq 1$	$r = 2$	38.8329**	36.0797**	37.7445**
	$r \leq 2$	$r = 3$	27.0120**	26.9238**	27.0226*
	$r \leq 3$	$r = 4$	15.6051	4.6951	10.6244
	$r \leq 4$	$r = 5$	4.6538	0.0008	2.8134

Notes: ***, **, * significance at $\alpha = 1\%$, 5% and 10%

Table 5.
 Normalized Cointegration Relationship

β						
LPOV	DEP3	CRDGD	LCPI	LGDP	C	Trend
1.0000	0.0000	-0.0039 [-1.5899]	2.4227 [9.0319]	-2.1251 [-9.8699]	11.1046	0.0108 [0.4690]
0.0000	1.0000	-0.0726 [-0.6623]	30.9469 [2.6244]	-31.6260 [-3.3413]	235.4233	1.4947 [1.4749]

α				
D(LPOV)	D(DEP3)	D(CRDGD)	D(LCPI)	D(LGDP)
-0.3538 [-4.2363]	-15.2641 [-3.4508]	-2.5775 [-0.5109]	-0.3348 [-8.1421]	-0.1867 [-2.1572]
-0.0038 [-1.1333]	-0.4733 [-2.6579]	-0.1822 [-0.8974]	-6.06E-05 [-0.0366]	0.0043 [1.2327]

Note: () indicate standard error value

The vectors are identified jointly and normalized in table (5.5). These two cointegrating vectors and their adjustment coefficients are computed by standardizing the first one with respect to poverty reduction (*lpov*) and the other one with respect to interest rate (*dep3*). In the long run, variable of poverty reduction was determined significantly by credit domestic, inflation and growth. Financial sector through domestic credit affects significantly poverty reduction at $\alpha = 10\%$ and has

correctly signed of parameter (positively). Interest rate responds the inflation movement and economic growth.

E. VECM Estimation

Having obtained the long run cointegration relations using the Johansen approach, it is now possible to reformulate the model and estimate the VECM with the error-correction terms, at table (5.6).

Based on estimation result of VECM, looked from goodness of fit, it shows that inflation rate has highest value of R^2 followed by interest rate and poverty. Adjustment response to

short run can be represented from significance of error correction term. That shows that interest rate has the highest and strong value of adjustment followed by domestic credit and poverty reduction.

Table 6.
VECM Estimation

Equation	dLPOV	dDEP3	dCRDGD	dLCPI	dLGDP
ϵ_1	-0.353813 [-4.23625]	-15.26406 [-3.45081]	-2.577535 [-0.51097]	-0.334848 [-8.14210]	-0.186727 [-2.15721]
ϵ_2	-0.003811 [-1.13329]	-0.473335 [-2.65797]	-0.182243 [-0.89737]	-6.06E-05 [-0.03661]	0.004296 [1.23273]
dLPOV(-1)	-0.271066 [-0.72355]	-5.295658 [-0.26691]	-17.18634 [-0.75956]	0.171254 [0.92836]	0.440512 [1.13456]
dLPOV(-2)	-0.286443 [-0.74634]	-15.49021 [-0.76208]	-10.23258 [-0.44144]	-0.027420 [-0.14509]	0.083881 [0.21088]
dDEP3(-1)	-0.002737 [-0.70318]	0.541638 [2.62790]	0.142310 [0.60545]	0.000962 [0.50225]	-0.005725 [-1.41944]
dDEP3(-2)	0.001014 [0.32720]	-0.282017 [-1.71820]	0.367001 [1.96069]	-0.002924 [-1.91625]	-0.001216 [-0.37867]
dCRDGD(-1)	-0.001513 [-0.34698]	0.272540 [1.18045]	0.175892 [0.66804]	-0.000481 [-0.22389]	-0.000797 [-0.17634]
dCRDGD(-2)	-0.007381 [-1.64491]	-0.261678 [-1.10106]	0.227985 [0.84119]	-0.005076 [-2.29711]	-0.004994 [-1.07375]
dLCPI(-1)	0.739484 [1.40409]	-23.74962 [-0.85146]	14.24790 [0.44792]	0.195657 [0.75447]	-0.395738 [-0.72502]
dLCPI(-2)	-0.068935 [-0.12112]	69.71001 [2.31277]	16.32396 [0.47490]	0.182836 [0.65243]	-0.400489 [-0.67898]
dLGDP(-1)	-0.159285 [-0.39535]	15.67830 [0.73477]	14.82878 [0.60939]	-0.321628 [-1.62122]	-0.107181 [-0.25669]
dLGDP(-2)	-0.109855 [-0.27734]	-35.70178 [-1.70190]	2.038916 [0.08523]	-0.212021 [-1.08708]	-0.010852 [-0.02644]
C	0.172894 [3.54037]	-0.507257 [-0.19613]	-1.228693 [-0.41658]	0.076080 [3.16388]	0.174157 [3.44101]
Dum97	0.318087 [4.92083]	9.356427 [2.73304]	-2.081391 [-0.53313]	0.341959 [10.7435]	0.213011 [3.17958]
R^2	0.714205	0.735177	0.458538	0.908220	0.647610
Diagnostic Test:					
Serial Correlation (LM-test) : $\chi^2(25) = 0.2979$					
Normality (Jarque-Bera test d.f = 10) = 29.58987					
Heteroscedasticity (White-heteroscedasticity) : $\chi^2(375) = 381.3357$					

Note: () indicate t-statistic

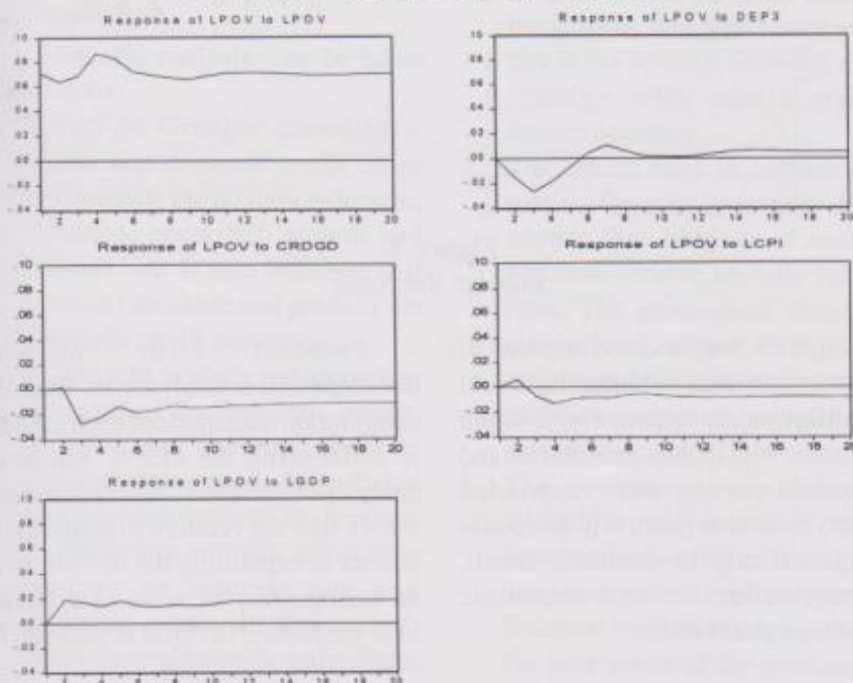
In short run, poverty reduction response domestic credit negatively and significantly at $\alpha = 10\%$. It indicates that the increase of domestic credit affects increase of poverty. Interest rate responds inflation positively and economic growth negatively. Domestic credit responds interest rate movement. Diagnostic test indicate the system has no serial

correlation and heterocedasticity, but not normality.

F. Impulse Response and Variance Decomposition

The impulse response was analyzed to trace the effect of a one standard deviation shock to one of the innovations on current and future values of the endogenous variables.

Response to Cholesky One S.D. Innovations



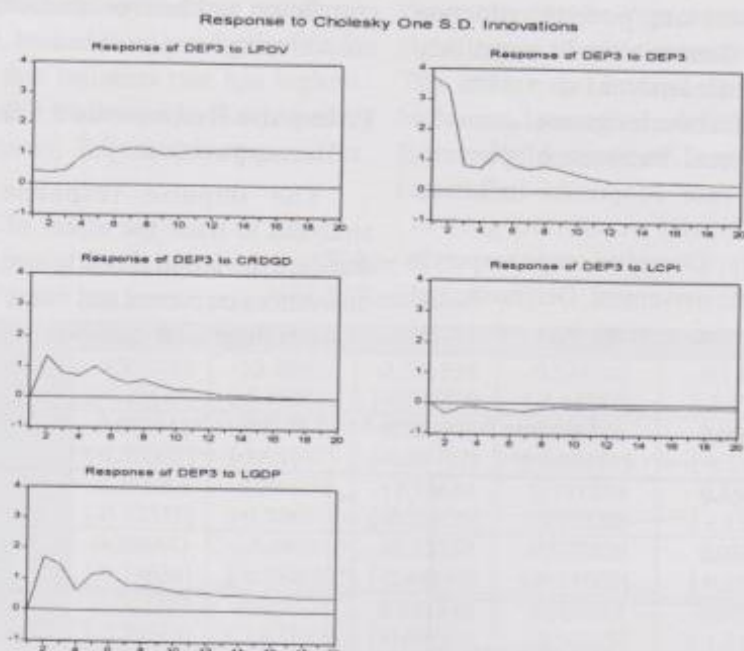


Figure 8.
Impulse Response

Figure 5.3 represented response of poverty reduction to domestic credit and inflation are negatively. It is not consistent with theory. Interest rate and economic growth were responded poverty reduction positively. Response of interest rate to domestic credit, poverty reduction and economic growth are positively.

Forecast error variance decomposition analysis to find the contribution magnitude of each variable in influencing the others. Based on analysis of variance decomposition, it shows that the relative importance of shocks in explaining the deviations in an endogenous variable at different time horizons. It exhibit at table (5.7).

Table 7.
Variance Decomposition

Variance decomposition of poverty:

Period	LPOV	DEP3	CRDGD	LCPI	LGDP	Standard Error
6	86.99355	3.498558	4.756885	1.119364	3.631638	0.196482
12	88.17244	2.164662	4.408980	1.131231	4.122688	0.265190
20	88.68447	1.550068	3.707577	1.189345	4.868537	0.337445

Variance decomposition of interest rate:

Period	LPOV	DEP3	CRDGD	LCPI	LGDP	Standard Error
6	8.662846	63.28375	9.601010	0.574556	17.87784	6.754349
12	19.18203	52.63900	8.851861	0.702655	18.62446	7.695618
20	30.15679	44.08041	7.251745	0.728599	17.78246	8.517229

From variance decomposition analysis for poverty, own innovations are dominant, as they explain 86.99 percent, and 4.75 percent was contributed from domestic credit. The interest rate was explained by own innovation and poverty in the longer horizon, respectively.

VI. CONCLUSIONS AND POLICY IMPLICATION

A. Conclusion

From the analysis, can be taken conclusions:

1. Based on Granger causality, it shows that domestic credit cause and predicts the poverty reduction, inflation, economic growth and interest rate. It also indicates that interest rate cause and predicts the domestic credit movement.
2. In long run, poverty reduction was determined by domestic credit, inflation and economic growth. Interest rate responds the inflation and economic growth. In short run, the faster and strongly adjustment process on interest rate and domestic credit. In this period, domestic credit significantly affects the poverty reduction negatively, and enough responds the inflation. And domestic credit responds interest rate positively.
3. Based on variance decomposition, that the biggest contribution to the poverty reduction is own innovation and domestic credit.

B. Policy Implication

1. Monetary policy through short term interest rate such as SBI or PUAB (this study used deposit interest rate as response banking sector interest rate to policy rate) significantly responds the inflation rate and domestic credit; therefore implementation of policy through interest channel must be done carefully. In one side, increasing interest rate to decrease inflation but it cause induction in real sector that is the poverty, so that it needs synergy with others macro-economic policy.
2. The central bank in collaboration with the financial institutions should ensure that holders of savings accounts receive realistic interest rates. The government should be minimized since it has not encouraged financial institutions to mobilize savings and on lending to private investors.
3. The government could further stimulate the work of these intermediaries by offering tax concessions or reductions to financial institutions that invest in the poor sector of the economy.
4. Banking sector could provide credit checks on potential borrowers to minimize the risk of lending too less creditworthy entrepreneurs.

REFERENCES

- Bank Indonesia, (2003), "*Bank Indonesia: Bank Sentral Republik Indonesia, Tinjauan Kelembagaan, Kebijakan, dan Organisasi*", Pusat Pendidikan dan Studi Kebanksentralan
- Bank Indonesia, (2005), "*Laporan Perekonomian Indonesia 2005*".
- Bevan, D., (2000), "*Poverty Reduction and Other Policies*", Presented at a Special Seminar: Planning for Poverty Reduction, Lessons from Africa, 14 December 2000.
- Bhagwati, J and Srinivasan, T.N., (2002), "*Trade and Poverty in the Poor Countries*", American Economic Review Papers & Proceedings.
- Cardosa, E (1992), "*Inflation and Poverty*", NBER Working Paper No.4006, March.
- Epstein, Gerald and James Heintz, (2006), "*Monetary Policy and Financial Sector Reform for Employment Creation and Poverty Reduction in Ghana*", Working Paper Series N0.113, University of Massachusetts Amherst, March
- Easterly, W & Fischer, S., (2000), "*Inflation and the Poor*", Policy Research Working Paper, World Bank & IMF, May.
- Gujarati, Damodar N., (2003), "*Basic Econometrics*", the 4th eds., McGraw Hill, pp.275-276
- Harris, Richard, (1995), "*Cointegration Analysis in Econometric Modelling*", Prentice Hall
- Honohan, P., (2004), "*Financial Development, Growth and Poverty : How Close are The Links?*", World Bank Policy Research Working Paper 3203, February
- Jalilian, H., and C. Kirkpatrick, (2001), "*Financial Development and Poverty Reduction in Developing Countries*", Working paper No.30. Manchester: Institute for Development Policy and Management, University of Manchester
- Johansen, Soren, (1995), "*Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*", Oxford University Press
- McKinnon, R.I (1973), "*Money and Capital in Economic Development*", Washington, DC: Brooking Institution Press.
- McKinley, Terry, et.al, (2004), "*The Macroeconomics of Poverty Reduction: The Case Study of Indonesia*", United Nations Development Programme

- Quartey, Peter, (2005), "*Financial Sector Development, Savings Mobilization and Poverty Reduction in Ghana*", UNU-Wider, World Institute for Development Economic Research, Research Paper No.2005/71
- Warjiyo, Perry, (2004), "*Mekanisme Transmisi Kebijakan Moneter di Indonesia*", Buku Seri Kebanksentralan No.11, Pusat pendidikan dan Studi Kebanksentralan (PPSK), Bank Indonesia
- Gunter, Cohen & Lofgren (2005), "*Analysing Macro-Poverty linkages: An Overview*", Development Policy Review 23(3):243- 265.
- Shaw, E (1973), "*Financial Deepening in Economic Development*", New York, Oxford University Press.