Identification of Interest Rate in Mechanism of Monetary Policy Transmission in Indonesia, 2000 – 2014

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Abstract

The purpose of this study is to identify the mechanism of monetary policy transmission on the interest rate channel through the channel of cost of capital and the channel of interest rate through consumption channel during period 2000: 1-2014: 3. This study uses secondary data obtained from SEKI and BPS. Data analysis techniques use Vector Error Correction Model (VECM). The result of the research shows that the channel of interest rate through the interest rate of the capital cost effect is more effective in transmitting monetary policy.

Key Words: *Interest Rate Channel, Monetary Policy Transmission*

1. INTRODUCTION

Monetary policy is the main economic policy used by the central bank to regularly influence the steps and direction of all financial and economic activities, both in the financial sector and in the real sector in an economy. The policy of monetary work through a monetary policy transmission mechanism is a channel between the monetary policy and the real economy. (Pohan, 2008).

Understanding the paths of the monetary policy transmission mechanism is very important for the central bank. Although understanding monetary policy transmission is not an easy task, moreover in the context of doing economic stabilization where to achieve it is not likely to produce structural and behavioral changes in the economy such as the behavior of central banks, banks and other economic actors. Another complexity associated with the transmission mechanism is the problem of how long it will take, for example to achieve the targeted inflation target. These deadlines vary due to long and varied time intervals.

The issue of the Monetary Policy Transmission Mechanism (MTKM) is an interesting and debatable topic, both academically and practitioners at the central banks of Bernanke and Gertler (1995), Obstfeld and Rogoff (1995), Taylor (1995), Warjiyo and Agung (2002), Warjiyo (2004), Muelgini (2004), Mishkin (2001), Haryanto (2007), Natsir (2008). Interestingly MTKM is always associated with two questions. First, whether monetary policy can affect the real economy in addition to its influence on prices. Secondly, if the answer is yes, then through which transmission mechanism the influence of monetary policy on the real economy occurs (Bernanke and Blinder: 1992) and Taylor (1995). Indeed, MTKM research provides an explanation of how monetary policy instruments change can affect other macroeconomic variables until the realization of the ultimate goal of monetary policy. How big is the effect on prices and activities in the real sector, all depends on the behavior or response of banking and other businesses to the shock of monetary policy instruments namely Interest Rate Certificate of Bank Indonesia (SBI).

The effectiveness of MTKM is measured by two indicators, namely how much speed or how many time lags and how many variable strengths in response to monetary policy instrument shocks and other variables so that the realization of the ultimate goal of monetary policy. Both indicators are obtained from the Impulse Response Function (IRF) test and the Variance Decomposition test.

The purpose of this study was to identify the effectiveness of the monetary policy transmission mechanism on the interest rate path during the period 2000Q1-2014Q3. The benefit of the research is to provide empirical contribution to the development of monetary economics by presenting the empirical findings of effectiveness of MTKM in the interest rate channel in realizing the ultimate goal of monetary policy in Indonesia.

2. LITERATURE REVIEW

Monetary policy

Monetary policy is an act of government in order to achieve the goals of macroeconomic management (output, price and unemployment) by influencing macro situation through money market or in other words through the process of creating money or money supply (Djohanputro, 2006). Bofinger (2001) which states that "monetary policy is manipulating of monetary instruments in order to achieve price stability, low unemployment and sustainable economic growth".

Monetary policy is part of macroeconomic policy aimed at achieving the ultimate goals of macroeconomic policy, among others: economic growth, employment provision, price stability and balance of payments balance.

Ideally, all monetary end targets can be achieved simultaneously and sustainably, but this is difficult to achieve even contradictory tendencies. For example, a contractionary monetary policy to curb inflation may negatively affect economic growth. The empirical experience shows that the economy is deteriorating because of its multiple-purpose monetary policy. For this reason, the majority of the Central Bank including BI focuses on a single goal of achieving and maintaining low and stable inflation.

The Monetary Policy Framework

Implementation of monetary policy in Indonesia is formulated within the framework of monetary policy (Bank Indonesia, 2008). The monetary policy framework consists of instruments of monetary control, operational objectives, intermediate goals, and final objectives.

Monetary Control Instruments

Monetary control instruments are monetary operation tools that can be used by the central bank in realizing the intended end goal (Solikin and Suseno, 2002) and Ascarya (2002). Some of the instruments used are open market operation, reserve requirement, discount facility (discount facility), and moral suasion (appeal).

Operational Goals

Operational targets are targets to be achieved by Bank Indonesia in monetary operations. The selected operational objectives should have stability relationships with targets between monetary authority controlled, and information available earlier than intermediate goals (Miskhin, 2001). Several choices of operational targets that can be used include primary money (M0) and short-term interest rates.

Target Between

The relationship between operational goals and the ultimate goal of monetary policy is indirect and complex and requires a long time lag. Central bank monetary experts and practitioners designed a simple rule for the implementation of monetary policy by adding an indicator called intermediate target. The targets between indicators for assessing the performance of monetary policy success, these objectives are selected from variables that are linked to the final objectives, their value is stable, not often revised, the scope is wide and can be controlled by the central bank. Target intermediate variables include monetary aggregate (M1 and M2), banking credits and exchange rates (Bofinger, 2001).

End Targets

The ultimate goal of the monetary policy to be achieved by the Central Bank depends on the objectives mandated by the Central Bank Law of a country. The ultimate goal of monetary policy in Indonesia refers to Article 7 paragraph 1 of the Central Bank Act No. 3 of 2004 which states that the ultimate goal of monetr policy is to achieve and maintain the stability of the rupiah (monetary stability).

Mechanism of Monetary Policy Transmission (MTKM)

Taylor (1995) states that the monetary policy transmission mechanism is "the process through which monetary policy dictates the transmitted into changes in real GDP and inflation". This means that the monetary policy transmission mechanism is the path through which monetary policy can affect the final target of monetary policy, namely real national income and inflation. This mechanism illustrates the

actions of the monetary authority through changes in monetary instruments and its operational targets affecting various economic and financial variables before finally affecting the ultimate goal of inflation.

Economists often call this monetary transmission mechanism a black box because we basically know that monetary policy will affect inflation and economic growth, but we do not know for certain how monetary policy affects inflation and economic growth. The effectiveness of monetary policy is highly dependent on the transmission mechanism, so research on the monetary policy transmission mechanism has always been an interesting thing to do.

Initially the implementation of monetary policy is only transmitted through the money channel (money channel). Furthermore, Bofinger (2001) found that monetary policy transmission mechanism works through several channels: direct monetary channel, credit channel, interest rate channel, asset price channel, And the expectation channel.

Mishkin (2004) investigates MTKM through interest rate channels further emphasizing the role of changes in the interest rate structure in the financial sector. The effect of short-term interest rate changes is transmitted to the intermediate / longer interest rate which further affects demand and ultimately affects inflation (Taylor, 1995) and Bofinger (2001).

Interest Rate Channel

The essence of price targeting in monetary management is the price of money, the interest rate. MKTM through the interest rate channel is done by setting the short-term interest rate to be set at the target level. Changes in short-term interest rates are then transmitted to all medium and long term interest rates through a balance between supply and demand (Warjiyo and Zulverdi 1998).

In general, the monetary transmission through the interest rate channel can be described in the following figure (Figure 1): an increase in interest rates directly affects the first two sides increases the cost of capital, thus reducing the interest to invest (assuming monetary policy is accompanied by increases in interest rates and Cateris paribus condition). Reduced investment lowers aggregate supply. Secondly, the increase in interest rates increases the interest income of the savers, which on the one hand impacts the increase in the purchasing power (income effect) but on the other hand reduces the interest of consumption (substitution effect). The net effect both determines the amount of consumption, which ultimately affects aggregate demand.

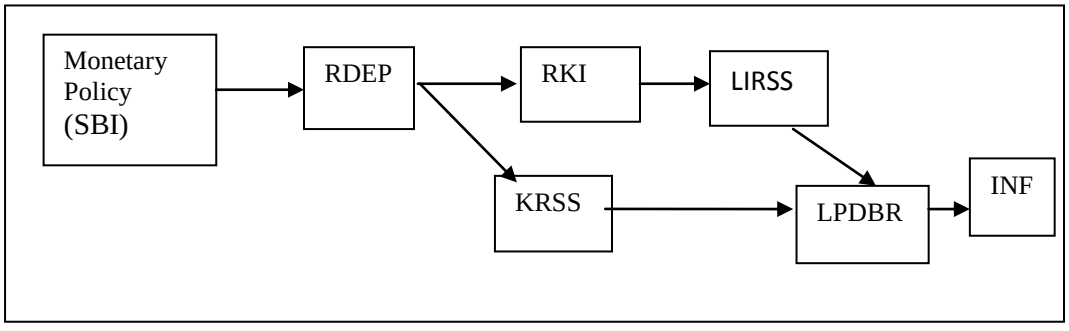

Figure 1, states that a tight monetary policy leads to an increase in the real rate of interest rate, which then raises the cost of capital, which leads to a decrease in investment spending, and ultimately leads to a decrease in aggregate demand and output.

The monetary policy transmitted through the Interest Rate Line can be explained in two stages: First, the transmission in the financial sector (monetary). Changes in monetary policy stem from changes in monetary instruments will affect the development of deposit rates and lending rates. This transmission process requires a certain time lag. Second, the transmission from the financial sector to the real sector depends on its impact on consumption and investment. The effect of interest rate on consumption occurs because the deposit interest rate is a component of the income of the society (income effect) and the interest rate of credit as the consumption financing (substitution effect). While the influence of interest rates on investment occurs due to lending rates.

Effectiveness Indicators of Monetary Policy Transmission Mechanism

The effectiveness of MTKM is measured by two indicators, namely: (1). What is the speed or deadline (time lag) and (2). The strength of the variables on the monetary transmission line in response to the rSBI shock to the realization of the ultimate goal. The speed indicator is measured by how many time lags are required by variables in a path to respond to the shock of the policy instrument to the achievement of the ultimate goal (inflation).

The variable strength indicator in responding to the shock of a variable is measured by order of magnitude. If the order of magnitude of a variable is wider (far from the equilibrium point), the stronger the variable responds to monetary instrument shock or other variable changes. The indicators for response strength can also be seen from the Variance Decomposition Test (VD).

3. RESEARCH METHODS

Research data

The data used are time series data, period of quarter 2000: Q1 until 2014: Q3 Data sources are obtained through official government institutions such as BPS, Indonesian Economic and Financial Statistics (SEKI) Issued by Bank Indonesia, and Bank Indonesia Annual Report.

Operational Research Variables

Table 1 Operational Research Variables

NO	Variables	The definition of a variable	measuring instrument	Source
1	SBI	Interest Rate of Bank Indonesia Certificates (rSBI), is the interest rate of securities issued by Bank Indonesia on the issuance of SBI	Percentage	SEKI Bank Indonesia
2	LPDBR	Represents the Log of real gross domestic product as measured at constant 2000 prices	Billion Rupiah	BPS
3	Inflasi	Core inflation (INF) is a type of inflation that is fully controlled by monetary policy measured in percent.	Percentage	SEKI Bank Indonesia
4	LIRSS	Log of Real Private Investment (IRSS), represents the amount of private investment invested as measured by 2000 constant prices	Billion Rupiah	BPS
5	RDEP	Time Deposit Rate (3 month), represents the interest rate on the Bank's three-month time deposit	Percentage	SEKI BI
6	RKI	Interest Rate of Investment Credit (rKI), is the interest rate of bank credit at commercial bank which is intended for Investment	Percentage	SEKI BI
7	LKRSS	LKRSS is a log of real consumption of the private sector ie the amount of household expenditure is calculated based on constant prices	Billion Rupiah	SEKI BI

Data Analysis Method

Data analysis technique used for data processing in this research is Vector Autoregresive model (VAR) or VECM model. Prior to VAR or VECM estimation, testing of the research data was performed. The test performed is the test of data stationerity and cointegration test then continued with optimal lag determination, impulse response function (IRF), variance decomposition (VD)

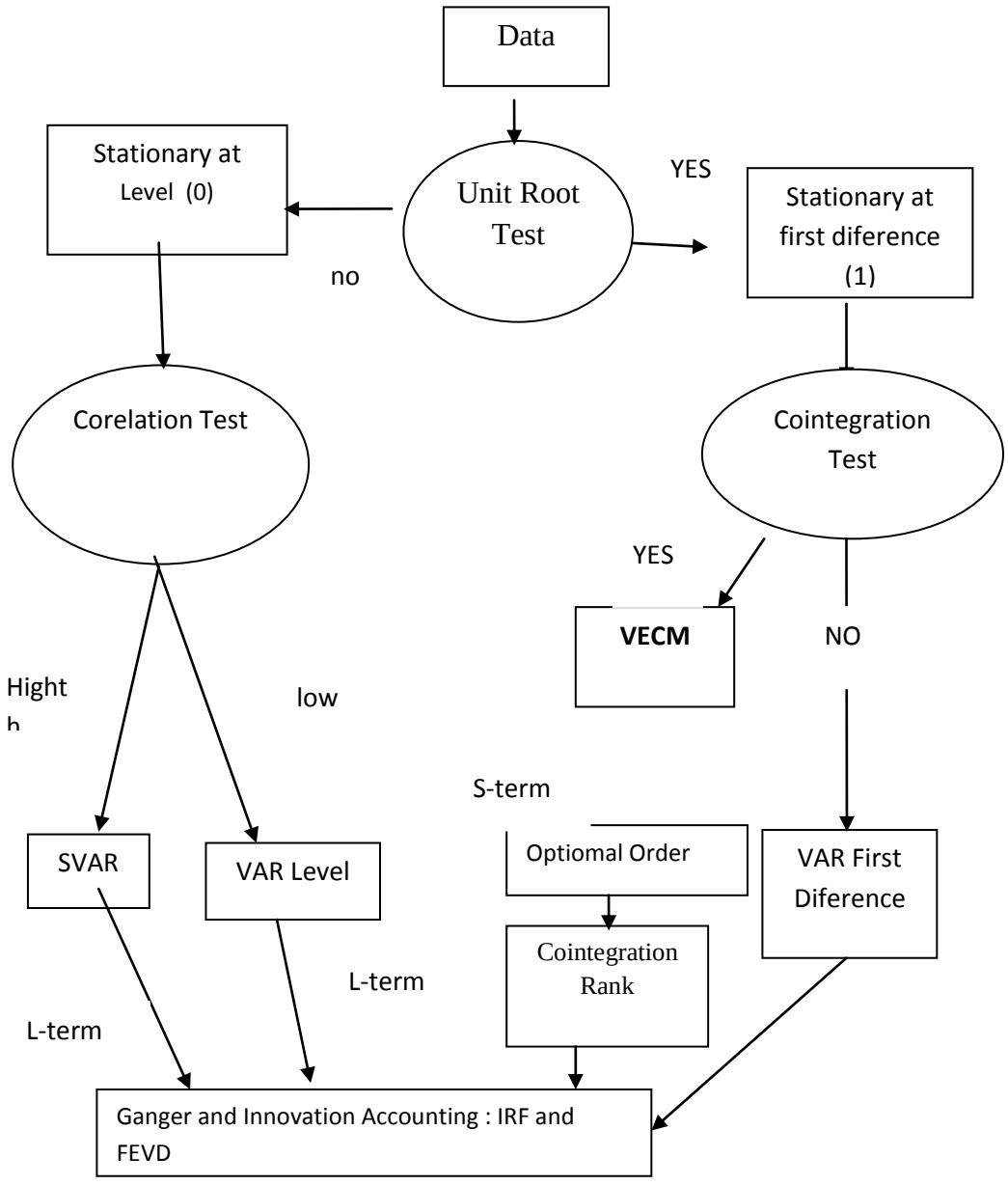

Figure 2. VAR steps

To analyze the data with VAR or VECM method, steps such as Figure 2 (Widarjono, 2007) were carried out. The first step is testing the data stationeritas. Testing of stationaryity of data is very important in determining the proper analysis tool whether VAR or VECM. Data that has stationer at the level can be used VAR analysis at the level level.

But if the data is not stationary at the level but in the first degree used VAR analysis tools on the first level (1'st) on condition there is no cointegration data. If there is cointegration of data then it is estimated Vector Error Correction Model (VECM).

Model of Interest Rate Line through the effect of capital cost (Line of Interest 1)

The path of interest rate of 1 transmission line through the cost of capital with the following variables: SBI, RDEP, RKI, LIRSS, LPDBR and INF. The interest rate path 1 VAR equation is:

$SBIt = C_1 + a_{1i} \sum SBI_{t-k} + a_{1i} \sum RDEP_{t-k} + a_{1i} \sum RKI_{t-k} + a_{1i} \sum LIRSS_{t-k} + a_{1i} \sum LPDBR_{t--k} + a_{1i} \sum INF_{t--k} + \varepsilon_i$

$RDEPt = C_2 + a_{2i} \sum SBIt\text{-}k + a_{2i} \sum RDEP_{t-k} + a_{2i} \sum RKI_{t-k} + a_{2i} \sum LIRSS_{t-k} + a_{2i} \sum LPDBR_{t--k} + a_{2i} \sum INF_{t--k} + \varepsilon i$

$RKIt = C_3 + a_{3i} \sum SBIt\text{-}k + a_{3i} \sum RDEP_{t-k} + a_{3i} \sum RKI_{t-k} + a_{3i} \sum LIRSS_{t-k} + a_{3i} \sum LPDBR_{t--k} + a_{3i} \sum INF_{t--k} + \varepsilon i$

$LIRSSt = C_4 + a_{4i} \sum SBIt\text{-}k + a_{4i} \sum RDEP_{t-k} + a_{4i} \sum LIRSS_{t-k} + a_{4i} \sum LPDBR_{t--k} + a_{4i} \sum INF_{t--k} + \varepsilon i$

$LPDBRt = C_5 + a_{5i} \sum SBIt\text{-}_k + a_{5i} \sum RDEPt\text{-}k + a_{5i} \sum LIRSS_{t-k} + a_{5i} \sum LPDBR_{t--k} + a_{5i} \sum INF_{t--k} + \varepsilon i$

$INFt = C_6 + a_{6i} \sum SBI_{t-k} + a_{6i} \sum RDEP_{t-k} + a_{6i} \sum RKI_{t-k} \; a_{6i} \sum LIRSS_{t-} + a_{6i} \sum LPDBR_{t--k} + a_{6i} \sum INF_{t--k} + \varepsilon i$

The VECM equation of interest rate 1 estimation model can also be written as follows:

$$\Delta \mathbf{X_t} = \mathbf{a_0} + \mathbf{A_1} \Delta \mathbf{X}_{\mathbf{t-k}} + \mathbf{a_2}\ \mathbf{ect} + \square_{\mathbf{t}}$$

Where: Xt = Vector 6 x1 of each variable (SBI, RDEP, RKI, LIRSS, LPDBR, INF), A0 = Vector 6 x 1 from intercept (constant), A1 = Maktris 6 x1 from coefficient, A2 = vector 6 x1 of the error correction model, et = vector 6 x1 of error term, Δ = data in the form of first derivative (first difference), t = time (quarter), K = optimal slackage based on AIC and SC

Channel model of interest rate 2

The interest rate 2 model consists of 5 (five) variables namely SBI (SBI interest rate), deposit interest rate (RDEP), private real sector consumption log (LKRSS), LPDBR, and inflation rate (INF). The interest rate path VAR model 2 is:

Model Channel of interest rate 2

The interest rate 2 model consists of 5 (five) variables namely SBI (SBI interest rate), deposit interest rate (RDEP), private real sector consumption log (LKRSS), LPDBR, and inflation rate (INF). The interest rate path VAR model 2 is:

$SBIt = C_1 + a_{1i} \sum SBI_{t-k} + a_{1i} \sum RDEP_{t-k} + a_{1i} \sum LKRSS_{t-k} + a_{1i} \sum LPDBR_{t--k} + a_{1i} \sum INF_{t--k} + \varepsilon_i$

$RDEPt = C_2 + a_{2i} \sum SBI_{t-k} + a_{2i} \sum RDEP_{t-k} + a_{2i} \sum LKRSS_{t-k} + a_{2i} \sum LPDBR_{t--k} + a_{2i} \sum INF_{t--k} + \varepsilon i$

$LKRSSt = C_3 + a_{3i} \sum SBIt\text{-}k + a_{3i} \sum RDEP_{t-k} + a_{3i} \sum LKRSS_{t-k} + a_{3i} \sum LPDBR_{t--k} + a_{3i} \sum INF_{t--k} + \varepsilon i$

$LPDBRt = C_4 + a_{4i} \sum SBIt\text{-}_k + a_{4i} \sum RDEPt\text{-}k + a_{4i} \sum LKRSS_{t-k} + a_{4i} \sum LPDBR_{t--k} + a_{4i} \sum INF_{t--k} + \varepsilon i$

$INFt = C_5 + a_{5i} \sum SBI_{t-k} + a_{5i} \sum RDEP_{t-k} + a_{5i} \sum IRSS_{t-k} + a_{5i} \sum PDBR_{t--k} + a_{5i} \sum INF_{t--k} + \varepsilon i$

The VECM equation of monetary policy transmission in interest rate 2 is as follows:

$$\Delta \mathbf{X_t} = \mathbf{a_0} + \mathbf{A_1} \Delta \mathbf{X}_{\mathbf{t-k}} + \mathbf{a_2}\ \mathbf{ect} + \square_{\mathbf{t}}$$

Where: Xt = Vector 5 x1 of each variable (SBI, RDEP, LKRSS, LPDBR, and INF) a0 = Vector 5 x 1 of intercept (constant), A1 = Makx 5x1 of coefficient, a2 = vector 5 x1 of error correction model , Ect = vector 5 x1 of error term, Δ = data in first derivation, t = time (quarter), k = optimum slack based on AIC and SC.

4. RESEARCH RESULT

The results of empirical research include: data stationerity test (unit root test), optimum lag test, cointegration test, impulse response function (IRF) and decomposition variant (VD).

Table 2. Test Results of Unit Root ADF test

NO	Variable	ADF test						
		Level		1st difference		2nd difference		integration level
		t'stat	p-value	t'stat	p-value	t'stat	p-value	
1	SBI	-2.221	0.201	-3.865	0.004*	-	-	1(1'st difference)
2	RDEP	-2.473	0.127	-3.698	0.006*	-	-	1(1'st difference)
3	INF	-7.418	0.000*	-	-	-	-	0 (Level)
4	LPDBR	1.3184	0.998	-3.275	0.021*			1(1'st difference
5	LKRSS	1.3675	0.998	-9.7271	0.000*	-	-	1(1'st difference)
6	LIRSS	0.1539	0.966	-4.6960	0.0003*	-	-	1(1'st difference)
7	RKI	-1.5365	0.508	-3.7607	0.005*	-	-	1(1'st)

Source: Results of processing with Eviews

The root unit test (ADF-test) is summarized in Table 2. The ADF test results show that the data is not the same level stationer. Most data stationers at first level or first diference (1'st) are SBI rate data, private real sector consumption log (LKRSS), private real estate investment log (LIRSS), investment credit interest rate (RKI) Deposit interest rate (RDEP), LPDBR while INF data produces stationary data output at level (0).

Optimum Lag length determination

Choice of lag lengths by comparing the criteria of Akaike Information (AIC) and Schwartz Criterion (SC) from each lag test. The best VAR model is the model that has the smallest AIC and SC values.

Table 3. Output Lag order Selection Criteria channel Transmission monetary

NO	Channel Transmission monetary	signifikan*	Lag optimum
1	Channel of Interest Rate 1	LR, FPE, AIC, SC, HQ	Lag 1
2	Channel of Interest Rate 2	LR, FPE, AIC, HQ	Lag 4

Based on the optimum lag test result lag order selection criteria MTKM channel of the optimum interest rate 1 on lag 1 and the optimum interest rate 2 on lag 4 based on 5 statistical criteria, namely: LR test statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information criterion (SC) and Hannan-Quinn Information Criterion (HQ).

Johansen Cointegration Test Results

To find a set of observed variables that are cointegrated or have long-term equilibrium relationships, a cointegration test is necessary. This cointegration test is important because regression using time series data that is not stationary is likely to result in lancid regression.

Table 4. *Johansen Cointegration Trace Statistic*

Tr Channel Transmission monetary	None		At most 1		At most 2		Information
	Trace Stat	Prob	*Trace Stat*	Prob	Trace Stat	Prob	*Signifikan 5 %
Interest Rate 1	142.14	0.0000*	97.931	0.0001*	54.678	0.01*	3-cointeg
Interest Rate 2	89.06534	0.0007*	54.28187	0.0111*	24.43241	0.1828	2-cointeg

The Johansen cointegration test results (Table 3) based on the Trace Statistic number indicates that all variables of the monetary policy transmission channel are cointegrated. The channel of the Interest Rate 1 has 3 (three) cointegrations. While the channel of interest rate 2 has 2 cointegration (Johansen cointegration test result based on Trace statistics number

Impulse Response Function (IRF) channel Interest Rate 1

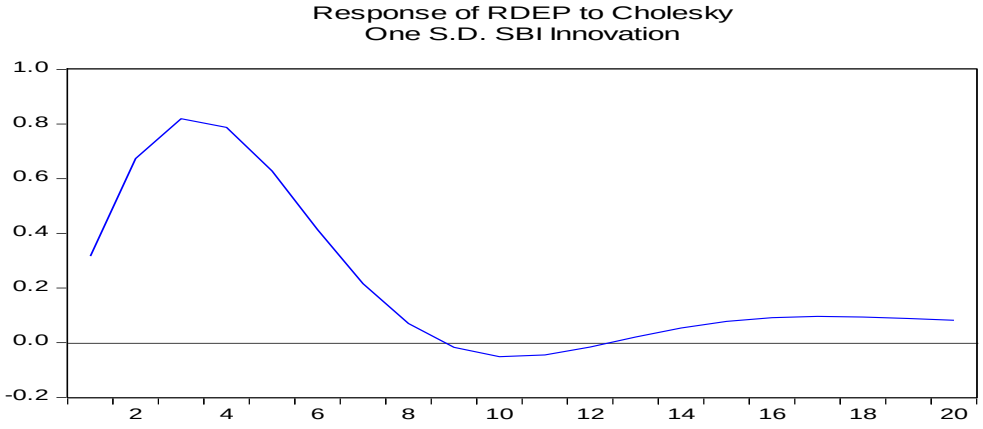

Figure 3

Impulse Response Function (IRF) channel Interest Rate 1 (Figure 3) presents the IRF of the SBI variable to the deposit interest rate (RDEP). The SBI impulse responded with the rise of RDEP shocks from the first quarter to the 3rd quarter. After the 3 rd quarter the RDEP shocks dropped to equalize in the 9th quarter, further down to the lowest point in the 10th quarter. After the 10th quarter RDEP shocks rose to the 15th quarter. The RDEP response to SBI shocks stabilized after the 15th quarter. These findings indicate that SBI variable shocks have no effect on the deposit rate (RDEP) variable after the 15th quarter.

Impulse Response Function RDEP to RKI

The Impulse Response Function (IRF) of RDEP against RKI is presented in Figure 4. The impulse of the deposit interest rate (RDEP) is responded by the increase of the investment credit interest rate in the first quarter up to the second quarter. After the 2nd quarter the RKI shocks dropped dramatically to the lowest point in the 8th quarter

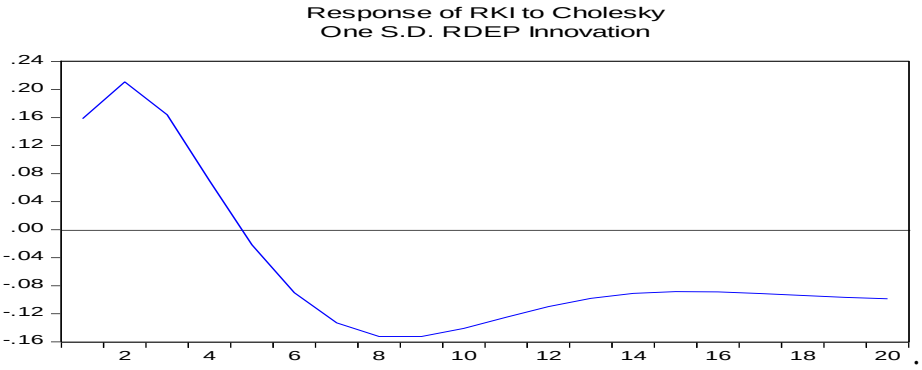

Figure 4

Furthermore, RKI shocks rose to the 14th quarter. RKI in the 14th quarter is still in negative value, and so on RKI shocks began to stabilize in the 15th quarter. These findings indicate that the deposit rate variable (RDEP) shocks have no effect on the shocks of investment rate variables after the 15th quarter.

Impulse Response Function of RKI to LIRSS

Impulse Response Function (IRF) RDEP against RKI (Figure 5). Impulse from RKI responded by IRSS with decreasing IRSS shocks from first quarter to fourth quarter. After the 4th quarter IRSS shocks rose until the 10th quarter, and further IRSS shocks stabilized after the 11th quarter. These findings indicate that the variable investment rate (RKI) investment rate shocks have no effect on real investment variable shocks (IRSS) after the 11th quarter.

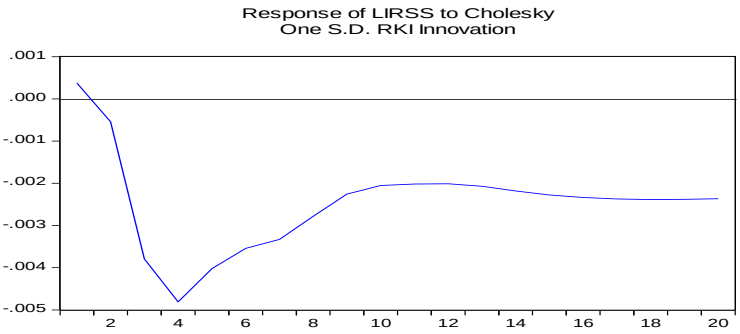

Figure 5

Impulse Response Function IRSS to LPDBR

The Impulse Response Function (IRF) channel of the Interest Rate 1 IRSS variable to PDBR is shown in Figure 6. The impulse of private sector real investment (IRSS) responded to PDBR with a drop in PDBR shocks in the first quarter to the lowest point in the 2nd quarter. After the 2nd quarter PDBR shocks increased until the 4th quarter. After the 4th quarter PDBR shocks dropped to the 6th quarter, and then rose to the 8th quarter. Shocks The PDBR began to stabilize after the 9th quarter. This finding suggests that after the 9th quarter, the impulse of private sector real investment (IRSS) has no effect on PDBR shocks.

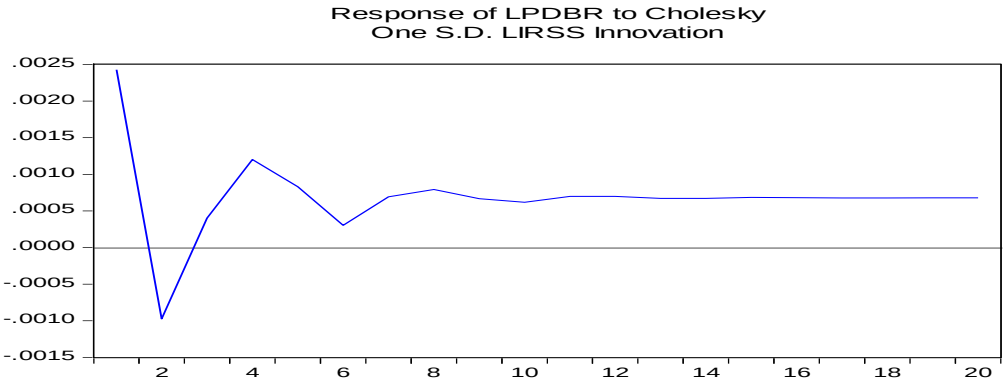

Figure 6

Impulse Response Function LPDBR to INF

The Impulse Response Function (IRF) channel of the Interest Rate 1 IRSS variable to PDBR is presented in Figure 7. The impulse of the PDBR variable is responded by the increase of inflation shock (INF) until the 2nd quarter. Furthermore, INF shocks fell until the 3rd quarter, and then rose until the 4th quarter. After the 4th quarter the INF shocks fell until the 5th quarter, and rose again until the 6th quarter.

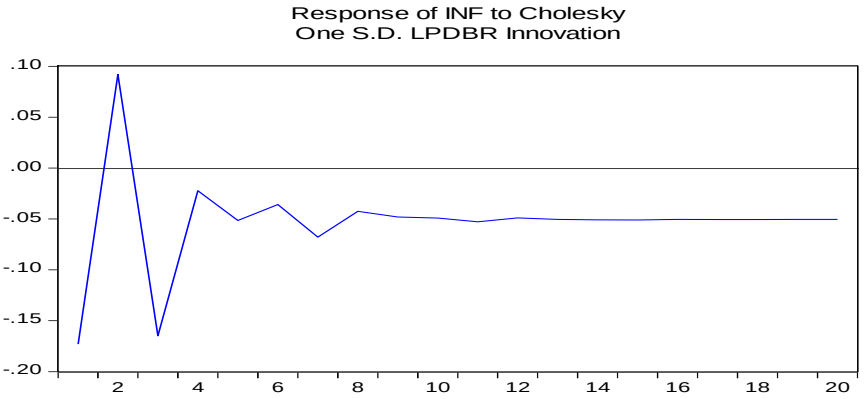

Figure 7

After the 6th quarter the INF shocks fell again until the 7th quarter. INF shocks began to stabilize after the 8th quarter, these findings indicate that the shocks of the PDBR variables are not influenced by INF in that period.

Decomposition Variant Interest Rate Channel 1

The contribution of shocks on the inflation rate variables 1 to inflation variability (INF) after 4 quarters was 8.01% (SBI), RDEP (7.28%), RKI (21.08%), LIRSS (2.068%), LPDBR (14.06%) and Own shocks 47.48%. In the 20th quarter the contribution of SBI shocks was 14.38%, RDEP shock (8.28%), RKI shocks (42.39%), LIRSS shocks (1.023%), PDBR shocks (10.65%) and own shocks (23.25%). These findings suggest that inflation (INF) fluctuations (dominance) are dominantly affected by investment credit rate shocks (SBIs), own shocks and SBI shocks. The magnitude of the effect of RKI shocks, SBI own shocks and shocks indicates the importance of these variables to inflation variability (INF) channel Interest Rate 1. This condition shows the Interest Rate Channel 1 or the channel rate of interest through investment (cost of capital) took place well in transmitting monetary policy To achieve the ultimate goal of controlling the inflation rate.

Table 5 Variants of Decomposition Interest Rate Channel 1

Variance Decomposition							
Period	S.E.	SBI	RDEP	RKI	LIRSS	LPDBR	INF
Variance of Decomposition of INF							
1	0.529722	3.851669	1.581173	9.817868	0.768983	10.65607	73.32424
4	0.685189	8.013286	7.282186	21.08276	2.068535	14.06525	47.48798
8	0.774169	11.03480	7.357862	29.59103	1.669803	12.74341	37.60309
16	0.931084	13.57203	8.082503	39.45285	1.172402	11.13994	26.58027
20	1.001025	14.38725	8.281083	42.39248	1.023652	10.65652	23.25902

The result of Variance Decomposition (VD) estimation on the interest rate channel through the effect of capital cost (interest rate 1) with SBI as indicator of monetary policy as a whole indicates that the variability of bank interest rate variables are among others: SBI interest rate, RDEP), investment credit interest rate (RKI) is dominated by SBI shocks. The amount of SBI shocks contribution shows the importance of SBI shocks variable on the growth of the SBI, RDEP, RKI interest rate on the Interest Rate through Investment Line (1). The SBI rate is appropriately used as an indicator of monetary policy to influence deposit interest rate (RDEP) and investment credit interest rate (RKI) on monetary policy transmission of interest rate channel through capital cost effect (Interest Rate 1).

Variant Decomposition on the Interest Rate channel 2

The contribution of PDBR shocks to price level variation (INF) after 4 quarters was 22.36% with own shocks 54.648%. The contribution of other variable shocks, SBI shocks of 7.72%, RDEP shock 13.084%, shock LKRSS 2.185%. In the 20th quarter SBI shocks were 9.161%, RDEP shocks 14.613%, shocks KRSS 5.033%, shocks LPDBR 22.948% and own shocks 48.243%. These findings suggest that INF variability is more dominated by own shocks, LPDBR shocks and RDEP shocks. The dominant influence of own shocks, LPDBR shocks, and RDEP shocks indicates the importance of these three variables to inflation fluctuations (INF) on the Interest Rates 2 (interest rate through consumption). The

contribution of real consumption variable shocks (KRSS) is small in its role to inflation variability (INF), this indicates the mechanism of transmission of the Interest Rate through the consumption effect (Line of Interest Rate 2) is ineffective.

Table 6. Variance Decomposition of Interest Rate Channel 2

Variance Decomposition						
Periode	S.E.	SBI	RDEP	LKRSS	LPDBR	INF
Variance of Decomposition of INF						
1	0.546073	1.262902	14.23897	0.755912	0.163492	83.57873
4	0.682923	7.720528	13.08442	2.185207	22.36179	54.64806
8	0.705627	8.427473	15.47208	2.097523	22.05758	51.94534
20	0.791586	9.161391	14.61322	5.033691	22.94859	48.24310

5. CONCLUSION

Based on the findings obtained by the analysis of Banking Interest Rates Channel 1 and Interest Rate channel 2, it is concluded that:

• The time required for the operation of monetary policy with the SBI instrument to be responded by interest rate 1 variables at time lag 1 or 1 quarter (3 months) and the interest rate 2 channel has Time lag 4. Based on the time lag it is concluded that the Interest Rate Channel 1 More effective than the Interest rate channel 2 because the time required for the work of MTKM is shorter.

• The decomposition of inflation variant of interest rate 1 is dominated by the contribution of investment rate shocks (RKI). These findings indicate the importance of investment rate (RKI) variable to inflation fluctuation, so it can be concluded that the monetary policy transmission of bank interest rate channel through investment (Interest Line 1) runs effectively during the period 2000Q1-2014Q3.

The decomposition of inflation variant of channel interest rate 2 dominated by the influence of own shocks, PDBR shocks, and RDEP shocks with relatively low real variable consumption shocks (KRSS). These findings support the conclusion that the mechanism of transmission of the Interest Rate through the consumption effect (channel of Interest Rate 2) was ineffective during the period 2000Q1-2014Q3.

Empirical Contributions

Based on the discussion of the research results obtained the empirical finding of the monetary policy transmission line that is: the monetary policy transmission on the effective interest rate through the Interest Line 1 or the Interest Rate through the Capital Cost Effect.

In terms of monetary policy, for the monetary policy formulator, Bank Indonesia, the empirical evidence from this study can be an important input in order to improve the effectiveness of the monetary policy transmission mechanism in Indonesia. From the empirical evidence of research stating that:: The monetary policy transmission lines that work dominantly toward the final target (effective transmission

path) is the capital cost effect rate channel. Bank Indonesia should prioritize its monetary policy transmission on the monetary transmission line. Monetary policy indicator in the form of SBI interest rate. Is appropriate to be applied in Indonesia. This SBI rate can be maintained as a major monetary policy instrument for Bank Indonesia to achieve the ultimate goal of monetary policy, namely the stability of the inflation rate.

Research Recommendations Next

This study uses the VECM method in analyzing the transmission of monetary policy on various transmission lines, although it has yielded findings on monetary transmission in the period 2000Q1-2014Q3 but still has limitations, the suggestions for further research are:

• This study needs to be followed up by a study that uses a different approach, the structural approach of VAR. The VAR structural approach can be used by incorporating certain retictions derived from macroeconomic theory in VAR estimation.

• This study needs to be followed up using dissaggregated (microeconomic) data so that it can be used to determine the effect of monetary policy on household sector and corporate sector on an individual level, using a structural approach VAR.

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