THE IMPACT OF MONETARY POLICY TOWARD INDONESIAN STOCK MARKET UNDER INFLATION TARGETING REGIME

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Abstract

A high volatility in stock market movement can be influenced by current news both domestic and international economic shocks, including the ongoing global financial crisis that affect Indonesian economy in particular. Based on empirical studies and theories, that monetary policy can be an effective tool in order to stabilize the stock market volatility. Monetary policy can have a significant effect on the movement in stock market. Does it really happen on Indonesian macro economy? This paper investigates the relations between monetary policy by its instruments and stock market movement. Our empirical evidence is based on before and after the adoption of Inflation Targeting Framework, including the period of Asian Crisis (1997) and the Global Financial Crisis (2008). This paper uses a Vector Error Correction Model (VECM) in order to examine the dynamic movement and changes on Indonesian Stock Market as an impact of the changes in monetary policy in terms of Inflation Targeting regime. Utilizing an Impulse Response and Variance Decomposition approach, this paper analyzes the effectiveness of monetary policy toward the stock market performance in order to achieve the stability of stock market and to develop market expectations. These objectives are beneficial to strengthen the credibility of the Central Bank as the monetary authority in terms of the implementation of Inflation Targeting Framework. Furthermore, this paper attempt to assess and evaluate the monetary policy and induce the central bank to create an optimal policy in the future.

Keywords: *inflation targeting framework, monetary policy, stock market, vector error correction, variance decomposition*

1. Introduction

Stock market has become one of the main subjects in terms of macroeconomic stability. Since the monetary policy has, an objective to achieve the price stability in terms macro economy, therefore the stance of the Central Bank whereas the monetary authority is needed to influence the stock market particularly. Movements in the stock market can have a significant impact on the macro-economy.[1] Reversely, the change in macroeconomic variables can have a significant impact as well on the movements in the stock market. These relationships will have a significant result in order to provide comprehensive information to the policy makers to respond and create optimal policy in terms of macroeconomic stabilization.

Nevertheless, it is still difficult to identify the monetary policy response to the stock market. However, based on the theory that the monetary policy can influence the stock market by its instruments, such as the interest rates, therefore, we would like to emphasize on the stock market

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[1] Study of Thorbecke (1997); Rigobon and Sack (2003); Ehrmann and Fratzscher (2004); Maysami, Howe, and Hamzah (2004)

response to the change on macroeconomic variables. These variables will represent the stance of monetary policy in terms of inflation targeting framework. The adoption of inflation targeting framework based on the objectives of the Central Bank to achieve the price and macro-economy stabilities, through setting the range of inflation target.

According to the Bank Indonesia Yearly Report[2], stated that during the Asian Crisis on 1997 to 2000, the foreign investors tend to implement only hit and run trade strategies. It means that the investors attempt to boost their gain only on a very short time. Meanwhile, the similar situation had happened on money market. This condition pushed the investors more un-sensitive regarding the change of interest rates. In terms of high country risk, the difference between domestic and international interest rates might not be the only main reasons for investors to change their portfolios. In fact, there were several arguments that investors had change their portfolio from Indonesian capital market to other countries.[3] First, there was a profit motive, regarding the high interest rate on other capital market particular on United States of America. Second, it was called flight to quality motive. The motive occurred in order to maintain their portfolio because of the downward performance on emerging market particularly. These two particular factors were indirectly became barrier to the portfolio investment and capital inflow to Indonesian financial market.

Increasingly, the central bank started to implement some policies in order to improve the performance of capital market, namely the regulation on stock pricing. However, this particular policy was un-sufficient to boost up the capital market performance. Moreover, the downturn performance of capital market remains until 2002. At the end of 2001, the Composite Index was 5.83% decreased from 416.3 to 392.0 levels. It was mainly affected by the depreciation on rupiah; the increase on Bank Indonesia rate to 17%; and the downgrade of investment rating in Indonesia, from "stable" to "negative" based on Moody's on March 2001.[4] Furthermore, these circumstances even worst when the government raised the tax policy particular on bond return to 0.003%. This policy was contra-productive in terms of improving the capital market performance as one of the financing institution.

In addition, we can analyze the stock market fluctuation in detail from the following figures.[5] There are the movements of Jakarta Composite Index (from 1990 to 2009) as well as the LQ45 index (from 1994 to 2009), given as follows:

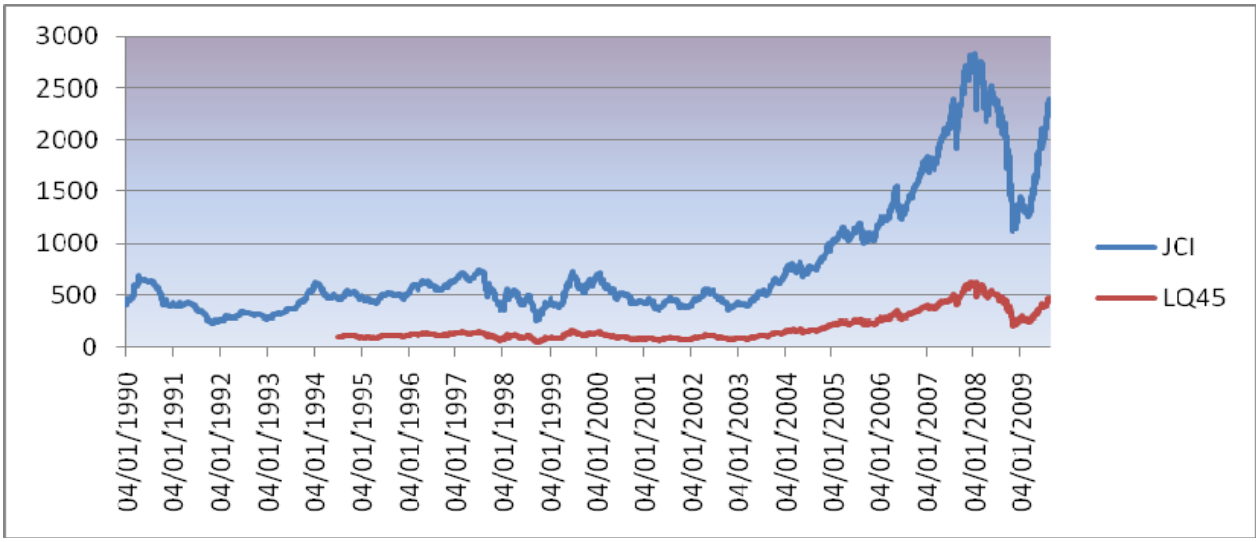
[2] Indonesian Economic Report 1997, p. 64; 1998, p.70; 1999, p.72; 2000, p.75; Macroeconomic and Monetary Condition

[3] Based on the survey of Bank Indonesia and Indonesian Capital Market and Financial Institution Supervisory Agency, 1999

[4] Based on the Financial Market Report, Economic Report on Indonesia, Bank Indonesia, 2001

[5] The main source of JCI and LQ45 taken from Bloomberg Databases, retrieved date: March 01, 2010

Figure 1
The Jakarta Composite Index (JCI) and LQ45 Index Movements



Source: Bloomberg, 2010

According to figure 1 above, we can see that the similar movement are happened on LQ45 Index as on Jakarta Composite Index (JCI). The LQ45 index is the index of forty-five stocks that most liquid and have the highest market capitalization. It means that investors also attempt to invest and re-arrange their financial portfolio on Jakarta Composite Index as well as LQ45 Index.

During 2003, there was an increase on price index, volume of trading in the stock market, bond market, and mutual funds. This was affected by the decline in the interest rate. Several factors had boosting the positive performance of Indonesian capital market.[6] There were: (1) relatively low bank interest rate, which enable the investor to gain higher profit on capital market instead of bank deposits; (2) improved foreign investors' perception on Indonesian capital market as well as the country risk and a significant difference on interest rate that cause high capital inflows to gain short-term profits; (3) relatively stable on macroeconomic indicators. This was reflected by increased Jakarta Composite Index (JCI) in response to increased stock trading both by domestic and foreign investors. The JCI closed at level 691.9 and increased up by 266.9. This increased JCI gained a profit of 62.8% compared the position at end 2002. Positive performance also occurred upon LQ45 index, which increased 59.9 to 151.9 in 2003 compared to previous year. The improved JCI and LQ45 performance was related to several international stock exchanges positive performance and relatively low bank interest rate.

The stock market performance was remained bullish on 2004.[7] The continuing trends as on 2003 pushed the composite index above the 1,000 level before year-end. The bullish domestic stock market resulted from continuously improving fundamentals, both in macro and micro contexts, as well as market optimism over the new government. The upward trend continued during 2005. However, the JCI index started to fluctuate, even still a positive gain. Internal factors were driving negative sentiment on the stock market included the upward trend in domestic interest rates in consequence to the tight bias monetary policy stance adopted to reduce inflation

[6] Based on Monetary Policy Transmission Evaluation of Bank Indonesia, Economic Report on Indonesia, 2003, p.67.

[7] Based on Stock Market Evaluation, Economic Report on Indonesia, 2004, p. 68.

and depreciation on rupiah. The other factors that bearing down on the JCI were the surge in world oil prices to almost $70 per barrel.[8] The market had negative projections on the performance the stock markets. Moreover, it also induced by the raised on the domestic interest rates regarding the tight monetary policy stance. Eventually, the fluctuation on stock market continued until year-mid on 2008, when the global financial crisis had happened. The Composite Index closed at 1,355 at the end of 2008, a drop of 50.64% compared to the previous year. At the beginning of 2008, the index was relatively impressive. It was 2,830 level which was the highest level ever recorded since the beginning of Indonesia Stock Exchange.

Furthermore, Bank Indonesia attempted to minimize the negative impact of any economic shocks that can dropped financial markets performance as well as the macro stability. Therefore, the policies of Bank Indonesia, which is represent by the Indonesian Capital Market and Financial Institution Supervisory Agency and the Indonesian Stock Exchange Board are plays an important role in limiting a deeper financial markets decline, particular on Composite Index.

According to the consequence of monetary policy stance toward the financial markets performance through the financial systems mechanisms, then we provide a brief summary of several macroeconomic performances in terms of particular indicators, as follows:

Table 1.
Selected Macreconomic Indicators[9]

Percent

Description	2003	2004	2005	2006	2007	2008
GDP Growth	4.7	5.0	5.7	5.5	6.3	6.1
CPI Inflation	5.1	6.4	17.1	6.6	6.6	11.0
Core Inflation	6.9	6.7	9.8	6.0	6.3	8.3
Average Exchange Rate (Rp/$)	8,572.0	8,940.0	9,713.0	9,167.0	9,140.0	9,241.0
SBI (1 month)/BI Rate since July 2005	8.3	7.4	12.8	9.8	8.0	8.6
Current Account/GDP	3.4	0.6	0.1	2.9	2.5	0.1

Sources: BPS-Statistic Indonesia; Bank Indonesia

In 2005, CPI inflation rose gradually to 17.1%, following the October hikes in fuel prices. The shocks in this index was primarily driven by fuel prices and other administered prices, in particular transportation tariffs. Higher inflation expectations and rupiah depreciation also raised core inflation while downward pressure from the output gap remained relatively insignificant. Against the backdrop, CPI inflation was above the determined target of 6%+/-1% for 2005. The core inflation rate was high in 2005, peaking at 9.7%, primarily attributable to high inflationary expectations and depreciating exchange rates. Higher inflationary expectations from the public were visible as Q1-2005 closely associated with the government's plan to adjust domestic fuel prices in line with global oil prices and weaker exchange rates.

The rise in the Bank Indonesia (BI) rate, that is, an anchor for the interest rate determination in Indonesia, and deposit rate was followed by a limited increase in lending rate, whereas the

[8] Based on International Economic Evaluation, Economic Report on Indonesia, 2004, p.70

[9] The basic references on setting Inflation Target under Inflation Targeting Framework, taken from Indonesian Bureau of Statistic, 2009

volume of credit allocation remained relatively high. The lending rate began to increase during October 2005 to 15.18% from 13.41% at the end of 2004. This verified that the role of banks in financing the economy remains imperative. In brief, the rise in the BI Rate has not negatively affected bank intermediation. In order to reduce inflation and restore monetary stability, Bank Indonesia tightened further its monetary policy, primarily through the implementation of a new Inflation Targeting Framework (ITF) supplemented by exchange rate stabilization packages.[10]

Eventually therefore, this study will emphasize on two basic research questions, which is based on the background that discussed earlier. The first is to examine whether the monetary policy can have a significant effect in order to achieve its objectives in terms of the inflation-targeting framework. The purpose of this particular problem is to measure the credibility of Bank Indonesia regarding the basic requirements of the inflation-targeting implementation, namely credibility, transparency, and accountability. The second is to investigate whether the monetary policy can have a significant effect on financial markets, particular on stock market. The result will be beneficial to the market players in terms of their decision-making regarding the market perception and expectation. In conclusion, the study will provide a valuable knowledge and experience based on the empirical studies and current research in terms of monetary policy and financial systems.

2. Review of related literature and studies

2.1.The Definitions and Concepts of Inflation Targeting

There are many definitions and concepts within the inflation targeting, which need to be verified before proceeding to the next section. These definitions and concepts arise from the way of conducting inflation targeting policies. Green (1996) define inflation targeting is a framework for conducting monetary policy in which decisions are guided by expectations of future inflation relative to the announced target. In inflation –targeting setup, the authorities announce a target or, more typically, a target range for future inflation. The change in the policy reaction is represent of the change in the projected inflation over one to two-year time horizon in terms of decreasing from the announced band of inflation target. Therefore, later the expected future inflation called an intermediate target as the monetary authorities used it into the monetary policy indicators. Meanwhile, Romer (2006) define that inflation targeting does not mean a single-minded focus on controlling inflation. Instead, there are three basic indicators that inflation targeting working on. First, which is becomes the main part that there is an explicit target for inflation. The target is typically quite low and usually specified as a range or in interval of a few percentage points. Second, central banks in inflation-targeting countries (inflation targeters) appear to have more weight than other central banks on conducting the inflation. Lastly, there is greater emphasis on making the central bank's policies transparent and central bankers accountable for the policies.

There are two main concepts that are use as a basic reference for this study, which are implicit vs. explicit inflation targeting and strict vs. flexible inflation targeting. The first concept is implicit vs. explicit inflation targeting. Hammour (2005) define an implicit inflation targeting implies that the monetary authority does not have to pre-announce and report publicly its inflation target. As an example on this type is the current monetary policy in the United States. The Central bank of United States (The Fed) controlling and maintain the inflation rate and other macroeconomic indicators, and then reacts at the first sign of inflation or excess demand by changing its instrument such as the interest rate upward. In other condition, explicit inflation targeting requires pre-announcement of inflation targets and reporting periodically to the public

[10] Monetary Policy Evaluation, Economic Report on Indonesia, 2005

the developments in the monetary policy and the success or the failure to achieve the targets. Therefore, explicit inflation targeting implies full accountability and transparency of monetary policy. According to this differentiation, the inflation-targeting concept used in this study is meant to be the explicit type.

The second concept that we describe is what Svensson refers to, in many papers (1997a, 1997b, and 1998) and in Rudebusch and Svensson (1998), as strict versus flexible inflation targeting. Ball (1997) describes those two types as narrow versus broad definitions respectively. First, strict inflation targeting is a single-target policy where the central bank's objective function contains only inflation. In other point of view, the flexible inflation targeting is a multi-target regime where the monetary authority includes more than inflation in its objective function, such as the real output and interest rate. The first type implies that the central bank has to set its instruments in such a way that the target is met every period. This type of policy would lead to more variability and fluctuations in the output and interest rate. Therefore, the adjustment under flexible inflation targeting is slower or gradual as compared to the strict type.

Furthermore, Romer (2006) stated that there are two main views of inflation targeting. The first is that it is merely "conservative window-dressing". In this view, the important changes in monetary policy are that the central bank has decided to aim for lower inflation than in earlier decades and to put greater emphasis on the behavior of inflation. The other features of inflation targeting, such as the formal targets, inflation reports, and so on, are of little importance. The other view is that inflation targeting matters. This view focuses on credibility, transparency, and accountability. Discussions of credibility argue that the emphasis on hitting the inflation target can affect expected inflation. This can be important in two situations. The first is when inflation targeting is adopted. Typically, this is done when inflation is well above the newly adopted target. Thus, inflation targeting may reduce expected inflation, and hence lower the output costs of the disinflation needed to get inflation down to the target. This idea is appealing and plausible. The second situation is where the disturbances move inflation away from the target. By anchoring expectations at the target level, inflation targeting can reduce the disturbance's impact on expected inflation. Indeed, there is some evidence that shocks to the price level have little influence on expected inflation under inflation targeting. Since disturbances are both positive and negative, this is not likely to have a large effect on average output. Nevertheless, it can make the economy more stable.

In many literatures, we found that inflation targeting has both several advantages and disadvantages during a certain period of research. Based on these findings, it will provide a reference as a basic argument in order to examine the effectiveness of inflation-targeting framework. Accordingly, this study will describe both advantages and disadvantages of inflation targeting taken from particular research.

The first is the advantages of inflation targeting which as a medium-term strategy for monetary policy (Mishkin, 2001). In contrast to an exchange rate peg, inflation targeting enables monetary policy to focus on domestic considerations and to respond to shocks to the domestic economy. In contrast to monetary targeting, another possible monetary policy strategy, inflation targeting has the advantage that a stable relationship between money and inflation is not critical to its success: the strategy does not depend on such a relationship, but instead uses all available information to determine the best settings for the instruments of monetary policy. Inflation targeting also has the key advantage that it is easily understood by the public and thus highly transparent.

Nevertheless, Mishkin (1999) and Bernanke (1999) discussed about the critics of inflation targeting, which have noted seven major disadvantages. First, that inflation targeting is too rigid. Second, that it allows too much discretion. Third, that it has the potential to increase output

instability. Forth, that it will lower economic growth. Fifth, that inflation targeting can only produce weak central bank accountability because inflation is hard to control and because there are long lags from the monetary policy instruments to the inflation outcome, is an especially serious one for emerging market countries. Sixth, that inflation targeting cannot prevent fiscal dominance. Lastly, that the exchange rate flexibility required by inflation targeting might cause financial instability, are also very relevant in the emerging market country context.

There are many studies discussed inflation targeting. Study of Green (1996) and Smith (2005) focused on the theory of inflation targeting and core inflation as well, and the policy implication to the economy. Green's findings are inflation targeting can be classified either as a rule or as discretionary. The literature identifies an inherent bias that on average causes inflation to exceed the socially preferred level. This bias is sometimes offered as an explanation for higher than desirable inflation rates. However, in setting the low-inflation target, an apparent inconsistency is introduced: average and expected inflation will exceed the announced inflation target. Meanwhile, Smith (2005) found that both the level of accommodation of the central bank and the inflation expectations of agents affect, which measure is core inflation. From the conditional results, there are no changes in the public's beliefs about the regimes. Hence, all regimes would be ranked equivalently. Moreover, the gain from inflation targeting lies in the fact that it makes central banks less accommodative but not in making, the public believe that the central bank is less accommodative.

Therefore, in order to deliver the outcomes of inflation targeting, such as control the inflation rate, raise output growth, lower unemployment, and increase external competitiveness, there must exists a strong institutional commitment to make price stability as the primary goal of the central bank.

2.2.The Role of the Central Bank on Inflation Targeting Framework

The Central Bank has a main role to conduct the Inflation Targeting Framework. Mishkin (2001) stated that inflation targeting is a recent monetary policy strategy that encompasses five main elements: (1) the public announcement of medium-term numerical targets for inflation; (2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated; (3) an information inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments; (4) increased transparency of the monetary policy strategy through communication with the public and the markets about the plans, objectives, and decisions of the monetary authorities; and (5) increased accountability and credibility of the central bank for attaining its inflation objectives. Nevertheless, the crucial point about inflation targeting is much more than a public announcement of numerical targets for inflation for the year ahead. There are at least three major challenges that the monetary authorities, here the central bank and government, faces: (1) building credibility; (2) reducing the level of inflation; and (3) dealing with the fiscal, financial, and external dominance (Fraga, 2003).

The adoption of inflation targeting represents an effort to enhance the credibility of the monetary authority as committed to price stability. The fact is that building credibility takes time. The central bank's policies not only have to be consistent with the inflation-targeting framework, but they also have to take into account that private agents do not fully trust that the central bank will act accordingly. Moreover, private agents have concerns about the commitment of the central bank to the target itself and to its reaction to shocks.

Another key feature of inflation targeting regimes is that the transparency of policy associated with inflation targeting has tended to make the central bank highly accountable to the public. Sustained success in the conduct of monetary policy as measured against a pre-announced

and well-defined inflation target can be instrumental in building support for an independent central bank, even in the absence of a rigidly defined and legalistic standard of performance evaluation and punishment (Mishkin, 2001).

As illustrated in Mishkin and Posen (1997), and in Bernanke (1999), inflation-targeting central banks have frequent communications with the government, and their officials take every opportunity to make public speeches on their monetary policy strategy. Inflation-targeting central banks have taken public outreach a step further that is an Inflation Report-type document to clearly present their views about the past and future performance of inflation and monetary policy. Therefore, each central bank and government in such a country that adopts inflation targeting should maintain and cooperate in effective and efficient policies.

Recent empirical studies provide evidence that independent central banks foster lower and less volatile inflation rates but do not appear to produce lower or more volatile output. Based on this evidence, some authors have concluded that central bank independence is a "free lunch" that delivers price stability without apparent real output costs. This approach is questionable given that many countries did not establish independent central banks. Some explanation rests on the existence of a credibility versus flexibility trade-off associated with the setting up of an independent central bank. Study of Lohman (1992) and Cukierman (1994) were developed models where the central bank independence originates a trade-off between the credibility gains associated with central bank independence and the flexibility costs arising from a suboptimal stabilization policy.

In terms of case study research, there are Kannan (1999); Chowdury & Siregar (2004); Fraga, Goldfajn, & Minella (2003); and Johnson (2003) that focused on the implementation of inflation targeting on many countries. Kannan (1999) describe the inflation targeting implementation in India. This study found that in India, stipulated annual variation in broad money is considered as an intermediate target under the monetary targeting framework and its act as a domestic anchor for monetary policy with feedback. In the April 1998, monetary policy a move towards indicators approach was announced, where the RBI takes into account the developments in a host of macroeconomic indicators such as money, credit, prices, etc, in the conduct of its monetary policy.

Study of Chowdury & Siregar (2004) focuses on Indonesia's monetary dilemma, which is the constraint of inflation targeting. The result stated that the essence of inflation targeting is embedded in the so-called social welfare function that includes both inflation and economic growth. When the relationship is found to be positive in the short run or at the moderate rate of inflation, the society has to weigh the cost of low inflation vis-à-vis cost of lost output. In the context of Indonesian transition, one has to evaluate the risk of a prolonged recession for democratic consolidation and social conflict. It is affected by the danger of higher inflation and its likely negative effect on output.

In addition, study of Fraga, Goldfajn, & Minella (2003) found that inflation targeting in emerging market economies has been relatively successful but has proven to be challenging. The volatility of output, inflation, the interest rate, and the exchange rate has been higher than in developed countries. The process of building credibility, the necessity of reducing inflation levels, the dominance issues, and the larger shocks have all played an important role. Meanwhile, Johnson (2003) stated it is a challenging task to analyze the conditional effect of inflation targets on the level of expected inflation. Using the 12-month period after inflation target were announced and 12-month period post-target period for forecasting, in four of five countries, there is evidence that inflation targets coincide with a reduction in expected inflation not explained by information known when forecasts were made. In New Zealand and Sweden, the reduction in expected inflation is immediate. In Australia and Canada, the effect is smaller and slower to develop. In the United Kingdom, inflation targets appear to have little impact.

2.3.Monetary Policy Implication from Inflation Targeting

The single objective of Indonesian monetary policy is to maintain the stability in the rupiah. It means that Bank Indonesia should control the inflation rate, whereas the representation of the value of rupiah in terms of goods and services in consumption activities. The other implication is to maintain the stability in the foreign exchange in terms of rupiah. Therefore, in order to influencing economic activity, Bank Indonesia sets a policy rate known as the Bank Indonesia (BI) Rate, as the primary monetary instrument. However, the transmission of BI Rate decisions to achievement of the inflation target operates through highly complex channels and is subject to time lag. It is called as the monetary policy transmission mechanism. In terms of the framework, it will discuss specifically on third chapter (research framework). This mechanism reflects the actions taken by Bank Indonesia through adjustments in monetary instruments and operational target with effect on a range of economic and financial variables before ultimately influencing inflation as the final objective. This mechanism operates through interaction between the central bank, the banking system and financial sector and the real sector. Changes in the BI Rate influence inflation through various channels, among others the interest rate channel, credit channel, exchange rate channel, asset price channel and expectations channel. Each of these channels will discuss further on third chapter (the research framework).

The monetary policy transmission mechanism works with a time lag. The time lag may vary, depending on the specific channel. The exchange rate channel normally operates faster, given that changes in interest rates have rapid effect on the exchange rate. Conditions in the financial and banking sector are also heavily influenced by the speed of monetary policy transmission. If banks see that the economy faces considerable risk, the bank response to downward movement in the BI Rate will usually be very slow. Furthermore, if banks are undergoing consolidation to improve their capital position, reductions in lending rates and more vigorous credit demand will not necessarily engender an increased lending response. On the demand side, the public may not necessarily respond to lower bank lending rates with increased credit demand if the economic outlook is bleak. In conclusion, the condition of the financial sector, the banking system and the real sector plays a crucial role in the effectiveness or otherwise of the monetary policy transmission process.

2.4.The Role of Financial Markets in the Economy

- **The Theory of Efficient Capital Markets**

John Muth developed an alternative theory of expectation, called rational expectations, which can be stated as follows: Expectations will be identical to optimal forecasts (the best guess of the future) using all available information (Mishkin & Eakins, 2000). Rational expectations theory makes sense because it is costly for people not to have the best forecast of the future. The theory has two important implications: (a) If there is a change in the way a variable moves, there will be a change in the way a variable are formed, too, and (b) the forecast errors of expectations are unpredictable.

While monetary economists were developing the theory of rational expectations, financial economists were developing a parallel theory of expectation formation in financial markets. Efficient market theory is the application of rational expectations to the pricing of securities in financial markets. Current security prices will fully reflect all available information because in an efficient market, all unexploited profit opportunities are eliminated. However, the evidence on efficient markets theory such as market overreaction, excessive volatility on stock prices, and mean reversion condition suggests that the theory may not always be entirely correct. The evidence seems to suggest that efficient markets theory may be a reasonable starting point for

evaluating behavior in financial markets but may not be generalizable to all behavior in financial markets. Capital Market plays an important role in the economy of a country because it serves two functions all at once. First, Capital Market serves as an alternative for a company's capital resources. The capital gained from the public offering can be used for the company's business development, expansion, and so on. Second, Capital Market serves as an alternative for public investment. People could invest their money according to their preferred returns and risk characteristics of each instrument (Indonesian Stock Exchange Report, 2009). Furthermore, this study will optimize the efficient market theory and its rationale in order to analyze the Indonesian Stock Market performance as an impact of the changes on monetary policy.

Some empirical studies focus on the relations between monetary policy and financial markets particular on stock market. Lee (1992) investigates causal relations and dynamic interactions among assets returns, real activity, and inflation in the postwar United States. Major findings are (1) stock returns appear Granger-causally prior and help explain real activity; (2) stock returns explain little variation in inflation, although interest rates explain a substantial fraction of the variation in inflation; and (3) inflation explains little variation in real activity. All variables were estimated using VAR approach. Based on these findings, many researchers were develop and construct new research and studies in terms of financial markets. Particular on monetary policy effect toward the financial market, there are Thorbecke (1997), Rigobon and Sack (2003), and Gupta (2006). Thorbecke (1997) examining on how stock return data respond to monetary policy shocks. The evidence states that monetary policy exerts large effects on ex-ante and ex-post stock returns. Furthermore, positive monetary shocks increase stock returns indicates that expansionary monetary policy exerts real effects by increasing future cash flows are capitalized. Similarly, Rigobon and Sack (2003) investigates the relations between monetary policy and financial market. In addition, they believe that movements in the stock market can have a significant impact on the macro-economy and are therefore likely to be an important factor in the determination of monetary policy. The results suggest that stock market movements have a significant impact on short-terms interest rates, driving them in the same direction as the change in stock prices. Their findings are consistent with some rough calculation, hypotheses, and empirical studies. Meanwhile, Gupta (2006) found that once the threshold level of financial sector has been achieved, a tight monetary policy is likely to be growth enhancing at moderate levels of financial sector development and growth under the inflation-targeting framework.

Granger (1986) and Johansen and Juselius (1990) proposed to determine the existence of long-term equilibrium among selected variables through co integration analysis, a preferred approach to examining the economic variables-stock market relationship. A set of time-series variables are co integrated if they are have same order and a linear combination is stationary. This linear combination shows that they have a long-term relationship between the variables. The main advantage of co integration analysis is that through an error correction model (ECM), the dynamic co-movement among variables and the adjustment process toward long-term equilibrium can be examined (Maysami, 2004).

Mukherjee and Naka (1995) applied VECM to analyze the relationship between Japanese Stock Market and exchange rate, inflation, money supply, real economic activity, long-term government bond rate, and call money rate. They concluded that a co integrating relation existed and that stock prices contributed to this relation. Maysami and Koh (2000) applied similar relationship in Singapore. Meanwhile, Maysami and Sims (2002, 2001a, 2001b) employed the Error-Correction Modelling technique to examine the relationship between macroeconomic variables and stock returns in Hong Kong and Singapore (Maysami and Sim, 2002b), Malaysia and Thailand (Maysami and Sim, 2001a), and Japan and Korea (Maysami and Sim, 2001b). Similarly, Omran (2003) utilized VECM on examining the impact of real interest rates as a key

factor in the performance of the Egyptian stock market. Vuyyuri (2005) used similar methodology to investigate the co integrating relationship and causality between the financial and the real sectors of the Indian economy using monthly observation from 1992 to 2002. Therefore, this study will extend the literatures through utilizing Johansen's (1988) VECM to examine the long-run equilibrium relationship between monetary variables and stock market indices particularly.

Furthermore, we would like to emphasize on the research framework including the theoretical and conceptual framework. Based on the framework, then the study will develop a research hypotheses which as the basic tools in order to examine the research objectives.

3. Research hypotheses

The research model and hypotheses that are use in this paper are based on the study of Rigobon and Sack (2003). The first objective is to examine the effect of monetary policy in order to achieve the monetary goals. Hence, the proxies are the Bank Indonesia (BI) Rate and Money Market Rate, where as the representation of monetary policy. Meanwhile, the monetary goals represent by Inflation Rate, Output Growth, and Exchange Rate. We hypothesize that there is a significant effect of monetary instruments toward the monetary goals. The main reason is that the credibility and the effectiveness of these particular monetary instruments are mainly determined through the achievement of monetary objectives, namely price stability and economic growth. Therefore, we expect that the monetary instruments can be effectively achieving its objectives.

Accordingly, the second objective is to analyze the impact of monetary policy toward Indonesian Stock Market. The proxies for monetary policy are similar to the first research question. There are Bank Indonesia (BI) Rate and Money Market Rate. On stock market side, the paper utilizes the Jakarta Composite Index (JCI). We hypothesize that there is a significant effect of monetary instruments toward the financial market performance particular on stock market. The main reason is that the effectiveness of these particular monetary instruments toward the macroeconomic stabilization, which are price stability and economic growth, also determined through the financial systems channels. Based on the monetary policy transmission mechanisms, then the study expect that the monetary instruments can be effectively enhancing the financial stability through the stock market performance.

In order to simplify the models, we do not explicitly write down the four lags that are used in these particular models. According to empirical studies, Rigobon and Sack (2003) utilize five lags in terms of daily databases, Torbecke (1997) and Christiano (1994) used six lags in terms of monthly databases. Based on the Bank Indonesia decision process making, the inflation targeting board are revising new policy in quarterly. Nevertheless, in order to maintain the flexibility, the board will construct new policies depends on the significant changes on markets. Therefore, at the first hypothesis, this study will optimize four lags in terms of examining and evaluating the time lags of any policy adjustment. However, the results will provide the time lags suggestion for every research model in this study. The following are the research models as we stated on above.

$$JCI_t = \alpha BI_t + \beta ER_t + \gamma INFL_t + \delta MM_t + \theta Q_t + \varepsilon_{1t} \quad (1)$$

$$BI_t = \vartheta JCI_t + \mu ER_t + \pi INFL_t + \varphi MM_t + \rho Q_t + \varepsilon_{1t} \quad (2)$$

Where, $INFL_t$ is the Inflation Rate on time t; Q_t is the Output Growth at time t; ER_t is the Exchange Rate at time t; BI_{1t} is the Bank Indonesia Rate at time t; MM_t is the Money Market Rate at time t; JCI_t is the Jakarta Composite Index at time t; and ε_{1t} is the error term.

4. Research methodology

This paper utilize database in quarterly, which is from Q1:1990 to Q3:2009. The data mainly as a secondary data and collected from International Financial Statistic (IFS)-IMF, CEIC Database and Bank Indonesia as well. The variables that are used in this paper are Gross Domestic Product (GDP) Growth, Bank Indonesia (BI) Rate, Exchange Rate, Inflation Rate, Money Market Rate, and Jakarta Composite Index (JCI). Nevertheless, in order to get additional data to sharpen the analysis, this paper also optimizes the Central Bank Annual Reports, The IMF Reports, World Economic Outlook Database by IMF, and other sources of data.

- **Vector Autoregression (VAR) Approach**

Stock & Watson (2001) define a univariate autoregression is a single equation, single variable linear model in which the current value of a variable is explained by its own lagged values. This is just a multiple time-series generalization of the Autoregressive (AR) model. The VAR model can be estimate by using the Ordinary Least Square method (Maddala, 2000). The uses of Vector Autoregressive Model are forecasting, causality analysis, impulse response analysis, forecast error variance decomposition and policy analysis (Lutkepohl, 2003).

- **Impulse Response Analysis**

Impulse responses trace out the response of current and future values of each of the variables to a one-unit increase in the current value of one of the VAR errors, assuming that this error returns to zero in subsequent periods and that all others errors are equal to zero. The implied thought experiment of changing one error while holding others constant makes most sense when the errors are uncorrelated across equations, so impulse responses are typically calculated for recursive and structural VARs (Stock & Watson, 2001).

- **Variance Decomposition**

In practice, forecast error variance decompositions are also popular tools for interpreting VAR models. Stock & Watson (2001) define forecast error decomposition is the percentage of the variance of the error made in forecasting a variable due to a specific shock at a given horizon. Thus, the forecast error decomposition is like a partial R^2 for the forecast error, by forecast horizon. According to Enders (2004), the forecast error variance decomposition tells us the proportion of the movements in a sequence due to its "own" shocks versus shocks to the other variable. The impulse analysis and variance decompositions can be useful tools to examine the relationships among economic variables. Therefore, we would like to apply this approach to sharpen our analysis. Recently, study of Lutkepohl also confirmed that VAR model is useful to do the forecasting, causality analysis, impulse response analysis, and policy analysis.

5. Results and analysis

According to the Unit Root test using the Augmented Dickey-Fuller (ADF) test, the result are some variables are stationary at first difference or I(1). Therefore, we adopt the Vector Error

Correction (VEC) Model instead of VAR model. The following are brief summary of unit root test by using ADF test, given as follows:

Table 2
Unit Root Test Summary

	LEVEL	FIRST DIFFERENCE
Ln BI	-1.326869 (5) *[0.6130]*	-6.048195 (4) *[0.0000]*
Ln ER	-1.247110 (3) *[0.6499]*	-5.658898 (2) *[0.0000]*
Ln INFL	-6.028556 (3) *[0.0000]*	-3.387394 (3) *[0.0148]*
LN JCI	-0.399059 (0) *[0.9034]*	-8.469266 (0) *[0.0000]*
Ln MM	-1.703046 (0) *[-0.4258]*	-7.394779 (0) *[0.0000]*
Ln Q	-9.217619 (0) *[0.0000]*	-4.754084 (10) *[0.0004]*

The number without the parenthesis is the test statistic to be compared with McKinnon one sided p-values following by the optimal lag(s) of the data at first difference level chosen by SIC criterion which is written on the same line. The value in the parenthesis on the second line is the probability. The result in the table 1 shows that most of the variables are stationary at the first difference as the null hypotheses have been rejected except inflation and output growth that already stationary at level. The non-stationary requires the co integration to be the method.

In order to run the co integration method, we should take the appropriate lags in our model based on the Schwarz criterion, which is the lowest is the better result for lags. It will automatically result from Eviews program when we tests the ADF unit root test. Furthermore, in vector error correction model, we can examine the long run relationship between variables. If there is a long run relations, it will be shows the co integrating relations.

According to table 1 (Appendix), we can see that from the co integration summary result, there is one model that most appropriate in terms of constructing the VEC model, which is assumption four (the stars). The linier with intercept and trend will be our basic model. Then, we run again the Johansen Co integration by choosing the forth assumption and the result are given through Table 2 in Appendix. As in the theory, in order to know if a VEC is appropriate, a cointegration test has to be conducted. VEC model is appropriate in our estimation if there is at least one co integrating equation in the model. From the result on Table 2, Trace and Maximum Eigenvalues confirm the presence of the cointegration by having the rank equal to one and the SIC value is lowest at the type linier with intercept and trend. The result also confirms not rejecting the null hypothesis of the presence of the cointegration as the Trace and Maximum Eigenvalue are lower than the 0.05 critical values. There are three cointegrating equation in the model. It means that the VEC is significantly appropriate in terms of our estimation model.

Furthermore, the result of Pairwise Granger Causality Test, we can determine that some variables are have a causally relations to other variables. The following are the results under the 95% confidence level. There are the exchange rate significantly affecting the BI rate; the causally relations between inflation and BI rate; causally relation between money market rate and BI rate; the BI rate significantly affecting JCI; causally relations between money market rate and exchange rate as well as the output growth and money market rate; also the JCI significantly affecting the exchange rate. Under the 90% confidence level, the output growth has a causally relations to BI rate as well as the money market rate and inflation; inflation significantly affecting JCI; also the exchange rate affecting money market rate. The exchange rate is significantly affecting JCI under 99% confidence levels.

The result confirms that monetary policy in terms BI rate as well as the money market rate are significantly affecting the JCI through the financial system transmission mechanisms. In terms of inflation targeting regime, the central bank plays a role of controlling the inflation target, since it has a significant impact as well to the stock market.

According to the Impulse Responses results (Figure 2) and Table 4 (Appendix), we can examine that most of the macroeconomic variables that are used in this paper are have the common direction or responses to the change on each variables. The BI rate, the exchange rate, JCI and money market rate have a similar direction (positive) to response in terms of the change in economy (the economic shocks) at most condition. Meanwhile, the output growth and inflation have a negative direction to response because of the economic change/shocks.

Figure 2
Impulse Responses

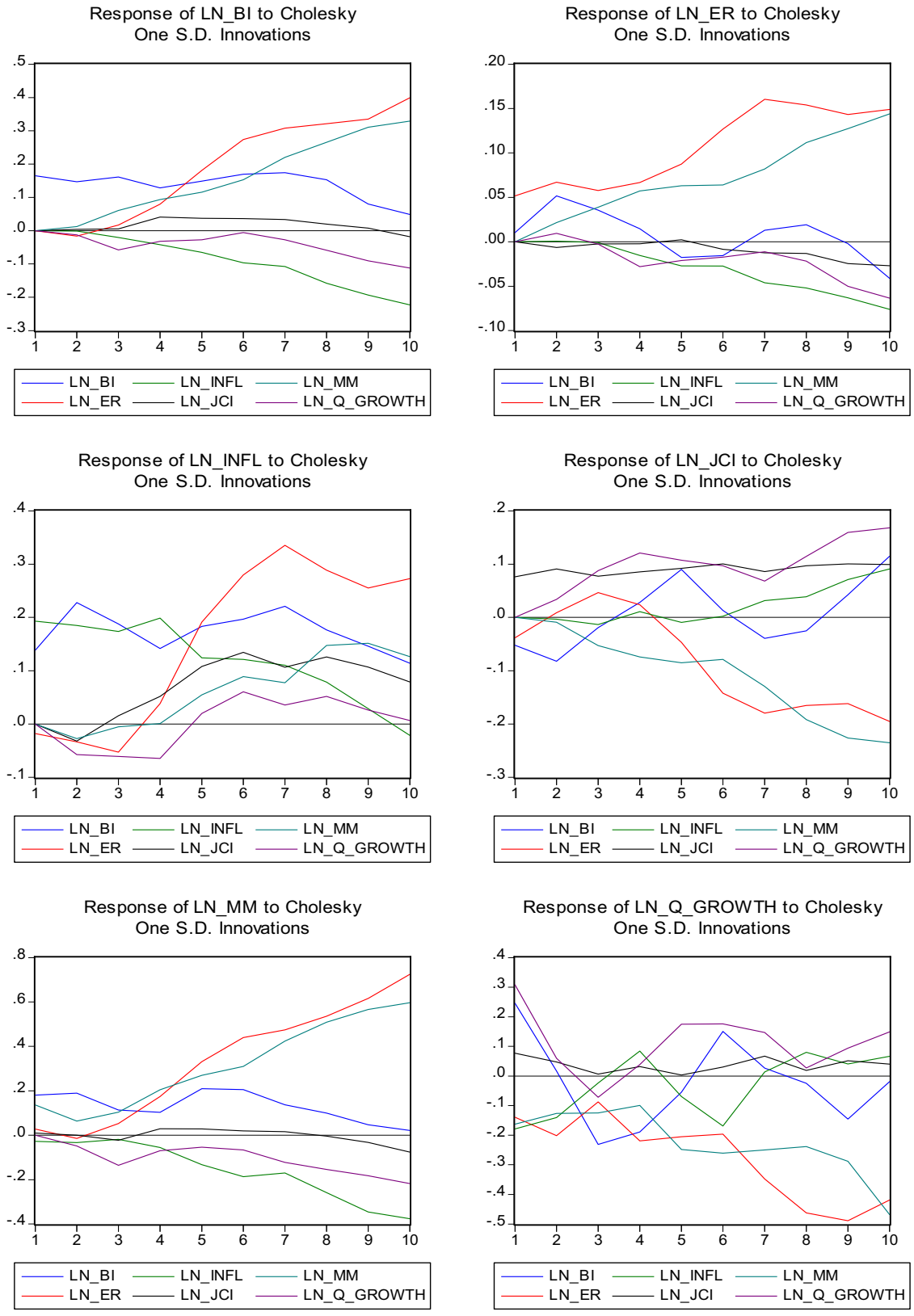
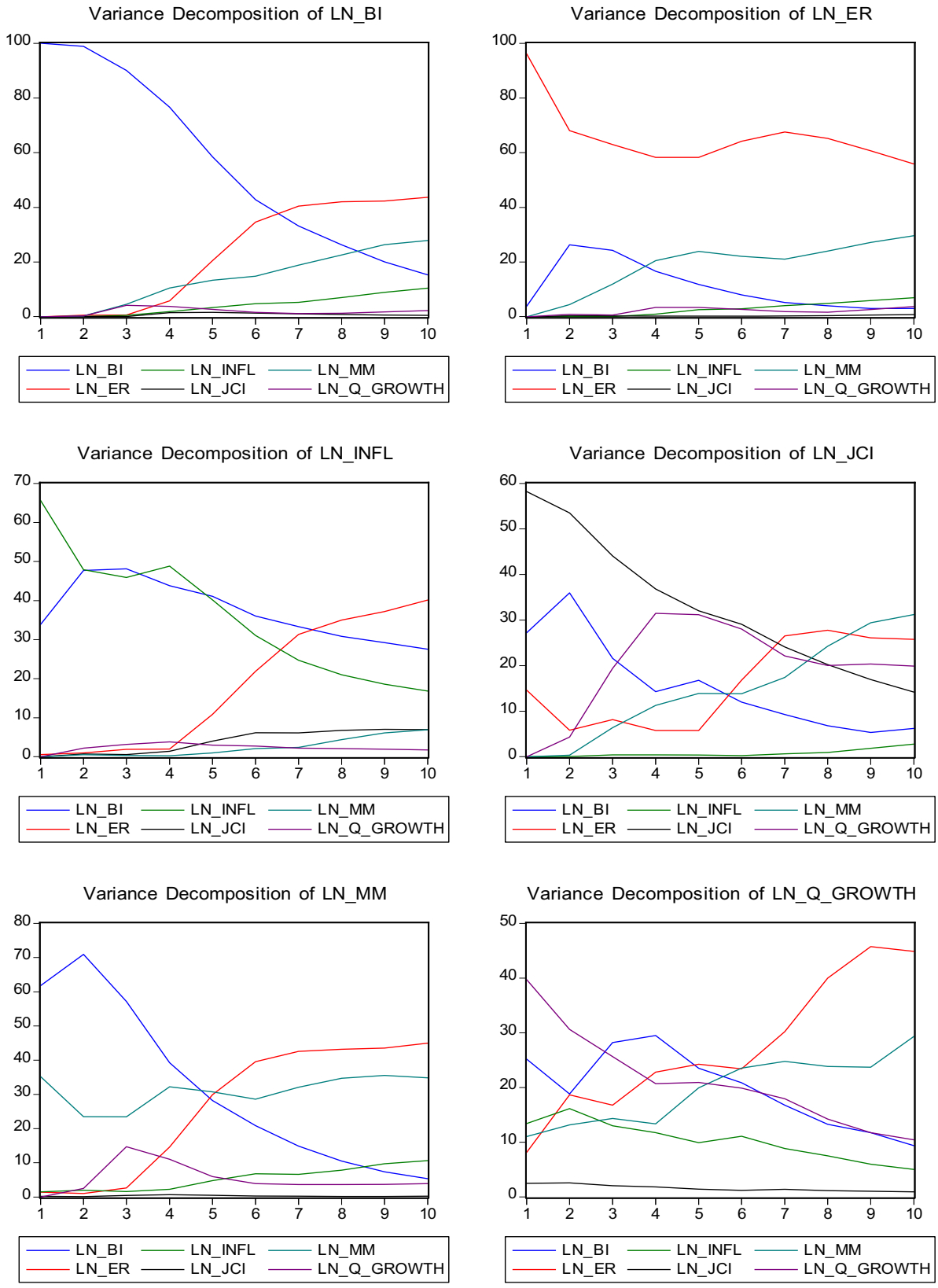


Figure 3
Variance Decomposition



Increasingly, from the variance decomposition results (Figure 3) and Table 5 (Appendix), we can investigates that BI rate has most significant influence to the stock market in particular. BI rate has 60% to almost 100% impact on affecting the stock market as well as the other macroeconomic indicators. The exchange rate has 50% to 80 % influence to the stock market performance. The remains are the inflation rate, which has 40% to 70% impact to the stock market. Based on these results, we can determine that the monetary policy has significant effect on the stock market particularly, as well as the macroeconomic stability. In conclusion, the monetary policy is significantly effective to achieve its goals that are the price stability as well as the financial system stability through the stability performance of stock market.

Conclusions and recommendations

Based on the research findings, we conclude that under the inflation-targeting regime, Bank Indonesia significantly has high influence to the macroeconomic stability. Through the monetary policy transmission mechanisms, Bank Indonesia effectively utilizes all the monetary instruments in order to achieve their objectives that are price stability and economic growth. The stance of monetary policy also has a significant impact to the financial system stability. This paper found that the Indonesian stock market are significantly affecting by the monetary policy stance through its instruments such as the Bank Indonesia rate as the single instrument in terms of inflation-targeting framework as well as the money market rate.

Therefore, this paper would like to recommend to Bank Indonesia as the monetary authority to improve the efficiency and effectiveness of the monetary policy particular on the financial system. The expected result from the policy is to control and boost up the foreign investment through stock market as well as the price stability and economic growth achievement.

APPENDIX

Table 1
Co-integration Summary

Series: LN_BI LN_ER LN_INFL LN_JCI LN_MM LN_Q_GROWTH
Lags interval: 1 to 4

Selected (0.05 level*) Number of Cointegrating Relations by Model

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	3	2	2	3	3
Max-Eig	3	2	2	3	3

*Critical values based on MacKinnon-Haug-Michelis (1999)

Information Criteria by Rank and Model

Data Trend:	None	None	Linear	Linear	Quadratic
Rank or No. of CEs	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Log Likelihood by Rank (rows) and Model (columns)					
0	242.3670	242.3670	251.0767	251.0767	252.5785
1	275.5736	278.6556	287.3106	292.1720	292.9193
2	300.8015	304.2956	311.4135	316.8723	317.6191
3	314.3332	318.1024	323.1296	336.3877	337.1010
4	320.2289	325.7383	329.2583	347.6872	348.3918
5	321.0073	329.5027	329.7961	353.6467	353.7617
6	321.0090	329.8138	329.8138	354.1598	354.1598
Akaike Information Criteria by Rank (rows) and Model (columns)					
0	-4.098624	-4.098624	-4.211529	-4.211529	-4.024102
1	-4.982232	-5.068983	-5.221276	-5.382167	-5.204969
2	-5.533397	-5.595649	-5.725561	-5.869677	-5.734131
3	-5.597218	-5.629265	-5.713734	-6.141155*	-6.045875
4	-5.342870	-5.405761	-5.469094	-6.070299	-6.016326
5	-4.875303	-5.020945	-4.991504	-5.776945	-5.740069
6	-4.375375	-4.492240	-4.492240	-5.256657	-5.256657
Schwarz Criteria by Rank (rows) and Model (columns)					
0	1.514979	1.514979	1.635974	1.635974	2.057301

1	1.099171	1.051403	1.094028	0.972120*	1.344234
2	1.015806	1.031521	1.057543	0.991393	1.282873
3	1.419786	1.504689	1.537170	1.226698	1.438929
4	2.141934	2.234977	2.249610	1.804338	1.936278
5	3.077302	3.126576	3.195000	2.604476	2.680335
6	4.045029	4.162065	4.162065	3.631548	3.631548

Table 2
Co-integration Test

Trend assumption: Linear deterministic trend (restricted)
Series: LN_BI LN_ER LN_INFL LN_JCI LN_MM LN_Q_GROWTH
Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.819551	206.1661	117.7082	0.0000
At most 1 *	0.642699	123.9755	88.80380	0.0000
At most 2 *	0.556539	74.57501	63.87610	0.0049

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.819551	82.19062	44.49720	0.0000
At most 1 *	0.642699	49.40050	38.33101	0.0019
At most 2 *	0.556539	39.03096	32.11832	0.0061

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH	@TREND(2)
10.35325	-9.049707	3.149989	-9.093080	-8.622210	4.829329	0.440746
-22.66537	5.961232	10.05386	3.726592	12.55172	-0.194099	-0.307688
45.52114	-20.84330	-3.821325	-9.786950	-33.35832	-9.164140	0.932197
13.70967	6.218039	-2.876248	2.305123	-12.74163	-2.540873	-0.249530
-4.158835	-3.010891	-4.367122	-2.363666	-0.087369	-2.359213	0.139923
21.56337	-1.997966	-1.211270	0.187089	-17.28400	3.087290	-0.047369

Unrestricted Adjustment Coefficients (alpha):

D(LN_BI)	-0.034588	0.004683	-0.031182	0.003658	0.045395	0.002209
D(LN_ER)	0.013699	-0.013940	0.005190	-0.012637	0.008347	1.88E-05
D(LN_INFL)	-0.053215	-0.075391	-0.046212	0.049580	0.033444	-0.002540
D(LN_JCI)	0.052760	0.017789	0.011061	0.026492	-0.013210	0.002262
D(LN_MM)	-0.092324	-0.016737	-0.011116	-0.011810	0.046285	0.014693
D(LN_Q_GROWTH)	-0.178801	0.145686	0.092336	0.046959	0.092830	-0.010421

1 Cointegrating Equation(s):	Log likelihood	292.1720

Normalized cointegrating coefficients (standard error in parentheses)

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH	@TREND(2)
1.000000	-0.874093	0.304251	-0.878283	-0.832802	0.466455	0.042571
	(0.14779)	(0.10058)	(0.10143)	(0.06077)	(0.09594)	(0.00710)

Adjustment coefficients (standard error in parentheses)

D(LN_BI)	-0.358098
	(0.23858)
D(LN_ER)	0.141827
	(0.07434)
D(LN_INFL)	-0.550943
	(0.35070)
D(LN_JCI)	0.546236
	(0.14355)
D(LN_MM)	-0.955851
	(0.33371)

D(LN_Q_GROWTH)	-1.851169
	(0.71723)

2 Cointegrating Equation(s): Log likelihood 316.8723

Normalized cointegrating coefficients (standard error in parentheses)

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH	@TREND(2)
1.000000	0.000000	-0.765444	0.142830	-0.433694	-0.188513	0.001096
		(0.11016)	(0.05293)	(0.06751)	(0.10631)	(0.00156)
0.000000	1.000000	-1.223777	1.168197	0.456597	-0.749312	-0.047450
		(0.19819)	(0.09523)	(0.12146)	(0.19127)	(0.00281)

Adjustment coefficients (standard error in parentheses)

D(LN_BI)	-0.464237	0.340926
	(0.57367)	(0.24949)
D(LN_ER)	0.457791	-0.207072
	(0.16288)	(0.07083)
D(LN_INFL)	1.157822	0.032152
	(0.74297)	(0.32311)
D(LN_JCI)	0.143041	-0.371417
	(0.33233)	(0.14453)
D(LN_MM)	-0.576502	0.735730
	(0.79822)	(0.34714)
D(LN_Q_GROWTH)	-5.153206	2.486565
	(1.54298)	(0.67103)

3 Cointegrating Equation(s): Log likelihood 336.3877

Normalized cointegrating coefficients (standard error in parentheses)

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH	@TREND(2)
1.000000	0.000000	0.000000	1.261547	-1.002617	-2.437087	-0.013710
			(0.19710)	(0.24524)	(0.38641)	(0.00553)
0.000000	1.000000	0.000000	2.956778	-0.452985	-4.344287	-0.071121
			(0.35327)	(0.43957)	(0.69258)	(0.00992)
0.000000	0.000000	1.000000	1.461525	-0.743258	-2.937605	-0.019343
			(0.28159)	(0.35038)	(0.55207)	(0.00791)

Adjustment coefficients (standard error in parentheses)

D(LN_BI)	-1.883659	0.990854	0.057284
	(1.14385)	(0.51781)	(0.24703)
D(LN_ER)	0.694057	-0.315254	-0.116837
	(0.33431)	(0.15134)	(0.07220)
D(LN_INFL)	-0.945793	0.995360	-0.749006
	(1.46041)	(0.66111)	(0.31539)
D(LN_JCI)	0.646547	-0.601963	0.302774
	(0.68121)	(0.30837)	(0.14712)
D(LN_MM)	-1.082534	0.967433	-0.416610
	(1.65784)	(0.75048)	(0.35803)
D(LN_Q_GRO WTH)	-0.949979	0.561984	0.548646
	(3.04674)	(1.37921)	(0.65798)

4 Cointegrating Equation(s):	Log likelihood	347.6872

Normalized cointegrating coefficients (standard error in parentheses)

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GRO WTH	@TREND(2)
1.000000	0.000000	0.000000	0.000000	-0.929843	-0.299282	0.000346
				(0.07690)	(0.10646)	(0.00146)
0.000000	1.000000	0.000000	0.000000	-0.282421	0.666241	-0.038177
				(0.18641)	(0.25805)	(0.00354)
0.000000	0.000000	1.000000	0.000000	-0.658949	-0.460918	-0.003059
				(0.15275)	(0.21145)	(0.00290)
0.000000	0.000000	0.000000	1.000000	-0.057686	-1.694590	-0.011142
				(0.18329)	(0.25372)	(0.00348)

Adjustment coefficients (standard error in parentheses)

D(LN_BI)	-1.833505	1.013602	0.046762	0.645568
	(1.18236)	(0.53530)	(0.25488)	(0.30970)
D(LN_ER)	0.520804	-0.393833	-0.080489	-0.256442
	(0.31409)	(0.14220)	(0.06771)	(0.08227)
D(LN_INFL)	-0.266070	1.303649	-0.891609	0.769493
	(1.39991)	(0.63380)	(0.30177)	(0.36669)
D(LN_JCI)	1.009740	-0.437237	0.226578	-0.460644
	(0.63603)	(0.28796)	(0.13711)	(0.16660)

D(LN_MM)	-1.244442	0.894000	-0.382643	0.858708
	(1.70938)	(0.77391)	(0.36848)	(0.44775)
D(LN_Q_GROWTH)	-0.306186	0.853978	0.413580	1.373326
	(3.10511)	(1.40581)	(0.66936)	(0.81334)

5 Cointegrating Equation(s):	Log likelihood	353.6467

Normalized cointegrating coefficients (standard error in parentheses)

LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH	@TREND(2)
1.000000	0.000000	0.000000	0.000000	0.000000	0.606467	0.001925
					(0.39345)	(0.00545)
0.000000	1.000000	0.000000	0.000000	0.000000	0.941344	-0.037697
					(0.24672)	(0.00342)
0.000000	0.000000	1.000000	0.000000	0.000000	0.180956	-0.001940
					(0.27872)	(0.00386)
0.000000	0.000000	0.000000	1.000000	0.000000	-1.638399	-0.011044
					(0.24023)	(0.00333)
0.000000	0.000000	0.000000	0.000000	1.000000	0.974088	0.001698
					(0.46098)	(0.00638)

Adjustment coefficients (standard error in parentheses)

D(LN_BI)	-2.022295	0.876922	-0.151483	0.538269	1.346590
	(1.06531)	(0.48454)	(0.24472)	(0.28211)	(0.76818)
D(LN_ER)	0.486089	-0.418966	-0.116942	-0.276172	-0.305937
	(0.30011)	(0.13650)	(0.06894)	(0.07947)	(0.21640)
D(LN_INFL)	-0.405158	1.202953	-1.037663	0.690443	0.419439
	(1.35061)	(0.61431)	(0.31026)	(0.35767)	(0.97391)
D(LN_JCI)	1.064679	-0.397462	0.284269	-0.429419	-0.936991
	(0.61965)	(0.28184)	(0.14235)	(0.16409)	(0.44682)
D(LN_MM)	-1.436935	0.754639	-0.584776	0.749305	1.103214
	(1.63012)	(0.74144)	(0.37447)	(0.43169)	(1.17545)
D(LN_Q_GROWTH)	-0.692251	0.574476	0.008178	1.153906	-0.316336
	(2.92648)	(1.33108)	(0.67227)	(0.77499)	(2.11024)

Table 3
Vector Error Correction Estimates

Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LN_BI(-1)	1.000000
LN_ER(-1)	-0.058036 (0.03421) [-1.69654]
LN_INFL(-1)	-0.609794 (0.11748) [-5.19058]
LN_JCI(-1)	0.400955 (0.04936) [8.12346]
LN_MM(-1)	-0.550995 (0.07049) [-7.81609]
LN_Q_GROWTH(-1)	-0.759274 (0.11077) [-6.85466]
C	-0.899675

Error Correction:	D(LN_BI)	D(LN_ER)	D(LN_INFL)	D(LN_JCI)	D(LN_MM)	D(LN_Q_GROWTH)
CointEq1	0.203848 (0.23643) [0.86219]	-0.071771 (0.07548) [-0.95085]	0.445518 (0.34197) [1.30278]	-0.490872 (0.14323) [-3.42707]	0.846696 (0.32896) [2.57387]	1.669149 (0.70039) [2.38316]
D(LN_BI(-1))	-0.217087 (0.44053) [-0.49279]	-0.045523 (0.14064) [-0.32369]	1.062270 (0.63718) [1.66713]	-0.058680 (0.26688) [-0.21987]	0.558853 (0.61293) [0.91177]	-0.213556 (1.30501) [-0.16364]

D(LN_BI(-2))	0.169527	-0.446875	0.509030	0.275451	0.943802	0.889719
	(0.58926)	(0.18812)	(0.85231)	(0.35699)	(0.81987)	(1.74561)
	[0.28769]	[-2.37543]	[0.59723]	[0.77160]	[1.15116]	[0.50969]
D(LN_BI(-3))	-0.629868	-0.184949	-0.141119	0.551764	-0.676257	-0.117267
	(0.70025)	(0.22356)	(1.01285)	(0.42423)	(0.97430)	(2.07441)
	[-0.89948]	[-0.82730]	[-0.13933]	[1.30064]	[-0.69409]	[-0.05653]
D(LN_BI(-4))	-0.428723	-0.111132	-0.318009	0.901665	-0.289989	0.217971
	(0.66943)	(0.21372)	(0.96827)	(0.40555)	(0.93142)	(1.98310)
	[-0.64043]	[-0.51999]	[-0.32843]	[2.22330]	[-0.31134]	[0.10991]
D(LN_ER(-1))	-0.377615	0.193274	-0.782097	1.229093	-0.815656	-2.751251
	(0.77335)	(0.24689)	(1.11858)	(0.46851)	(1.07600)	(2.29094)
	[-0.48829]	[0.78282]	[-0.69919]	[2.62342]	[-0.75804]	[-1.20093]
D(LN_ER(-2))	0.046336	0.109086	-0.166916	0.909954	-0.196198	-1.505673
	(0.77678)	(0.24799)	(1.12354)	(0.47059)	(1.08078)	(2.30111)
	[0.05965]	[0.43988]	[-0.14856]	[1.93365]	[-0.18153]	[-0.65432]
D(LN_ER(-3))	0.908273	0.020862	1.127799	0.616039	1.184458	-5.287009
	(0.63452)	(0.20257)	(0.91778)	(0.38441)	(0.88285)	(1.87970)
	[1.43142]	[0.10298]	[1.22883]	[1.60257]	[1.34163]	[-2.81269]
D(LN_ER(-4))	0.716682	0.036895	0.544772	0.376378	1.114965	-1.988526
	(0.85369)	(0.27254)	(1.23478)	(0.51718)	(1.18779)	(2.52894)
	[0.83951]	[0.13537]	[0.44119]	[0.72775]	[0.93869]	[-0.78631]
D(LN_INFL(-1))	0.089072	0.017535	-0.005523	-0.206134	0.235876	0.369709
	(0.17601)	(0.05619)	(0.25458)	(0.10663)	(0.24489)	(0.52141)
	[0.50606]	[0.31205]	[-0.02169]	[-1.93317]	[0.96318]	[0.70906]
D(LN_INFL(-2))	-0.096401	0.010390	0.028715	-0.193093	0.031686	0.435568
	(0.16459)	(0.05255)	(0.23806)	(0.09971)	(0.22900)	(0.48758)
	[-0.58570]	[0.19773]	[0.12062]	[-1.93651]	[0.13837]	[0.89333]
D(LN_INFL(-3))	0.021071	-0.089107	0.372959	-0.082716	0.233447	0.982513
	(0.16684)	(0.05326)	(0.24131)	(0.10107)	(0.23213)	(0.49423)
	[0.12630]	[-1.67296]	[1.54554]	[-0.81838]	[1.00568]	[1.98797]

D(LN_INFL(-4))	0.019095	-0.077601	0.108241	-0.293269	0.112970	0.383801
	(0.13474)	(0.04302)	(0.19489)	(0.08163)	(0.18747)	(0.39916)
	[0.14171]	[-1.80395]	[0.55539]	[-3.59268]	[0.60259]	[0.96153]
D(LN_JCI(-1))	0.003921	-0.109297	-0.357742	0.270189	-0.218059	-0.162965
	(0.27341)	(0.08729)	(0.39546)	(0.16564)	(0.38041)	(0.80994)
	[0.01434]	[-1.25216]	[-0.90462]	[1.63122]	[-0.57322]	[-0.20121]
D(LN_JCI(-2))	0.016509	0.130165	0.306474	0.025535	-0.475988	-0.889240
	(0.28488)	(0.09095)	(0.41205)	(0.17259)	(0.39637)	(0.84392)
	[0.05795]	[1.43118]	[0.74377]	[0.14796]	[-1.20086]	[-1.05370]
D(LN_JCI(-3))	0.331261	0.043106	0.185364	0.236534	0.154038	0.036980
	(0.29202)	(0.09323)	(0.42238)	(0.17691)	(0.40630)	(0.86507)
	[1.13438]	[0.46237]	[0.43886]	[1.33702]	[0.37912]	[0.04275]
D(LN_JCI(-4))	0.091177	0.023480	0.510628	0.201375	-0.229698	-1.330182
	(0.30528)	(0.09746)	(0.44156)	(0.18494)	(0.42475)	(0.90435)
	[0.29867]	[0.24092]	[1.15641]	[1.08883]	[-0.54078]	[-1.47086]
D(LN_MM(-1))	0.154560	0.156012	-0.178061	-0.206450	-0.252737	0.224512
	(0.21429)	(0.06841)	(0.30995)	(0.12982)	(0.29815)	(0.63480)
	[0.72127]	[2.28048]	[-0.57449]	[-1.59029]	[-0.84768]	[0.35367]
D(LN_MM(-2))	0.350604	0.203732	-0.048246	-0.450216	-0.225502	-0.450342
	(0.27117)	(0.08657)	(0.39222)	(0.16428)	(0.37729)	(0.80330)
	[1.29294]	[2.35334]	[-0.12301]	[-2.74056]	[-0.59769]	[-0.56062]
D(LN_MM(-3))	0.411640	0.215642	-0.491806	-0.339943	0.152559	-0.634931
	(0.30370)	(0.09696)	(0.43927)	(0.18399)	(0.42255)	(0.89966)
	[1.35543]	[2.22411]	[-1.11960]	[-1.84766]	[0.36104]	[-0.70574]
D(LN_MM(-4))	0.115518	0.156656	-0.045306	-0.257249	-0.044214	-0.857652
	(0.27487)	(0.08775)	(0.39757)	(0.16652)	(0.38244)	(0.81425)
	[0.42027]	[1.78521]	[-0.11396]	[-1.54486]	[-0.11561]	[-1.05330]
D(LN_Q_GROWTH (-1))	0.114801	-0.023565	0.151721	-0.262948	0.483506	0.463191
	(0.15865)	(0.05065)	(0.22947)	(0.09611)	(0.22074)	(0.46998)
	[0.72361]	[-0.46526]	[0.66117]	[-2.73581]	[2.19039]	[0.98555]

D(LN_Q_GROWTH (-2))	-0.021928	-0.022376	0.163168	-0.150686	0.135826	0.051249
	(0.11168)	(0.03565)	(0.16153)	(0.06766)	(0.15538)	(0.33083)
	[-0.19635]	[-0.62759]	[1.01013]	[-2.22723]	[0.87414]	[0.15491]
D(LN_Q_GROWTH (-3))	0.058310	-0.013297	0.103199	-0.091926	0.219655	-0.039201
	(0.08697)	(0.02777)	(0.12580)	(0.05269)	(0.12101)	(0.25765)
	[0.67043]	[-0.47888]	[0.82035]	[-1.74464]	[1.81515]	[-0.15215]
D(LN_Q_GROWTH (-4))	0.022898	0.002262	0.131100	-0.012603	0.034756	0.013126
	(0.06542)	(0.02089)	(0.09462)	(0.03963)	(0.09102)	(0.19380)
	[0.35002]	[0.10832]	[1.38550]	[-0.31801]	[0.38185]	[0.06773]
C	-0.039791	-0.003547	-0.049745	0.004253	0.048435	0.166002
	(0.04280)	(0.01366)	(0.06191)	(0.02593)	(0.05955)	(0.12679)
	[-0.92969]	[-0.25958]	[-0.80355]	[0.16404]	[0.81333]	[1.30927]
R-squared	0.436263	0.761059	0.610966	0.760291	0.594376	0.703522
Adj. R-squared	-0.204348	0.489534	0.168882	0.487895	0.133439	0.366615
Sum sq. resids	0.597986	0.060948	1.251045	0.219470	1.157625	5.247696
S.E. equation	0.164867	0.052634	0.238465	0.099880	0.229389	0.488397
F-statistic	0.681011	2.802911	1.382013	2.791124	1.289496	2.088179
Log likelihood	37.14028	91.94522	19.42427	61.19668	21.28689	-14.98716
Akaike AIC	-0.464178	-2.747717	0.273989	-1.466528	0.196380	1.707799
Schwarz SC	0.549389	-1.734150	1.287556	-0.452961	1.209947	2.721366
Mean dependent	-0.001585	0.010661	-0.025929	0.029948	0.020428	-0.006505
S.D. dependent	0.150231	0.073669	0.261574	0.139572	0.246418	0.613676

Determinant resid covariance (dof adj.)	2.75E-11
Determinant resid covariance	2.55E-13
Log likelihood	287.3106
Akaike information criterion	-5.221276
Schwarz criterion	1.094028

Table 4
Impulse Responses

Response of LN_BI:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.160163	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.123804	-0.016768	0.020267	0.037941	0.022762	0.019864
3	0.123967	0.018916	-0.013024	0.053093	0.062017	-0.002489
4	0.173807	0.058788	-0.055310	0.085627	0.111886	0.017661
5	0.157874	0.123222	-0.107998	0.083227	0.136434	-0.000461
6	0.190274	0.240699	-0.170636	0.056240	0.180352	-0.028965
7	0.199104	0.312398	-0.220140	0.023307	0.231603	-0.053257
8	0.220436	0.386458	-0.288653	-0.026367	0.256176	-0.096816
9	0.186744	0.414139	-0.326946	-0.043502	0.299888	-0.124654
10	0.123304	0.426557	-0.348443	-0.056702	0.328307	-0.163535

Response of LN_ER:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.019968	0.042338	0.000000	0.000000	0.000000	0.000000
2	0.064733	0.056764	-0.020267	-0.018167	0.018694	0.001263
3	0.046693	0.045655	-0.030700	-0.005392	0.036424	-0.007162
4	0.006543	0.056394	-0.047260	0.002768	0.046695	-0.022022
5	0.002458	0.079381	-0.063371	-0.002078	0.051211	-0.019844
6	0.012104	0.105050	-0.072313	-0.019536	0.047091	-0.022032
7	0.029744	0.138637	-0.095734	-0.031114	0.063731	-0.033621
8	0.022944	0.142269	-0.104315	-0.036924	0.085274	-0.042926
9	0.005700	0.138636	-0.109832	-0.046556	0.087030	-0.062171
10	-0.024987	0.134141	-0.115820	-0.041742	0.093178	-0.063660

Response of LN_INFL:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.127061	-0.069481	0.144372	0.000000	0.000000	0.000000
2	0.167320	-0.077746	0.091747	-0.000219	-0.030467	-0.012021
3	0.093281	-0.118230	0.081069	0.080795	-0.012836	0.048318

4	0.146653	-0.078772	0.071352	0.122831	0.001112	0.053046
5	0.186895	0.008518	-0.052775	0.164248	0.085802	0.088147
6	0.133853	0.127259	-0.099598	0.132291	0.114310	0.059437
7	0.236380	0.298459	-0.144178	0.015543	0.088525	-0.018553
8	0.213304	0.317802	-0.177028	-0.040336	0.142662	-0.022684
9	0.220682	0.318442	-0.205903	-0.108085	0.138269	-0.083415
10	0.174427	0.244138	-0.193878	-0.090381	0.150786	-0.105948

Response of LN_JCI:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	-0.042905	-0.054819	0.002166	0.065172	0.000000	0.000000
2	-0.045060	-0.019375	0.004421	0.053210	-0.012505	0.009509
3	0.048759	0.019091	0.000115	0.002633	-0.054515	0.022840
4	0.064905	-0.004182	0.046393	-0.005143	-0.077056	0.041434
5	0.122103	-0.032890	0.054320	-0.016034	-0.105251	0.037571
6	0.082589	-0.125740	0.108977	0.010299	-0.101354	0.059660
7	0.007729	-0.208414	0.168610	0.028578	-0.157086	0.052693
8	0.015286	-0.246870	0.200378	0.057003	-0.204499	0.092296
9	0.045871	-0.283844	0.248743	0.072750	-0.244156	0.144364
10	0.127514	-0.287951	0.273483	0.072979	-0.269999	0.155745

Response of LN_MM:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.178481	0.027657	-0.045545	0.017857	0.137374	0.000000
2	0.158627	-0.001995	-0.029521	0.043802	0.070984	-0.012834
3	0.062317	0.057843	-0.025813	0.063724	0.101253	-0.060189
4	0.148087	0.142287	-0.117637	0.087493	0.216258	-0.004891
5	0.258130	0.261090	-0.252824	0.076226	0.284278	-0.033655
6	0.226810	0.389745	-0.323992	0.068896	0.330830	-0.086843
7	0.128272	0.480536	-0.365707	0.029488	0.416767	-0.151647
8	0.212581	0.629481	-0.501686	-0.061752	0.465544	-0.190790
9	0.209515	0.703583	-0.585560	-0.101712	0.515091	-0.227272
10	0.122427	0.742035	-0.604901	-0.123719	0.559468	-0.306113

Response of LN_Q_GROWTH:

Period	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.269433	-0.090345	-0.045216	-0.015000	-0.130273	0.286350
2	0.029384	-0.121644	0.089419	0.068289	-0.098346	0.049432
3	-0.220397	-0.024190	0.174669	0.047969	-0.090307	-0.080380
4	-0.207018	-0.153659	0.135761	-0.050585	-0.088495	-0.030960
5	0.091220	-0.120786	0.069306	-0.088434	-0.221259	0.108420
6	0.146313	-0.184542	0.121115	0.042328	-0.205293	0.118089
7	-0.000431	-0.310345	0.300650	0.104861	-0.188320	0.108897
8	-0.003893	-0.361005	0.281343	0.059687	-0.219787	0.093899
9	-0.034961	-0.342972	0.278592	0.094196	-0.254940	0.185338
10	0.134413	-0.301514	0.328174	0.064006	-0.385533	0.173311

Cholesky Ordering: LN_BI LN_ER LN_INFL LN_JCI LN_MM LN_Q_GROWTH

Table 5
Variance Decomposition

Variance Decomposition of LN_BI:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.160163	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.209819	93.08524	0.638696	0.933036	3.269874	1.176876	0.896274
3	0.258051	84.61828	0.959612	0.871563	6.394957	6.553740	0.601846
4	0.351393	70.09944	3.316418	2.947535	9.386713	13.67270	0.577191
5	0.448096	55.52116	9.601448	7.621460	9.222182	17.67869	0.355053
6	0.600479	40.95820	21.41429	12.31915	6.012643	18.86534	0.430384
7	0.776718	31.05094	28.97558	15.39579	3.683681	20.16665	0.727367
8	0.979923	24.56862	33.75758	18.34964	2.386730	19.50431	1.433122
9	1.175113	19.61003	35.89479	20.50097	1.796736	20.07564	2.121821
10	1.355434	15.56698	36.88321	22.01764	1.525476	20.95620	3.050498

Variance Decomposition of LN_ER:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.046811	18.19597	81.80403	0.000000	0.000000	0.000000	0.000000

2	0.103419	42.90589	46.88533	3.840476	3.085861	3.267526	0.014909
3	0.131566	39.10677	41.01186	7.817698	2.074679	9.683438	0.305553
4	0.159497	26.77768	40.40708	14.09917	1.441780	15.16002	2.114280
5	0.196935	17.58000	42.75206	19.60280	0.956850	16.70607	2.402218
6	0.241411	11.95046	47.38607	22.01780	1.291642	14.92253	2.431495
7	0.306120	8.376253	49.98065	23.47348	1.836358	13.61479	2.718465
8	0.368558	6.166097	49.38097	24.20466	2.270571	14.74580	3.231909
9	0.425156	4.651653	47.74166	24.86284	2.905388	15.27142	4.567040
10	0.476726	3.974416	45.88894	25.67717	3.077489	15.96641	5.415576

Variance Decomposition of LN_INFL:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.204488	38.60885	11.54519	49.84596	0.000000	0.000000	0.000000
2	0.292140	51.71938	12.73881	34.28482	5.61E-05	1.087617	0.169316
3	0.351603	42.74359	20.10138	28.98512	5.280445	0.884133	2.005333
4	0.417529	42.64820	17.81404	23.47484	12.39907	0.627684	3.036164
5	0.504210	42.98454	12.24412	17.19292	19.11392	3.326218	5.138283
6	0.576506	38.27038	14.23840	16.13581	19.88626	6.475836	4.993312
7	0.711704	36.14265	26.92882	14.69159	13.09625	5.796333	3.344363
8	0.840745	32.33623	33.58533	14.96144	9.614794	7.032874	2.469330
9	0.968046	29.58768	36.15400	15.80935	8.498953	7.344934	2.605080
10	1.052074	27.79889	35.99435	16.78083	7.933577	8.272657	3.219696

Variance Decomposition of LN_JCI:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.095384	20.23299	33.03065	0.051561	46.68481	0.000000	0.000000
2	0.120837	26.51229	23.15190	0.165959	48.47977	1.070898	0.619195
3	0.144374	29.97811	17.96686	0.116321	33.99412	15.00801	2.936582
4	0.186835	29.96889	10.77851	6.235276	20.37440	25.97135	6.671572
5	0.258060	38.09646	7.274178	7.699051	11.06573	30.24791	5.616670
6	0.339176	27.98260	17.95427	14.78014	6.497971	26.43962	6.345394
7	0.463935	14.98410	29.77723	21.10830	3.852543	25.59628	4.681545
8	0.608402	8.776040	33.77959	23.12118	3.117995	26.18163	5.023567
9	0.774883	5.760562	34.24198	24.55801	2.803568	26.06810	6.567785
10	0.936426	5.798750	32.90243	25.34514	2.527074	26.16321	7.263390

Variance Decomposition of LN_MM:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.232132	59.11700	1.419522	3.849643	0.591756	35.02208	0.000000
2	0.295035	65.50365	0.883323	3.384324	2.570529	27.46894	0.189230
3	0.335971	53.95391	3.645345	3.200138	5.579805	30.26548	3.355324
4	0.472585	37.08797	10.90749	7.813576	6.247631	36.23681	1.706524
5	0.714012	29.31704	18.14948	15.96086	3.876652	31.72620	0.969761
6	0.969466	21.37595	26.00692	19.82640	2.607859	28.85442	1.328452
7	1.232289	14.31371	31.30283	21.07838	1.671340	29.29713	2.336616
8	1.571180	10.63552	35.30700	23.16171	1.182580	26.80129	2.911897
9	1.917741	8.332469	37.15933	24.87003	1.075080	25.20406	3.359022
10	2.243046	6.388744	38.10651	25.45205	1.090085	24.64478	4.317832

Variance Decomposition of LN_Q_GROWTH:

Period	S.E.	LN_BI	LN_ER	LN_INFL	LN_JCI	LN_MM	LN_Q_GROWTH
1	0.426606	39.88847	4.484913	1.123386	0.123627	9.325053	45.05455
2	0.471623	33.02531	10.32220	4.513950	2.197742	11.97817	37.96263
3	0.564814	38.25291	7.380436	12.71084	2.253629	10.90800	28.49419
4	0.644408	39.70717	11.35565	14.20321	2.347503	10.26568	22.12078
5	0.715197	33.86269	12.07120	12.46981	3.434720	17.90496	20.25662
6	0.799700	30.43176	14.98011	12.26744	3.027341	20.91098	18.38237
7	0.940502	22.00202	21.71911	19.08814	3.431850	19.12789	14.63099
8	1.074581	16.85535	27.92355	21.47673	2.937393	18.83575	11.97123
9	1.208059	13.42018	30.15403	22.31113	2.932128	19.35684	11.82569
10	1.363397	11.50828	28.56497	23.31054	2.522442	23.19340	10.90037

Cholesky Ordering: LN_BI LN_ER LN_INFL LN_JCI LN_MM LN_Q_GROWTH

References

- Arttachariya, P., 2008, *Writing a Doctoral Dissertation*, ABAC School of Management, Assumption University
- Baltagi, B.H., 2003, *A Companion to Theoritical Econometrics*, Blackwell Publishing
- Baltagi, B.H., 2008, *Econometric Analysis of Panel Data*, Third Edition, John Wiley & Sons Ltd.
- Bank Indonesia, 2008, *Indonesian Economic Report*, Bank Indonesia
- Bernanke, B.S., 1986, "Alternative Explorations of the Money-Income Correlation", *Carnegie-Rochester Conference Series on Public Policy*, 25, pp. 49-99.
- Bernanke, B.S., 2008, *Macroeconomics*, Sixth Edition, Pearson Addison-Wesley
- Blanchard, O.J.,2004, "Fiscal Dominance and Inflation Targeting: Lessons from Brazil, *NBER Working Paper No.W10389*
- Chowdhury, A., & Siregar, H., 2004, "Indonesia's Monetary Policy Dilemma: Constraints of Inflation Targeting", *The Journal of Developing Areas, Vo. 37, No. 2, pp 137-153,* College of Business, Tennessee State University
- Coombes, P and Watson, M., 2001, "Corporate Reform in the Developing World", The McKinsey Quarterly, No. 4, Emerging Markets
- Dornbush, R., 2004, *Macroeconomics* Ninth Edition, McGraw-Hill
- Eiteman, D.K., Stonehill, A.I., Moffett, M.H., 2007, *Multinational Business Finance*, Eleventh Edition, Pearson Addison-Wesley
- Enders, W., 2004, *Applied Econometric Time Series*, Second Edition, Wiley
- Engle, R.F. & Granger, C.W.J. 1987, "Cointegration and Error Correction Representation, Estimation, and Testing", *Econometrica* 55:251-276
- Fraga, A., Goldfajn, I., Minella, A., 2003, "Inflation Targeting in Emerging Market Economies", *NBER Macroeconomics Annual, Vol. 18, pp 365-400,* The University of Chicago Press
- Froyen, R.T., & Low, L., 2001, *Macroeconomics, An Asian Perspective*, Prentice Hall.
- Glenn D. Rudebusch & Lars E. O. Svensson, 1998. "Policy rules for inflation targeting," *Proceedings, Federal Reserve Bank of San Francisco*
- Green, J.H., 1996, "Inflation Targeting: Theory and Policy Implications", *Staff Papers-International Monetary Fund, Vo. 43, No. 4, pp. 779-795*, Palgrave Macmillan Journals
- Greene, W.H.,2003. *Econometric Analysis*, Fifth Edition, Prentice Hall
- Griffiths, W.E., Hill, R.C., Lim, G.C., 2008, *Using Eviews for Principles of Econometrics,* Third Edition, Blackwell Publishing
- Gupta, R., 2006, "Growth-Effects of Inflation Targeting: The Role of Financial Sector Development", Working Paper: 2006-10, University of Pretoria, *Department of Economics Working Paper Series*
- Hammour, A.M.A., 2005. "Empirical Analysis of Inflation Targeting in an Open Economy: An Application to Canada". PhD diss., Fordham University.
- Harker, P.T., & Zenios, S.A., 2003, *Performance of Financial Institutions, Efficiency, Innovation, Regulation*, Cambridge University Press.
- Hefferman, S., 1996, *Modern Banking in Theory and Practice*, Wiley Publishing
- Helliwell, J.F., 1993, "Macroeconometrics in a Global Economy", *The American Economic Review, Vol.83, No.2,* pp 294-299
- Hermawan, D.,& Munro, A., 2008, "Monetary-Fiscal Interaction in Indonesia", *Journal on Bank for International Settlements.*

- Hubbard, R.G., 2000, *Money, The Financial System, and The Economy*, Third Edition, Addison-Wesley Publishing
- Indonesia Stock Exchange Website: www.idx.co.id
- International Monetary Fund Website: www.imf.org
- Johansen, S. & Juselius, K. 1990, "Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for Money". *Oxford Bulletin of Economics and Statistics* 52:169-210
- Kennedy, P., 2008, *A Guide to Econometrics*, Sixth Edition, Blackwell Publishing
- Lee, B.S., 1992, "Causal Relations Among Stock Returns, Interest Rates, Real Activity, and Inflation, *The Journal of Finance*, Vo.47, No.4, pp. 1591-1603
- Lutkepohl, H., 2003, *Vector Autoregressions*, Blackwell Publishing
- Maddala, G.S., 2000, *Introduction to Econometrics*, Second Edition, Macmillan Publishing Company
- Madura, J., 2001, *Financial Market and Institutions*, Fifth Edition, South Western College-Thompson Learning
- Matthews, K., & Thompson, J., 2005, *The Economics of Banking*, John Wiley & Sons.
- Maysami, R.C., & Sim, H.H., 2001a, "An Empirical Investigation of the Dynamic Relation between Macroeconomics Variable and the Stock Market of Malaysia and Thailand", *Jurnal Pengurusan* 20:1-20
- Maysami, R.C., & Sim, H.H., 2001b, "Macroeconomic Forces and Stock Returns: A General to Specific ECM Analysis of the Japanese and South Korean Markets". *International Quarterly Journal of Finance* 1(1): 83-99
- Maysami, R.C., & Sim, H.H., 2002, "Macroeconomics Variables and Their Relationship with Stock Returns: Error Correction Evidence from Hong Kong and Singapore", *The Asian Economic Review* 44(1): 69-85
- Maysami, R.C., Loo, S.W., & Koh, T.K. 2004, "Co-movement Among Sectoral Stock Market Indices and Cointegration Among Dually Listed Companies", *Jurnal Pengurusan* 23:33-52
- Mount, T.D., 1989, "Policy Analysis with Time-Series Econometric Models: Discussion", *American Journal of Agricultural Economics, Vol.71, No.2,* pp. 507-508
- Mukherjee, T.K., & Naka, A. 1995, "Dynamic Relation between Macroeconomic Variables and the Japanese Stock Market: An Application of a Vector Error Correction Model". *The Journal of Financial Research* 18(2); 223-237
- Omran, M.M., 2003, "Time Series Analysis of the Impact of Real Interest Rates on Stock Market Activity and Liquidity in Egypt: Cointegration and Error Correction Model Approach". *International Journal of Business* 8(3)
- Pesaran, M.H., Wickens, M., 1995, *Handbook of Applied Econometrics, Macroeconomics*, Blackwell Publishing.
- Plessis, S., & S. Ben., 2008, "The Cyclicality of Monetary and Fiscal Policy in South Africa since 1994", *CID Working Paper No 163, May 2008*, Center for International Development at Harvard University
- Portugal, M., 2007, "Perspectives and Lessons from Countries Experiences with Inflation Targeting", *Press Release of IMF Report*
- Rasche, R.H., & Thornton,D.L., 2006, "Greenspan's Unconventional View of the Long-Run Inflation/Output Trade-Off", Monetary Trends, *Federal Reserve Bank of St. Louis Bulletin*
- Rigobon, R., & Sack, B. 2003, "Measuring the Reaction of Monetary Policy to the Stock Market", *The Quarterly Journal of Economics,* Vol 118, No.2, pp. 639-669

- Romer, D., 2006, *Advanced Macroeconomics*, Third Edition, McGraw-Hill
- Sims, C, A., 1986, "Are Forecasting Models Usable for Policy Analysis?" *Federal Reserve Bank of Minneapolis Quarterly Review*. Winter, pp. 2-16.
- Sims, C. A., 1982, "Policy Analysis with Econometric Models." *Brookings Paper on Economic Activity*. pp. 107-152.
- Smith, J.K., 2005, "Inflation Targeting and Core Inflation", *The Canadian Journal of Economies, Vol. 38, No. 3, pp. 1018-1036,* Blackwell Publishing
- Stock, J.H., & Watson, M.W., 2001, "Vector Autoregressions", *Journal of Business and Economic Statistics*, pp. 1-28.
- Taylor, J.B., 1993, "The Use of the New Macroeconometrics for Policy Formulation", *The American Economic Review, Vol.83, No.2,* pp. 300-305
- Thorbecke, W., 1997, "On Stock Market Returns and Monetary Policy", *The Journal of Finance,* Vol.52, No.2, pp. 635-654
- Vogelvang, B., 2005, *Econometrics, Theory and Application with Eviews*, Prentice Hall
- Vuyyuri, S. 2005, "Relationship between Real and Financial Variables in India: A Cointegration Analysis. Available at http://ssrn.com/abstract=711541.
- Wallis, K.F., 1995, "Large-Scale Macroeconometric Modeling", *Handbook of Applied Econometrics, Macroeconomics,* Blackwell Publishing.
- Walsh, C.E., 2003, "Accountability, Transparency, and Inflation Targeting", *Journal of Money, Credit, and Banking, Vol.35, No. 5, pp. 829-849,* Blackwell Publishing
- Weimer, D.L., & Vining, A.R., 1992, *Policy Analysis, Concepts, and Practice*, Second Edition, Prentice Hall
- Wooldridge, J.M., 2000, *Introductory Econometrics*, South Western College