Towards Inflation Targeting: The Case of Indonesia*

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ABSTRACT

One of questions frequently posed to Bank Indonesia since the enactment of the new central bank act on May 1999 is, whether Indonesia is already implementing a full-pledged inflation targeting. The answer is certainly not yet. Bank Indonesia, however, has made serious preparations towards inflation targeting. This paper reviews these preparations, focusing on efforts and constraints in dealing with aspects of institutional framework, operational issues and organizational implications for successful implementation of inflation targeting in the future. Experiences from the existing framework and performances of inflation and monetary stability over 2000 and 2001 are also analyzed to dwell into a number of preconditions for implementing inflation targeting. In general it can be said that, while its potential benefits would be fruitful in the future, the existing preconditions point to a conclusion that it will be premature for Indonesia to implement a full-pledged inflation at present.

JEL classification:
Key words: Inflation targeting, central bank independence, monetary policy, Indonesia.

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I. Introduction

Since the new central bank act No. 23/1999 was enacted on May 17, 1999, Indonesia has made serious preparations toward implementing inflation targeting.[1] The new act provides a strong foundation for a modern practice of independence central bank, especially in its stipulation about the central bank's primary objective, independence in setting and achieving the objective, and public accountability and transparency for good governance. As for the objective, the act gives a clear mandate to the central bank, Bank Indonesia, to pursue its sole objective of achieving and maintaining the currency (rupiah) stability. The central bank's functions are confined to conducting monetary policy, payment systems, and banking regulation and supervision.[2] The act also provides a legal basis for central bank independence with respect to goal independence, instrument independence, as well as institutional independence.

As it implied, the new act provides a basis for Indonesia to implement inflation targeting in its conduct of monetary policy, and Bank Indonesia has made serious preparations toward that direction. To implement the act, Bank Indonesia started to announce an annual inflation target since 2000. Efforts have also been taken to deal with various preconditions for successful implementation of inflation targeting in the future. While current practice of base money targeting under the IMF program is continuing, various researches are underway to build the new framework for monetary policy consistent with inflation targeting. Regular Board of Governors meetings are formed and conducted for formal monetary policy decision making process (annually, quarterly, monthly, and weekly). As for accountability and transparency, the central bank provide quarterly reports to the Parliament and regular communications to public regarding monetary policy decision of the Board.

The road towards implementing inflation targeting, however, will not be easy for Indonesia. The experience over 2000 and 2001 so far indicates that inflation has been driven by factors that often beyond monetary reasons, while transmission mechanism of monetary policy to inflation and economy at large is facing some problems. For one part, this is because Indonesian's economic and financial conditions are undergoing structural breakdowns since 1997 crisis, which makes economic relations and monetary transmission are uncertain and difficult to predict. For the other part, this relates to the fact that the framework for conducting monetary policy consistent with inflation targeting is still being developed. But probably the most important factor is supports from the Parliament, the Government and the public at large are lacking for the central bank to gain credibility in implementing inflation targeting. These economic and political environments explain why preparing inflation targeting is a daunting task in Indonesia.

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[1] On the same date, the new Act of Exchange Rate and Foreign Exchange System No. 24 was also enacted. In addition to providing a strong legal foundation for a free exchange system in Indonesia, the Act stipulate that the exchange rate system is decided by the Government after receiving consideration from the central bank. The Act also give power to the central bank to monitor foreign exchange flows and issued regulations necessary for prudent flows of foreign exchange.

[2] Other functions previously performed by the central bank as a fiscal agent (e.g. providing loans to government and credit facility for government selective credit programs) and equity participation in financial institutions should be terminated or transferred to other institutions. In addition, the bank supervision function will be transferred to an independent financial supervisory institution no later than end December 2002, while the central will retain the bank regulation functions.

This paper reviews the experience of Indonesia in its efforts to implement inflation targeting. To set a stage, it will assess the relevant to Indonesia of a number of preconditions experienced in other countries for successful inflation targeting as suggested in many literature (see, e.g. Schaechter,et.al (2000), Blejer, et.al (2000), Joseph and Gunawan (2000)). These may include a strong fiscal position and entrenched macroeconomic stability, a well functioning financial system, central bank independence and a mandate to achieve price stability, a reasonable well understood monetary transmission mechanism, a sound methodology for devising inflation forecasts, and transparent policies to build accountability and credibility. To do this, the existing framework of announcing inflation target and base money programming will be reviewed, and their performances over 2000 and 2001 will be analyzed. In particular, a number of constraints for achieving inflation target in the present situation need to be looked into details, to assess which transitional issues need to be dealt with for the implementation of inflation targeting in Indonesia.

Then, the paper will present into details many aspects that Indonesia has been and is preparing for the implementation of inflation targeting, including the institutional framework, operational issues, organizational implications, and transitional issues, as suggested in a number of literature (see, e.g. Schaechter (2000)). First, for the institutional framework and organizational implications, it will provide assessment surrounding the central bank's independence as stipulated in the new act, inflation target design, policy decision making, and accountability and transparency. Second, for the operational issues, the paper will review the preparations have been made by the central bank towards designing monetary policy framework under inflation targeting, especially about its inflation forecasting, economic models, monetary transmission channels, and monetary policy operations. And finally, based on the assessment of these various aspects of preconditions, the paper will outline a number of key transitional issues need to be addressed for a successful implementation a full-pledged inflation targeting in Indonesia.

II. Existing Framework and Performance: Lessons from 2000 and 2001

Indonesia provides a number of lessons for a crisis-hit country under the IMF program planning to implement inflation targeting. As an integral part of crisis management, the central bank, Bank Indonesia, was given independence and a clear mandate for pursuing currency stability. Unfortunately, as a crisis-hit country coupled with a social and political transition toward democratic system, the existing economic and financial conditions are undergoing structural breakdowns and facing so many uncertainties and risks. Moreover, Indonesia has to adhere a number of conditionalities under the IMF program, including base money targeting and other performance criteria in conducting its monetary policy.

The framework

Started in 2000, Bank Indonesia announced its annual inflation target. The target is set for the CPI inflation excluding the impacts of government administered prices and income policy. For example, the targets were 3-5% for 2000 and 4-6% for 2001. In addition, Bank Indonesia also forecasted the impacts of administered prices and income policy on inflation, which for 2000 and 2001 were 2% and 2-2.5% respectively. Thus, adding the two constitute the forecast of

Bank Indonesia for the total CPI inflation, which for 2000 and 2001 are 5-7% and 6-8,5%, respectively.

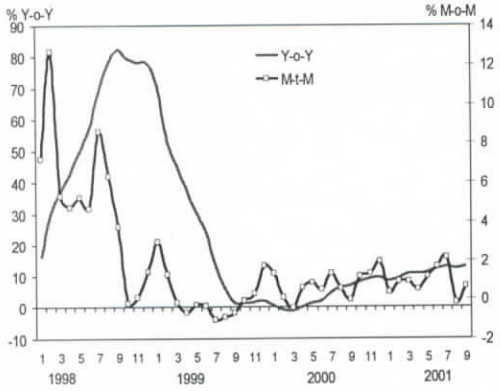
The current framework for conducting monetary policy is based on monetary programming using base money as an operational target. This is in conjunction with the existing arrangement under the IMF program. Thus, based on the inflation target, the target growth of base money is set annually, and from there the level of base money targets are set for every month. For 2000, based on the targeting inflation of 3-5% and on the assumptions of 3-4% economic growth and average exchange rate of Rp7,000 per US dollar, the target annual growth of base money for end of 2000 was set at 8.3%. Similarly, under the targeted inflation of 4-6% and assuming economic growth of 5% and average exchange rate of Rp8,000 per US dollar, the annual growth of base money for 2001 was targeted at 11-12%. Under the IMF program, these base money targets are used as indicative targets or as performance criteria, together with the targets set for the Net International Reserves (NIR) and the Net Domestic Assets (NDA).

Operationally, the base money targets are used for the anchor of open market operations conducted by Bank Indonesia, through the weekly auction of Bank Indonesia's certificates (SBIs) every Wednesday. The interests on SBIs are determined through the auction market mechanisms, resulting in highest bid-rate (stop-offer rate) and weighted average of SBIs for the winners of the auction. This monetary instrument is complemented by direct operation in the money market, to help manage liquidity, called as "rupiah intervention", whereby Bank Indonesia accepts and/or offers inter-bank borrowing using a policy "rupiah intervention rate".[3] In addition, if deemed necessary, Bank Indonesia also intervenes in the foreign exchange market, called as "foreign exchange sterilization", to help open market operation in absorbing liquidity as well as to stabilize the exchange rate. The magnitude and timing of the foreign exchange sterilization will depend, of course, on the liquidity conditions in the market and the development of exchange rate.

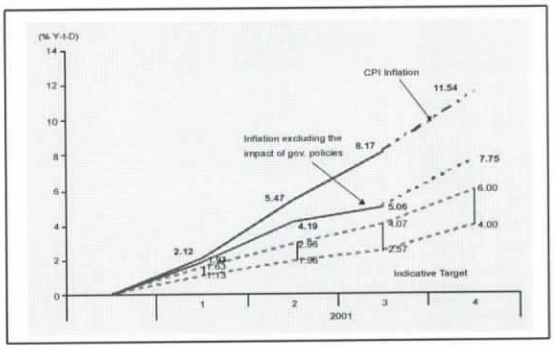
Inflation

It turns out that the pressures on inflation were far greater than expected, and that makes Bank Indonesia missed its target in 2000 and most likely will so in 2001. The CPI inflation reached at 9.35% in 2000, exceeded Bank Indonesia's forecast of 5-7%. Excluding the impact of government's administered prices and income policy estimated at 3.42%, the underlying inflation reached at 5.93% in 2000, exceeded Bank Indonesia's target of 3-5%. For 2001, the CPI inflation for the period of January to October 2001 recorded at 8.89% (year-to-date) or equally at 12,47% (year-on-year). Towards the end of 2001, pressures on inflation are still mounting, particularly due to seasonal impacts of some religious festivities (Ramadhan and Christmas) and New Year's holidays. Thus, most likely that the outturns for CPI inflation will again exceed Bank Indonesia's forecast of 6-8.5% for the whole 2001. Likewise, excluding the impacts of government administered prices and income policy estimated at 3.7%, the underlying inflation up to October 2001 already reached 5.75%. Considering the inflation pressures toward end of year, most likely that Bank Indonesia will miss again its annual target of 4-6% for 2001.

[3] In essence, the rupiah intervention rate acts as a floor for the Bank Indonesia policy rate. For the ceiling, Bank Indonesia provides SBIs repos and lenders of last resort facilities on which their interest rates are determined by some margin above the SBIs rate.



Graph 1: CPI Inflation



Graph 2: Target vs. Actual Inflation

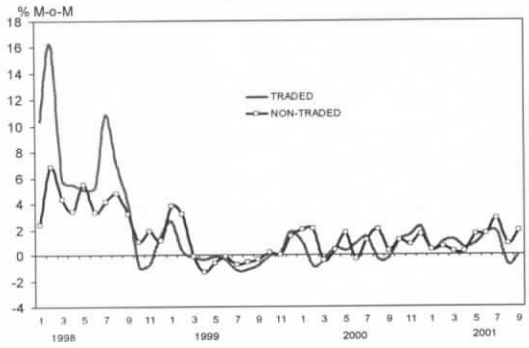
Overall, the pressures on inflation stemmed predominantly from the impacts of government's administered prices and income policy, weakening rupiah exchange rate, and accelerating inflation expectation. The output gap added pressure to inflation because slow progress on economic and corporate restructuring makes it difficult for the aggregate supply to match the increasing aggregate demand. For one part, these reflect the severity and complexity of the economic and financial problems the country is facing since the 1997 crisis. For the other part, these are also caused by heighten risks and uncertainty emanating from the social and political transition in the country. These factors make it difficult for the central bank to forecast inflation and to design monetary policy suitable for achieving the inflation target.

As a part of crisis management, the government pursues a number of policies towards market mechanism for previously controlled goods and services, e.g. by reducing subsidies for those goods and services or permitting them to be imported. These include subsidies on gasoline, electricity, and telephone. The government also issued income policy especially to increase civil servant salaries. The impacts of these government measures for administered prices and income policy not only are significant to inflation, but also much larger than forecasted. This is mainly because those policies become socially and politically sensitive issues, and that make some delays on the implementation while some others are not previously planned. The impacts to inflation became larger because public inflation expectation toward those policies is already materialized even though the adjustments were postponed or cancelled. As indicated before, the impacts of administered prices and income policies were 3.42% in 2000 and is estimated to around 3.79% in 2001 as compared to Bank Indonesia's forecasts of 2% and 2-2.5% for 2000 and 2001, respectively.

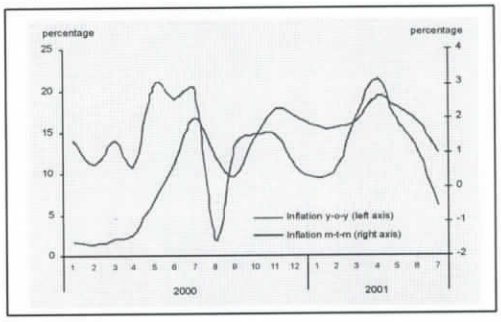
Another dominant pressure to inflation emanates from the weakening of rupiah exchange rate. Due to Indonesian open economy, direct pass-through effects of exchange rate to inflation are quite significant, estimated with a coefficient to around 0.13 to 0.20, and with short lag, estimated to last for about one to three months.[4] These are reflected in development of inflation for traded-goods and import prices. Moreover, through its indirect effects, the weakening exchange rate also put pressures on inflation by inducing price increases in non-traded goods. The exact impact and lag of course depend on the each item in the CPI component. But

[4] See Bank Indonesia Annual Report for 2000, page 51-52, for a further elaboration on impacts of exchange rate on inflation.

looking at the evidence in Indonesia shows that there is a continuing catching-up price adjustments of non-traded goods to the exchange rate depreciation.

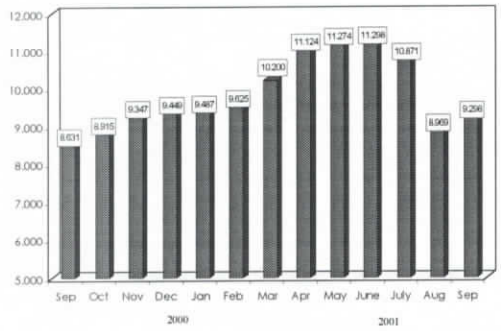


Graph 3: Traded & Nontraded Inflation



Graph 4: Wholeshale Import Prices

Weakening exchange rate becomes a major issue for crisis management in Indonesia after the floating system was adopted in August 1997. The rupiah continues under severe pressures with high degree of volatility beyond what has been used as underlying assumptions for setting the inflation target. The rupiah reached at average of Rp8,400 in 2000 and will likely be averaging more than Rp10,000 this year, compared to the assumptions of average Rp7,000 and Rp8,000 for 2000 and 2001, respectively.[5] For one part, it reflects the high degree of uncertainties and risk factors in Indonesia emanated from both social and political turbulence as well as severity and complexity of the economic and financial problems. For the other part, it also caused by heavy burdens for servicing external debt, especially for those private debts. The progress on private external debts and corporate restructuring has been relatively slow, and that makes persistent pressures on exchange rate. Under such a condition, monetary policy becomes ineffective in affecting exchange rate and thus its pass-through effects to inflation.



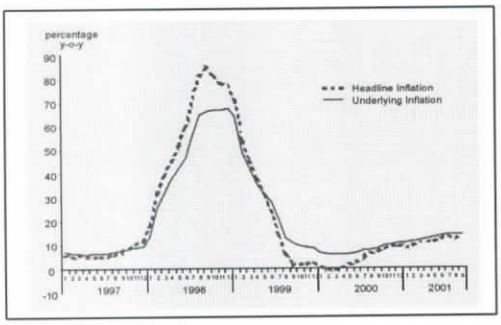
Graph 5: Average Exchange Rate

Graph 6: Exchange rate vs. Risk Premium

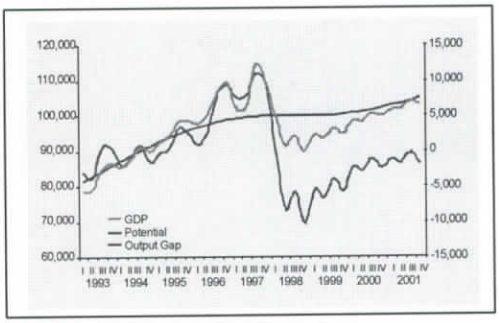
Both the impacts from administered prices and weakening exchange rate have caused an accelerating inflation expectation. The pressures on inflation become persistent as reflected on

[5] Bank Indonesia forecast of exchange rate usually uses a band of Rp500 per US dollar, centered at the indicated mid-point. For example, the average exchange rate was forecasted at around Rp7,750-8,250 for 2001.

indicator of core inflation that is higher than the CPI inflation.[6] Meanwhile, the pressures on inflation from the output gap have risen recently, reflecting structural problems on aggregate supply to match the increase in aggregate demands. A number of indicators and surveys conducted by Bank Indonesia indicate increasing demands, as evidenced from increasing retail sales, motor sales, and consumer confidence. The supply side, however, is still facing a number of constraints as many corporations are still under restructuring.

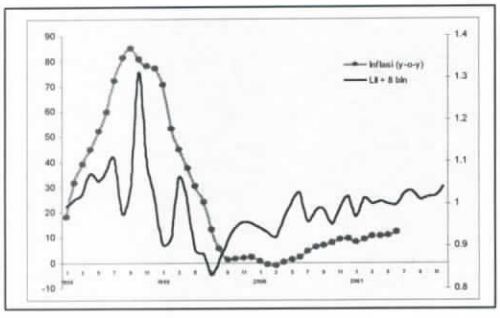


Graph 7: Headline vs Underlying Inflation

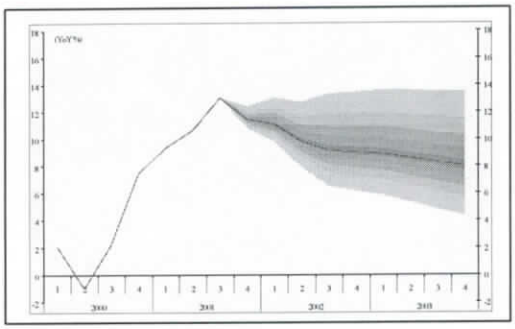


Graph 8: Output Gap

Looking forward, pressures on inflation will likely be significant in the short-term, at least toward the end of 2001, for the seasonal factors alluded to earlier. However, the inflation outlook for 2002 is expected to improve, as the impacts of administered prices are expected to subdue and exchange rate is expected to strengthen. Based on Bank Indonesia forecasts for macroeconomic assumptions for the 2002 government budget, the CPI inflation is projected at around 8-10% in 2002, under the assumptions that economic growth reaches at 3.5-4.5%, exchange rate averages at Rp8,500-9,500, and estimated impacts of administered prices at around 2%.



Graph 9: Leading Inflation Indicator



Graph 10: Fanchart of Inflation

Base money

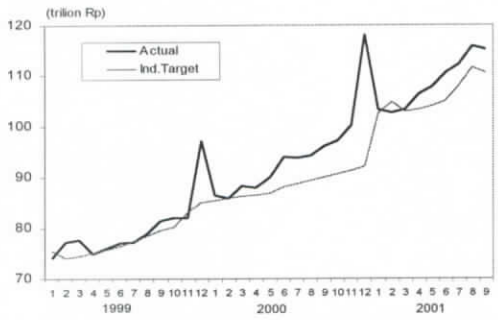
Implementing a strict base money targeting and anchor it with inflation target is not always easy. This is particularly true for Indonesia, a crisis country experiencing so many economic and political turbulence. The experience shows that it is difficult to relate the base money target

[6] The issue of core inflation in Indonesia will be discussed in the section III.

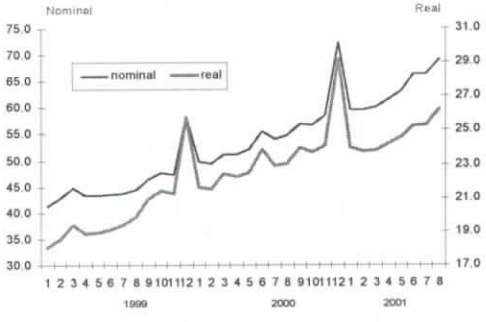
at present with the inflation target in the future, not only because the significance presence of non-economic and non-monetary factors affecting inflation but also the difficulty in determining the lag effects from current base money to future inflation. Moreover, to achieve the base money target itself is not easy to do, especially because of the large components and instability of currency demands. The behavior of currency demands seems to experience a structural breakdown for reasons beyond a standard transaction and precautionary motive of holding currency. Because bank intermediary function had not yet returned to normal, the banking system did not respond well to Bank Indonesia's monetary policy signals, making it difficult to absorb currency in circulation.

Bank Indonesia therefore faces a dilemma in executing monetary policy. Efforts to curb demand for base money required a tighter monetary policy, which would cause interest rates to rise. However, because the monetary policy transmission mechanism was not functioning properly, a tighter monetary policy could result in a drastic rise in interest rates that would be unfavorable for ongoing economic recovery. Faced with this problem, Bank Indonesia adopted a tight-bias monetary policy, by absorbing excess liquidity from the market while avoiding any abrupt or excessive increase in interest rates. This was done through a mix use of monetary instruments, i.e. by open market operation (both SBIs auction and rupiah intervention) complemented by foreign exchange sterilization.

With large components of currency and the dilemma to absorb them, the implementation of monetary policy under the base money targeting faces a number of difficulties. As a result, even though a tight bias monetary policy has been adopted, the actual base money in 2000 and 2001 exceeded the indicative targets. For 2000, the base money increased at a rapid 23.4% growth to reach at Rp125.6 trillion at the end of December 2000.[7] Some parts of the base money were for higher transaction demand, as economic reached 4.8% higher than earlier forecast of 3-4%, while others are due to precautionary motives. In addition, high growth of base money in December 2000 was also related to strong seasonal factors in that month due to the simultaneous occurrence of religious festivities, the ending of the fiscal year, and prolonged year-end holidays. For 2001, the average growth of base money for the period of January to October reached at 18.3%, far above the targeted growth of 11-12% for the end of year. As in 2000, the increase of base money is very much caused by the rise of currency outside bank far beyond its level for both transactional purposes to encompass precautionary motive in light of continuing uncertainty.



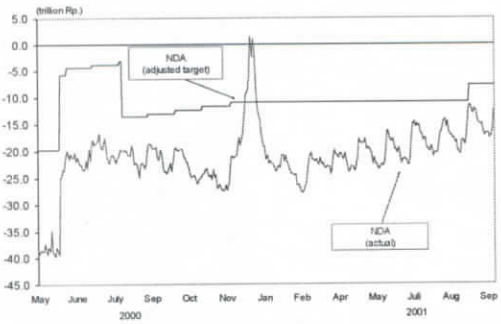
Graph 11. Base Money



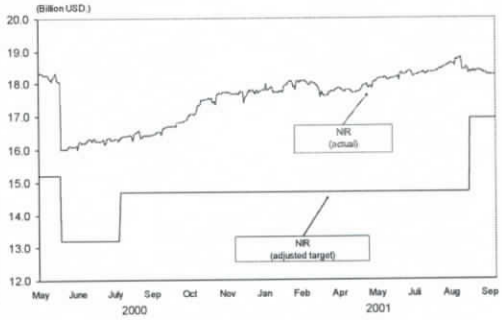
Graph 12. Nominal and Real Currency

[7] Using the test-date under the letter of intent with the IMF, calculated as the average level of base money during the last 5 days of the month and the first 5 days of the following months, the growth of base money in 2000 comes to 21.4%.

Meanwhile, the performance criteria for both Net Domestic Assets (NDA) and Net International Reserve (NIR) have been under controlled over the period of 2000 and 2001. Up to September 2001, test date NDA came to negative Rp16.3 trillion, or lower than its performance criteria of negative Rp7.8 trillion. Likewise, the NIR at the end of September reached USD18.2 billion level, sufficiently above its USD16.9 billion performance criteria target.

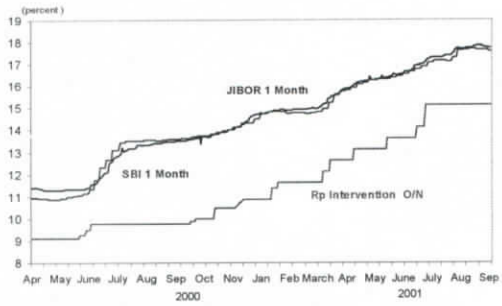


Graph 13. NDA: Actual and Target

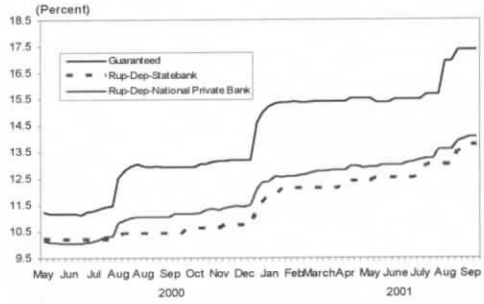


Graph 14. NIR: Actual and Floor

As Bank Indonesia continues to pursue its tight-bias monetary policy stance, policy interest rates are rising, as evidenced from the increase of both the SBI interest rate and the rupiah intervention rate. The SBI rate is now at around 17.5% while the rupiah intervention overnight rate reached at around 15%. The deposit interest rates are also increasing, albeit at lower pace than the increase in SBI rate. The counter rate on one-month deposit recorded at 13.6% at present, even though its weighted average for the same maturity reached at 15.5% already. This reflects the increasing competition among banks on keeping funds from large depositors, while at the same time minimizing costs of fund mobilization for the smaller depositors.



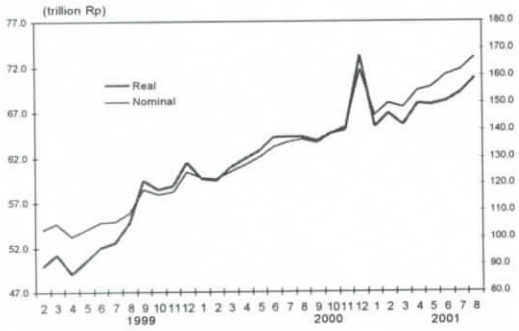
Graph 15. Monetary Instrument and Money Market Interest Rate



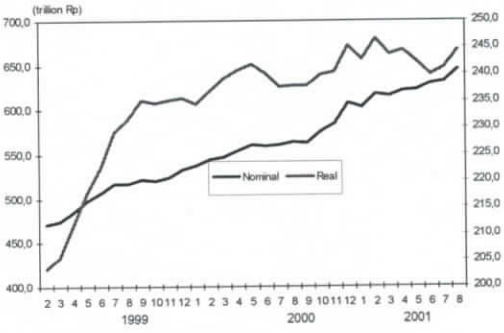
Graph 16. Rupiah One-Month Time Deposit Rate

Relatively slacker response of deposit rate to SBI rate indicates that bank intermediary function has not resumed to normal. Bank lending has not risen rapidly because of, among others, high default risks of corporate loans and internal condition of the banks. After the completion of bank recapitalization program, the balance sheets for the overall banking system shows a large amount of deposit taking to be invested in the holding of SBI and government bonds, instead of increasing lending to the real sector. This is also evidenced in the development of M1 and M2, whereby M1 shows an increasing growth while M2 is flattening. Thus, under the stagnant

economy due to high uncertainty and under process of corporate restructuring, funds are mostly circulated within financial sector, and pose serious constraints on managing liquidity to avoid rising prices and speculation on exchange rates.



Graph 17. M1: Nominal and Real



Graph 18. M2: Nominal and Real

Problems and constraints

The foregoing discussions lead to a number of problems and constraints that Indonesia is now facing in achieving inflation target using the base money programming as its operational target. But that does not mean that abandoning the existing framework and straightly move to the alternative of monetary policy framework, e.g. using interest rate as an operational target, will be effective either. With economy and financial sector are undergoing restructuring, and coupled with continuing transition in the social-political system, there are so many non-economic and non-monetary factors affecting inflation and the economy as a whole.

Under such a condition, monetary policy alone, regardless the framework, would not be effective in achieving inflation target. The remedies should not rely solely on monetary policy. Other policies, be it economy or political measures, need to be taken seriously to address the ongoing fundamental problems which have so far heighten uncertainty and risk factors in Indonesia:

First, the threats for maintaining macroeconomic stability are enormous, on both monetary and fiscal sides. As analyzed earlier, pressures to inflation are rising while exchange rate has been weakening and volatile. Fiscal sustainability becomes a serious issue, particularly because of the heavy burdens for servicing both external and domestic debts. The budget is running at 3.7% of GDP in 2001, while the total outstanding public debts reached around US$74 billion for external debts and more than US$60 billion for domestic debts resulted from the costs of banking restructuring.

Second, the recovery of bank intermediation function has been slow. Bank lending is still limited because of high level of risks and uncertainty, the large number of companies still undergoing restructuring, and the weak internal bank conditions. Credit crunch phenomenon has been evidenced.[8] The problem is aggravated by the slow progress on private external

[8] See Agung, et.al. (2001) for an excellent study on credit crunch phenomenon in Indonesia.

debt and corporate restructuring.[9] These problems have already prevented a faster economic recovery, since the majority of those companies represent the largest share of the economy.

Third, with slacking real sector and bank lending, the transmission mechanism of monetary policy to the economy faces a number of problems. Since the economy and financial sector are undergoing restructuring, excess liquidity emerges but circulates within the financial markets only, creating a structural breakdown between the real sector and financial system. This problem of excess liquidity, together with market segmentation of good and bad banks, has put greater risks on exchange rate volatility and difficulties in monetary management. Transmission through exchange rate and expectation channels to inflation seems to be more dominant, while the effectiveness of monetary policy in influencing them is limited (Siswanto, et.al (2001); Bank Indonesia, et.al (2001c)). This has been complemented by the weakness of monetary transmission through interest rates and bank lending (Agung, et.al (2001a); Kusmiarso, et.al (2001)).

Fourth, domestic political and security situation have been tranquil, causing high uncertainty and weak confidence. These have caused threats on Indonesia's country risks, delays in the resolution of various economic problems, and incite speculative activity in the foreign exchange market. After the recent change in the government, confidence started to emerge, but its sustainability will greatly depend on the progress of economic programs and the development of the overall political landscape.

These constitute a number of preconditions that inhibit implementation of inflation targeting at present. Nevertheless, there are a number of preconditions that will support for implementing inflation targeting in the future. These include central bank independence with a clear mandate to achieve the stability of currency, continuous progress on methodology for devising inflation forecast, and efforts for transparent policies to build accountability and credibility. The remainder of the paper elaborates further these preconditions and the efforts that Bank Indonesia are contemplating for the adoption of inflation targeting.

III. Institutional Framework

Notwithstanding the existing preconditions that need to be dealt with in Indonesia, a number of studies have documented that international experience with inflation targeting has shown some very positive results.[10] In general, those countries employing inflation targeting framework have experienced lower inflation, expected inflation, and interest rates compared to the pre-inflation targeting period. Over time, with the increase in central bank credibility, it is also found that inflation targeting reduces the variability of both inflation and output. This last finding is crucial for developing countries where adoption inflation targeting may be viewed as sacrificing output needed to generate employment.

In addition to these positive results, potential benefits for adopting inflation targeting will also be plentiful for Indonesia. The new central bank act provides a sound starting point to that direction. By implementing inflation targeting, first, it helps shift the present public's attention

[9] See Warjiyo (2000) for an assessment on the progress and problems of debt and corporate restrcuturing in Indonesia.

[10] See, for example, Bernanke, et.al. (1999) and Schaechter, et.al. (2000) for a review on lessons from international experience in inflation targeting.

and demand for short-term interventionist monetary policy to stimulate economic recovery, toward low and stable inflation to support macroeconomic stability and economic growth. Second, inflation targeting will greatly enhance accountability and discipline of monetary policy as well as fiscal policy, which are now under scrutiny by the public. And finally, inflation targeting will stimulate institutional reforms within the central bank, especially through both institutional and capacity building on monetary policy and economic researches, that will help improve its credibility to the public.

To reap those benefits, since the enactment of the new central act on May 17, 1999, Indonesia has made serious preparations toward implementing Inflation Targeting.[11] The efforts include building the required institutional framework, dealing with operational issues, and start adopting organizational implications for the inflation targeting framework. This section will elaborate the institutional framework and organizational implications, while the other issue will be discussed in the next section.

The central bank legal framework

The new central bank act No. 23/1999 provides a strong foundation for a modern practice of independence central bank, especially in its stipulation about the central bank's primary objective, independence in setting and achieving the objective, and public accountability and transparency for good governance. The objective of the central bank is stipulated to "achieving and maintaining the rupiah stability". In its elucidation, it is stipulated that the rupiah stability to mean the stability of the value of currency with respect to prices of goods and services (i.e. inflation) as well as to other currencies (i.e. exchange rate).[12] This is in contrast to the old Act that the primary tasks of the central bank is not only to maintain the rupiah stability but also to support production activities for the purpose of creating employment.

To achieve its objective, the functions of Bank Indonesia are confined to three areas, i.e.: "(1) to formulate and implement monetary policy, (2) to regulate and safeguard the functioning of payment systems, and (3) to regulate and supervise bank". Other functions previously performed by the central bank as a fiscal agent (e.g. providing loans to government and credit facility for government selective credit programs) and equity participation in financial institutions should be terminated or transferred to other institutions. However, the Act also stipulated that bank supervision function will be transferred to an independent financial supervisory agency which will be instituted no lather than the end of 2002, while the central bank will maintain the bank regulation function. This was a compromise between the Government and the central bank after a long public debate toward how banking regulation and supervision should be conducted in Indonesia.[13]

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[11] Alamsyah, et.al. (2000) provides an early assessment on the framework for implementing inflation targeting in Indonesia.

[12] With the existing free floating exchange rate system, this objective is theoretically to mean that the price stability is the ultimate objective, while the exchange rate stability constitutes as an intermediate target and/or as information variable. Nevertheless, lack of understanding of this issue in the part of the Parliament, the Government and public at large, coupled with weakening and volatility of the rupiah exchange rate since the crisis have put pressures to the credibility of the central bank to perform effective monetary policy and to achieve its inflation target.

[13] Bank Indonesia maintained the argument that, in addition to its long-standing experience, it is necessary for the central bank to perform bank regulation and supervision function in to conduct its monetary policy. In contrast, the Government argued that the supervisory function should be separated

The Act also provides a legal basis for central bank independence with respect to goal independence, instrument independence, as well as institutional independence. For the goal independence, Bank Indonesia is given the authority to set its inflation target in conducting its monetary policy. The target is set annually based on the price development that are directly influenced by monetary policy, and by taking into consideration the development and prospect of overall macro economy. This target may differ from the assumption of inflation used by the government for the budget. For such a case, the Parliament may ask Bank Indonesia to explain publicly the reasons for the difference.[14]

To achieve its inflation target, Bank Indonesia may exercise independently any monetary instruments generally practiced by other central banks. The instruments include open market operation, discount rate, reserve requirement, and regulations for bank lending. Bank Indonesia may intervene in the foreign exchange to stabilize exchange rate as a part of its open market operation, and provides short-term liquidity loans to banks as its function as the lender of last resort. Moreover, considering the specific nature of growing Islamic banking operations in Indonesia, the conduct of monetary policy is also based on the shariah principles.

As for institutional independence, it is stipulated in the Act that the Government and other parties can not intervene Bank Indonesia in performing all of its functions mandated by the Act. All of members of the Board of Governors are appointed by the Parliament, after taking considerations candidates submitted by the President for the Governor and Senior Deputy Governor or by the Governor for the four to seven Deputy Governors. To secure personal independence of the Board members, they can not be members of any political party upon appointed, and their five-year terms are staggered such that the terms of two Board members are due each year. Financially, the central bank also enjoys independence in that it has autonomy in managing its operational budget with regular reporting to the Parliament.

To secure independent of monetary policy, the central bank is prohibited to provide loans or advances to the government. As such, it also can not buy government securities in the primary markets. The dealing of central bank with government securities should only be done through the secondary market and solely for the conduct of monetary policy. Nevertheless, a transitional stipulation was given for the central bank to buy government securities for covering the continuing bank restructuring programs, for which at present relates to financing the government blanket guarantee program on bank liabilities. In the past, Bank Indonesia has already provided more than Rp200 trillion for advances to the government for this program, and was agreed by the parliament to be added by about Rp40 trillion just two months ago. For these advances, the government then issued an indexed bond to the central bank. Thus, considering the risks for some bank failure are still there, though to a much lesser degree compare to the past, the possibility of central bank financing to the government is still apparent as long as the banking system is not fully recovered from the crisis.

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from the central bank to avoid conflict of interests in conducting its monetary policy, and because of perception about Bank Indonesia's fallacy in its policy that lead to the banking crisis in the past.

[14] In practice, the setting of macroeconomics assumptions for the government budget is coordinated between the Ministry of Finance, Bank Indonesia, and other related government institutions. In the process with the Parliament, Bank Indonesia is also invited to give views on the macroeconomic assumptions. In both levels, Bank Indonesia provides its projections on economic growth, inflation, exchange rate, and interest rates.

Nevertheless, the central bank independence has been under process of amendment for a number of article. In particular, political sentiment leads previous President Wahid's keen intention to replace the Governor of Bank Indonesia in 2000. Realizing that this move is against the central bank act, the President then proposed some amendments of the act to the Parliament. Initially, the amendment relates particularly to stipulations regarding dismissal of the Boards of Governors, with a reason for enhancing accountability. Then, in the process of discussions with the Parliament, the Government enlarges the amendment to include stipulations on objective, independence, and financial operations. Overall, the proposed amendment, if adopted, will undermine the central bank primary objective of maintaining currency stability and its independence in conducting monetary policy, free from the intervention of the government and other parties.[15]

Under the new President Mrs. Megawati, the process of amendment to the central bank act has been put on hold. In the latest letter of intent signed by the government to the IMF on August 27, 2001, it is conveyed that the Government of Indonesia, in consultation with Parliament, has decided that more time is needed –at least six months—to study the options for amendment of the existing central bank act. It is also stressed that the government is committed to a strong, independent, and accountable central bank. In line with this objective, a set of amendment will be developed that will preserve its independence while increasing its accountability.

Inflation target design

As stated early, starting in 2000 Bank Indonesia announces its annual inflation target at the beginning of every calendar year. The target is set by the central bank with a 2% range for the CPI inflation excluding the impacts of government administered prices and income policy.[16] For example, the targets were 3-5% for 2000 and 4-6% for 2001. In addition, Bank Indonesia also forecasted the impacts of administered prices and income policy on inflation, which for 2000 and 2001 were 2% and 2-2.5% respectively. Thus, adding the two constitute the forecast of Bank Indonesia for the total CPI inflation, which for 2000 and 2001 are 5-7% and 6-8,5% respectively.

Given the new framework that has been laid down under the new central bank act, there are some elements that need to be considered carefully in designing the inflation target, particularly for defining the measure of inflation target and its time horizon. In this regard, under the new Act there is no stipulation prohibiting Bank Indonesia to set inflation target for a medium-term horizon; nor that requires Bank Indonesia to set core inflation as its target. The new Act stipulates that Bank Indonesia: (a) set an inflation target, (b) based on calendar year, (c) especially by taking into account prices developments that directly influenced by monetary policy, and (d) by considering the development and prospects of macro economy.[17]

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[15] The process has been highly politized and under severe public debate. Upon pressures from the IMF and international creditors, the Government then agreed to form a Panel Team, consisted of two international experts and two domestic experts, to review the amendment. A special technical mission was also sent by the IMF for similar purpose. In general, both teams view that the proposed amendment will undermined the independence of Bank Indonesia. Some recommendations were put forward to increase the accountability while preserving its independence.

[16] This measure of inflation may be similar to "net inflation" practiced in the Chech Republic. See The Chech national Bank (2000) for the design and performance of inflation targeting in this country.

[17] See Article 10 and 58 together with their elucidation. It should be note, however, these are my own interpretation to the act, which need to be consulted with lawyer.

With regard to the measure of inflation target, as indicated earlier that Bank Indonesia uses the CPI index as its basic target, in line with practices in other countries that have adopted inflation targeting. Thus, the target is based on the projection of the next year CPI inflation by assuming that there is no new government measures on administered prices and income policy. Even though some measures are already stated in the government budget, the experience shows that actual magnitude and timing of these measures are uncertain and thus difficult to predict their impacts on the inflation.[18] There is also an issue to whether monetary policy has to react to the direct impacts of these measures on inflation, an issue relates to persistent and temporary nature of the impacts as well as its implication to output growth should the monetary policy overreacts to these measures. Thus, in addition to setting the inflation target, Bank Indonesia also makes forecast for the impacts of these government administered prices and income policy to come to the forecast of the total CPI inflation.

Nevertheless, the CPI based inflation in Indonesia is very much characterized by extreme changes for certain goods, usually as a result of supply shocks associated with weather or seasonal patterns. This fact needs to be considered not only for ensuring the probability of achieving the target, but also in providing a more appropriate anchor for monetary policy. There is a strong reason to decompose the CPI inflation into two parts, i.e. core inflation and noise inflation. In this regard, a methodology has been employed by Bank Indonesia to measure core inflation using a trimming method.[19] Tests on the CPI inflation over the period of 1990-1997 show that a 20% trim to the 662 commodities that comprise the entire CPI basket results in the smallest absolute deviation from the mean of a long-term trend.

This type of core inflation is considered a good reference in determining monetary policy, as this statistically more robust and indicates the persistent movement of inflation pressures. Problems arise, however, when using such trimmed core inflation for setting the inflation target. Not only it will not be acceptable for general public, but it is also difficult to understand its economic meaning and how to relates this with the CPI inflation. Thus, a further study is conducted to revisit a measure of core inflation, by decomposing the behavior of various components on CPI inflation using different approaches of trimming method, by exclusion, and by specific adjustment.[20] The study tries to measure the controllability, predictability, and measurability of a number of alternatives of core inflation. Overall, preliminary result of the study showed that measuring core inflation using statistically trimming method provides a more robust measure of persistent behavior of inflation, and thus it can be used an appropriate reference for monetary policy. For a reference of setting the inflation target, however, a measure of core inflation by excluding volatile food items from the CPI inflation may be used, as it shows closely robust to the trimming method but more easier to relate to the CPI inflation and to explain to the public.

Another important for inflation target design is the time horizon of the target. Under present practice, Bank Indonesia sets the target annually. On one hand, this may be suitable as to build credibility in achieving the target, considering the difficulty in forecasting and setting the target for a longer-term inflation. However, without setting also the medium-term inflation target, this practice may have a number of drawbacks. As monetary policy works with more than one-year

[18] These measures of administered prices and income policy are becoming sensitive over the past two years in tandem with the transition process toward more open democratic system.

[19] For a description on this method, see appendix-1 entitled "The Choice of Inflation Target: Core vs Headline Inflation" in Alamsyah, et.al. (2000).

[20] See Bank Indonesia (2001).

lag, setting an annual target undermines the ability for pre-emptive policy to achieve the target. The policy will most likely react to short-term inflation, as opposed to more forward looking strategy, which may have detrimental effects to output variability. Furthermore, setting a medium-term target may help anchoring public expectation and stronger commitment toward containing inflation.

These foregoing arguments point to a need for Bank Indonesia, in addition to setting a short-term target, to establish a medium target in the future.[21] This target is to be reached in stages, under a gradual disinflation program, to demonstrate Bank Indonesia's commitment to reach and maintain a low inflation rate. The criteria for choosing the inflation target and the optimum time period for attaining the target can be based on minimizing the total fluctuation in inflation and in output that will take place over the time horizon of the medium-term target.[22] A study in Bank Indonesia shows that, through a simulation using a small-scale macroeconomic model with a monetary policy rule, a medium-term target for CPI inflation of 4-6% is attainable over the next five years. It should added, however, that this target is calculated on the assumption that by 2004 there is no added impacts of inflation from government policy on administered prices as all forms of subsidies are already being phased out.

Policy decision making

Another important benefit from implementing inflation targeting is improvements of good governance within the central banks. This is mainly because inflation targeting require discipline not only on the policy decision making process but also competency in doing the analysis and research. Furthermore, as transparency is a key for inflation targeting, the central banks have to device its capability to communicate its policy to the public.

Since the new central bank act was enacted in May 1999, Bank Indonesia has also formed a formal decision making process for monetary policy. The act stipulates that the Board of Governors should performed board meeting at least once a month for determining general direction of monetary policy, and at least once a week for evaluating the implementation of monetary policy.[23] The monthly board meetings can be attended (but without voting right) by one or more ministers representing the government. The members of the board may also present in the government's cabinet ministers discussing economic, banking and financial matters which relate to tasks and authority of Bank Indonesia.

To implement the act, the monthly board meetings are held every first or second Tuesday of the month to set the stance of monetary policy. The inflation target as well as the direction of monetary policy (in the form of base money target), together with macroeconomic outlook for the whole year, are set in the January's board meeting. The quarterly review of inflation, macroeconomic condition, as well as the stance of monetary are set in the April, July, October

[21] This issue is brought on the Bank Indonesia Annual Report of 2000 (see page 160-161).

[22] For the description of the model, see appendix-2 entitled "The Search on Optimal Path of Inflation Target" in Alamsyah, et.al. (2001).

[23] In the decision making process, the Board will seek for the unanimous decision. However, if this could not be secured, then the decision by majority vote.

and January board meetings. Meanwhile, the board meetings for the other months reviews and set the stance of monetary policy for the month.[24]

For every board meeting, the research staffs present their analysis on inflation development (compared to the target), recent economic activities, forecast for inflation and economic activities, and recommendation for monetary policy.[25] The board will discuss the assessment of the research staff, and then decided the stance and strategy of monetary policy recommended by the staff and/or initiated by the members of the board. The implementation of the stance and strategy of monetary is reviewed and decided in the weekly board meeting, in the forms of amount of open market operation (both through auction of the central bank certificates and direct operation in the inter-bank money market) and intervention in the foreign exchange. The board meeting, upon deciding the stance of monetary policy, will then discuss the draft communiqué that will be released to the public.

Accountability and transparency

Accountability and transparency form integral part towards implementing inflation targeting. One primacy for inflation targeting is that the central bank commits and will use any instruments within its power to achieve the inflation target. That is why the central bank must have independence and thus will be held accountable for achieving the target. Moreover, the central bank must be transparent and communicate continuously to the public so that the public will understand what the central bank will do in its monetary policy to achieve the target. By gaining credibility in achieving the target, the central bank in essence will drive public expectation to a level that is consistent with the inflation target.

In this regard, a number of efforts have been implemented by Bank Indonesia to increase its accountability and transparency to gain more credibility. At the beginning of every calendar year, upon deciding in its annual board meeting, Bank Indonesia explains to the public its evaluation of last year performance of its policies, and announces its inflation target and monetary policy stance (together with its monetary targets) set for the coming year. These have been done through press conferences, supplements in major newspapers, as well as discussions with academicians and banking and business communities. Formal reports of these policy evaluations and stances are also sent to the Parliament, President, and related government institutions. These form the Annual Report of Bank Indonesia.

For every quarter, Bank Indonesia also communicate the board decisions on the states of inflation and economic developments, and what monetary policy it will pursue for the next quarter. These have been done through press communiqué, supplements in major newspapers, and, as deemed necessary, discussions with academicians. These will also form the quarterly report submitted to the Parliament as mandated by the act, and sent to the Government as information.[26]

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[24] It should be noted that it is the Board of Governors of Bank Indonesia who decide the monetary policy. Thus, it differs with some countries (e.g. Reserve Bank of Australia and Bank of England) whereby the policy is set by Monetary Policy Committee, the members of which includes also some representatives from the business, academicians, and government institutions.

[25] The monthly reviews usually encompass only monetary policy, while the quarterly and annual board meeting discuss matters relating monetary policy, banking supervision, and payment system).

[26] The report entitled "Quarterly Development of Economic, Monetary, Banking and Payment System" encompass monetary, banking, and payment system with appendix reports on internal management.

For the monthly review, the decisions from the board meetings are also communicated to the public through press statement and monthly "Monetary Policy Review" available to the public. Seminar or workshops are also conducted with academicians, press, and public at large for explaining the recent economic development as well as monetary policy that the central bank implements.

Nevertheless, gaining credibility under a condition by which the country is still undergone social and political transition as well as economic and banking restructuring, is a daunting task for a central bank. For one thing, in a crisis-hit country, public may contend the primary of inflation targeting pursued by the central bank by the needs to stimulate economic recovery and create employment. For another thing, when the economy and financial sector experiencing a structural breakdown, there is serious threat to the effectiveness of monetary policy in influencing the inflation and economy at large. But probably the most challenge is difficulty in gaining de-facto independence when the central bank itself, as an institution, becomes the object of political debacles within the country. These are some factors that cause performances of inflation and monetary stability over the past two years in Indonesia are not satisfactory.

IV. Operational Issues

The credibility of inflation targeting will ultimately depend upon the ability to deliver the target. This requires a number of operational issues for a successful implementation of a full-pledged inflation targeting. The first is the ability to forecast inflation in the future, so that the monetary policy could be employed at present to direct the forecasted inflation to the targeted level. Including in this exercise is the availability of economic models that are reliable to forecast macroeconomic direction in the future. The second is the adequate understanding about transmission mechanisms upon which channels the monetary policy affects the inflation and the economy as a whole. And finally, the central bank should also be able to conduct monetary operation, using its available instruments to direct and signal the policy to the markets so that the targeted path of policy rules is in line with the inflation target. This section will elaborate the efforts of Bank Indonesia to deal with these operational issues.

Inflation forecasting technique

Bank Indonesia employs both surveys and formal economic models to forecast inflation. Since there are not many surveys done by other institutions, Bank Indonesia conducts a number of surveys to grasp public expectation about future inflation and other prompt economic indicators. These include consumer survey, business survey, retail sales survey, property sector survey, and bank lending survey. Inflation expectations are mostly captured from the consumer and business surveys, reflecting inflation expectation of these two groups of economic agents.

Researches are also conducted to develop a formal economic model for forecasting and setting the inflation target. In particular, a small-scale macroeconomic model for inflation forecast has

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The chapters on economy and monetary of the report can be regarded as "Inflation Report" practiced in inflation targeting central banks.

been built in 1999.[27] The model consists of seven equations depicting a short-run Phillip's curve for inflation, output gap, real money balance, whole price inflation, exchange rate, and a form of Taylor's type of monetary policy rules. Overall, the model proves useful for forecasting inflation, especially for the short-term. For the longer-term inflation, the use of more comprehensive and large macroeconomic model is employed to check the consistency of the forecast. In addition, the model is sensitive to the forecast of exchange rate and does not incorporate a more rigorous treatment of inflation expectation.

To help understanding the probability distribution of inflation forecast, an analytical tool using the fan-chart technique introduced by Bank of England has also been developed. The tool proves to be useful in explaining the likelihood of inflation forecast during presentation to the board meeting. Nevertheless, the accuracy of the probability distribution hinges on the robustness of the model for forecasting inflation and the assumptions being used. Moreover, the current exercise of modeling fan-chart still involves economists in the research department, and to improve them it therefore should invite and rest primarily on the board views in the exercise.

A number of studies have also been conducted to develop simple Leading Indicators of Inflation (LII) and Leading Economic Indicators (LEI). The LII index includes components of real M2, real credit, interest rates, stock prices, and other variables. This index provides valuable information on the direction (but not magnitude) of future inflation useful to confirm the results from inflation forecasts. Meanwhile, the information obtained from the LEI index shows the direction of future economic activity, especially from the demand side. Since demand pressures will affect inflation rates, leading economic indicators can serve as input for inflation forecasting.

Macroeconomic models

Fuller understanding about overall macro economy is also crucial for inflation targeting. For this reason, large structural macroeconomic models are also developed in Bank Indonesia. These models are useful not only for analyzing and forecasting inflation within the context of macro economy, but also to check the forecast from the small-scale model. In this regard, for a number of years Bank Indonesia has already developed and used an annual large-scale macroeconomic model, known as MODBI (Macroeconomic Model of Bank Indonesia), for analyzing various macroeconomic variables and their medium-term forecasts.

With the enactment of the new central bank act in 1999, there is pressing need to have a formal quarterly macroeconomic model for analyzing and forecasting macro economy for the materials presented to the quarterly board meeting. For this purpose, a quarterly macroeconomic model, known as SOFIE (Short-term Forecast model for Indonesian Economy), has just completed its first-phase development.[28] As in the inflation forecasting model, the building blocks of the model reflect the underlying theory and thinking of the inflation targeting. These include equations on a short-run Phillip's curve, aggregate demand, aggregate supply, monetary sector, interest rate behavior, and a Taylor's type policy rule. The difference

[27] For the description of the model, see Appendix-3 entitled "The Inflation Forecasting Model" in Alamsyah (2000).

[28] The model is documented in Bank Indonesia (2001a), Short-term Forecast Model for the Indonesian Economy (SOFIE).

with the inflation forecasting model is that the SOFIE is more disaggregated, since the purpose is to provide the behavior of macroeconomic variable consistent with the inflation forecast. The model also employs error-correction technique in its econometric approach. This model is now being used for helping researchers in analyzing and forecasting quarterly macroeconomic variables for the quarterly board meeting. Further improvement of the model is underway especially to capture a more rigorous behavior on monetary transmission and monetary policy rule.

For policy simulation purpose, a stochastic dynamic macroeconomic model, known as GEMBI (General Equilibrium Model of Bank Indonesia), is also developed.[29] Unlike previous two structural models, GEMBI employs a modern stochastic dynamic macroeconomic theory. Using some stylized fact parameters, the model runs calibrations to provide long-term relationships of a number of key macroeconomic variables (consumption, inflation, exchange rate, and other variables). The purpose is more for policy simulation, in that it can provide the dynamic path of those key macroeconomic variables in the medium-long term based on simulation of a number alternative of policy rules.

These three models are complementing in getting more understanding about the behavior and projections of macro economy. SOFIE and MODBI are useful for quarterly and annual analysis and projection, respectively. Then, using the one-quarter and one-year projections from the SOFIE and GEMBI, respectively, as the initial value, the GEMBI would be used as a policy stimulator for providing the dynamic path of some key economic variables based on alternatives of policy rules.

Monetary policy transmission

Appropriate understanding about monetary policy transmission mechanism is crucial for inflation targeting. Under an inflation-targeting framework, the current stance of monetary policy must aim at achieving the inflation target in the future. Thus, taking into account that monetary policy has a considerable lag, targeting inflation requires setting the policy framework in a pre-emptive way. The problem, however, arises at the level of monetary policy implementation. Monetary policy has a very imperfect control over inflation. As Milton Friedman put it, monetary policy works only with long and variable lags. The channels through which a monetary policy instrument influences the inflation rate, known as the monetary transmission mechanism, are often unclear, and some economists have dubbed it as a "black box."[30] They may works through several ways, e.g. direct monetary channel (through base money and money supply), interest rate channel (through real interest rate), asset price channel (through exchange rate and asset price), credit channel (bank lending and firm's balance sheet), and expectation channel.[31] For designing a monetary policy framework, understanding those transmission channels are inevitable.

Study on monetary transmission is also important to understand the relative important of each channel in influencing inflation. This will be useful for developing information variables that can

[29] First version of the model is documented in Bank Indonesia (2000a), The Stochastic Dynamic General Equilibrium Model of Bank Indonesia (GEMBI).

[30] See for example papers on Symposium on Monetary Transmission Mechanism in Journal of Economic Perspective (1995).

[31] See for example Kakes (2000) and de Bondt (2000).

be used as a reference for detecting the current state of monetary policy related to the attainment of the inflation target. While the use of intermediate targets (other than the forecast of future inflation itself, as emphasized by Svenson (1997)) does not fit comfortably with inflation targeting, many inflation-targeting central banks have emphasize particular macroeconomic indicators as information variables, i.e., variables that contain information about future course of the economy but which are not themselves targeted. Examples include the monetary condition index in New Zealand and Canada and the broad money aggregate in Spain. Although the targeting countries differ in the degree to which they emphasize particular indicators of inflation, all rely on varieties of sources of information when deciding policy. The result is a policy regime that exhibits what we called "constrained discretion".[32]

Earlier studies on this issue in Indonesia for the pre-crisis period have shown that interest rate channel is very important for Indonesian economy, and recommended the use of interest rate as operational target for monetary policy (Boediono (1998), Sarwono and Warjiyo (1998), Warjiyo and Zulverdi (1998)). Meanwhile, Agung (1998) found that, as an impact of financial deregulation, bank lending channel worked only for smaller banks but not for state banks which constitutes a larger portion of the banking system. For the post-crisis period, Agung (2000) found an evidence of firm's balance sheet channel, in which the response of the real sector to a monetary shock depends upon the financial structure of the firms, the segmentation of the financial market between large and small firms, and the degree of financial/credit friction in the capital/credit market. Furthermore, Bank Indonesia (2001b) shows a credit-crunch phenomenon in Indonesia for the post-crisis period, explaining that the exixtence of non-price rationing has significantly reduced the effectiveness of monetary policy in influencing the supply of credit.

Nevertheless, studies that comprehensively map all of the channels of monetary transmission have not been done for Indonesia. Bank Indonesia is, therefore, now studying extensively those channels of monetary policy transmission mechanisms, focusing on interest rate channel, bank lending and firm's balance sheet channels, exchange rate channel, and expectation channel.[33] The purpose is to further document the existence, especially in terms of magnitude and lag structure, of different channels of monetary policy. The studies employs a Structural VAR to time-series data for the period both pre and post-crisis. For some studies, formal structural economic models are also used. Moreover, the studies are also complemented by the results of the surveys to a sample of banks, corporations, and household.

Overall, the preliminary results of these studies provide valuable information of the transmission mechanism of monetary policy, both for the pre-crisis and post-crisis periods. In particular, not only they provide evidences on the behavior of each channel, but also they indicate some changes on relative strength of the transmission for the two periods. For the interest channel, the study reveals that before the crisis both bank deposit and lending interest rates were strongly influence by monetary policy rate (Kusmiarso, et.al. 2001). But the transmissions of interest rate to investment and consumption were weak. After the crisis, however, bank interest rate response to policy rate is weaker as compare to pre-crisis period. On the contrary, transmission from interest rates to investment and consumption are

[32] Fur further discussion on this issue, see for example Bernanke, et.al. (1999).

[33] These studies form some of the strategic researches conducted in the Bank Indonesia's Monetary Policy and Research Department for 2001.

significant, providing evidence for the stronger cost of capital and substitution effects in the post-crisis period.

For the credit channel, the study reinforces and provides more comprehensive picture on the findings from the earlier studies on the credit-crunch phenomenon and firm's balance sheet channel. On the bank lending channel, the study found that efficacy of a monetary policy shock in influencing bank lending and thus investment is stronger in the aftermath of the crisis, especially in the case of monetary contraction (Agung, et.al., 2001a). Ineffectiveness of monetary policy in affecting the bank lending prior to the crisis was due to banks' ability to access funds from international sources. In the wake of the crisis, given deterioration of bank capital and high credit risk, an increase in interest rate as a result of a monetary tightening raises the probability of loan default, hence banks become reluctant to extend credits. On the balance sheet channel, the study provides further evidence that the sensitivity of investment with respect to a change in balance sheet variables (cash flow and leverage) increases during the period of monetary contraction, especially for the smaller firms (Agung, et.al., 2001b).

For the exchange rate channel, the study shows that monetary policy transmission through the exchange rate worked relatively stronger in the floating exchange regime (Siswanto, et.al., 2001). For the pre-crisis period, the variability of exchange rate was kept under the managed floating band so that the impact of policy rate to exchange rate was rather weak. Under the floating regime, on the contrary, the volatility of exchange has increased dramatically because of very high risk premium, so that there is a limitation for the policy interest rate to influence the exchange rate. More importantly, the direct pass-through effects of exchange rate to inflation works almost instantaneously since the first moth, while the indirect pass-through effect begins with a two month lag.

For the expectation channel, the study focuses on analyzing the existence of monetary transmission during the post-crisis period (Bank Indonesia, 2001). For a number of alternative indicators for inflation expectation, the study shows that inflation expectation derived from the business survey and the Fisher theory perform better than inflation expectation from the consumer survey and inflation assumption for the budget. Furthermore, the study also provides evidences that both inflation expectation and actual inflation are primarily driven by inflation inertia and exchange rate movements. Meanwhile, the evidence for the response of inflation and expected inflation to monetary policy shocks, measured by the growth of base money and the SBI interest rate, are not clear-cut.

As shown, these studies shed important findings for the working of each channel for transmitting monetary policy to inflation and the real sector. These will provide strong evidences for further study to analyze the relative strength of these channels for a complete mapping of monetary policy transmission mechanism in Indonesia.

Monetary policy operation

As discussed before, the current framework for conducting monetary policy is based on monetary programming using base money as an operational target. For a number of consideration already alluded to earlier, the existing base money targeting is viewed to be incompatible with the monetary management for achieving the inflation target, as well as with the efforts to implement a full-pledged inflation targeting in the future. Therefore, there is a

growing thought to use interest rate as an operational target in monetary management to achieve the inflation target.

Actually, even during the period before the crisis, the idea of using interest rate as an operational target for monetary management has been put forward. Sarwono and Warjiyo (1998) indicated that the behavior of money demand and its relation with economic activity may have been deteriorating due to the advance in the post-financial liberalization era since the early 1980s. Built from this idea, a framework for monetary management under flexible exchange rate using interest rate as an operational target is then outlined. Details elaboration of this framework are then further outlined in Warjiyo and Zulverdi (1998), and followed by Bank Indonesia (2000b) for more operational issues of monetary management using interest rate as an operational target.

To be more operationally feasible, however, more works need to be done. To control inflation with interest rate as an operational target, there must be a reasonably stable relationship between the interest rate and the inflation forecast. Traditionally, the central bank targets the short-end of the yield curve of some arrays of interest rates, and relies on the financial markets to transmit the policy along the yield curve. The operational target is therefore set for the short-end of the yield curve. In Indonesia's case, this would probably mean determining an interest rate based on the interbank market rate, the SBI interest rate, or the Jakarta Interbank Offer Rate (JIBOR).[34]

There are at least two constraints for Indonesia at present to be operationally feasible using interest rate as an operational target along this line of framework. The first is that a well-defined yield curve has not developed yet, and the second is the financial system is in the process of recovering from the crisis. For the yield curve, a secondary market for government bond market has already been introduced in 2001, even though its size and liquidity are in the early-stage of development.[35] A market for government treasury bills is planned for 2002. These markets will be the basis for the formation of yield curve of interest rates in Indonesia. Meanwhile, to anticipate the use of government securities for an alternative monetary instrument to replace the existing central bank bills (the SBIs), a preliminary study is conducted by Bank Indonesia.[36] This is important as the current practice of using the SBIs poses significant costs for the central bank in conducting its monetary policy.

Another important works need to be explored further is the monetary policy rules for directing the interest rate toward the inflation target. A study has been conducted in this area by Bank Indonesia.[37] This preliminary study assesses the use of forward-looking monetary policy rule, a Taylor's type rule with forward looking component commonly referred to as Inflation-Forecast Based Rule with Contemporaneous Output Gap (IFB-OG) is analyzed with the small-scale macroeconomic model of inflation forecast. Further improvement of the model needs to done to help in assessing to what level of interest rate and its path that are consistent with the inflation target.

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[34] For a fuller analysis on the operational issues on the implementation of inflation targeting in Indonesia, see Sitorus (2000).

[35] The bonds were issued by the Government for the equity participation under the bank recapitalization program.

[36] This is documented in Bank Indonesia (2000).

[37] See the appendix-4 entitled "Estimation of a Robust IFB-OG Rule Forward Looking Inflation Control" in Alamsyah, et.al. (2000).

Further studies are also needed to analyze the behavior of money market and terms structure of interests. Preliminary studies (Bank Indonesia (2000b); Bank Indonesia (2001e)) indicate that the behavior of markets for bank reserves are very unstable; but policy and non-policy variables that can best explain the market are still difficult to determined. This makes difficult to assess on how the money market will react to changes in policy interest rates, and how is then transmitted to other spectrum of interest rates. The difficulty is aggravated by the absence of well-developed secondary markets for government bonds, and that makes problems on assessing term structure of interest rates.

Studies are also needed in the area of monetary instruments mix and market signaling. Current practice on relying more on Bank Indonesia's certificates in open market operations is quite expensive in terms of costs for conducting monetary policy for the central bank. In the future, the use of government bonds and treasury bills need to replace the central bank certificate once they are actively traded in the market. Furthermore, the central bank needs to develop ways in communicating its monetary policy stance to more effectively signal the market and transmit monetary policy to financial and economic activities.

These are some major areas need to be studied and developed for the successful full-pledged inflation targeting using policy interest rate. While these studies are underway or being planned for next year, current framework of base money targeting may provide as a temporary suitable venue for disciplining the conduct of monetary policy.

V. Transitional Issues

The discussions in the previous sections come to a point that, after reviewing the prerequisites and constraints, a full-pledged implementation of inflation targeting may be difficult for Indonesia at present situation. This is in line with other studies that previously assess the efficacy of inflation targeting for the present condition in Indonesia.[38] In particular, there are a number of basic transitional issues that have important bearing on the chance for a successful adoption of inflation targeting in Indonesia.

First, the continuing political uncertainties in Indonesia have undermined the effectiveness of all economic policies, including the monetary policy. Thus, the adoption of inflation targeting will be credible only if it is timed to coincide with an improving perception about the overall political climate. In particular, public supports from the Parliament, the Government, and the public at large for committing to controlling inflation as an overriding objective for the central bank becomes to the core.

Second, there is a lingering concern about medium-term fiscal sustainability, and this has a direct bearing on the credibility of monetary policy. As a result of the crisis, the Indonesian government has become highly indebted, with domestic debt alone amounting to about half of GDP, about two-third of them are at floating interest rates based on the three-month SBI rate. Thus, if inflation pressures arise and the central bank is forced to raise interest rates to hit a specific inflation target, there will be a serious effect on the budget, which could undermine the

[38] See for example, Alamsyah, et.al. (2000), Sitorus (2000), Boediono (2000), and Felman (2000).

sustainability of the monetary stance. Of course, this is an issue for any monetary regime, but it is a particular problem for Indonesia at present.

Third, the Indonesian banking system is still weak and in the process of recovery. Even though bank lending starts rising, but bank intermediary function has not resumed to normal. Credit crunch phenomenon is evidenced, and the response of bank interest rates to the SBI policy interest rate is slow and lagging. Since the banking system constitutes the majority of the financial system, the effectiveness of monetary policy is severely undermined because of this non-functioning transmission mechanism through the banking system. This makes the costs of conducting monetary policy are more expensive, meaning that it takes much larger increases in the SBI rate to direct the bank interest rates. The problem is aggravated by the fact that corporate sector is still undergoing restructuring, and thus excess liquidity in the banking system are floating around in the financial markets, raising speculation pressures which cause serious threat on the stability of exchange rate and the success of achieving the inflation target.

Fourth, a number of homework still needs to be developed further, especially in the operational issues, for the successful adoption of inflation targeting. Previous section outlines the works that have been completed and areas of operational issues that still need to be improved and/or developed. To add, it will also be useful for the central bank to look into the micro aspects of the inflation process and monetary transmission mechanism in Indonesia. This is particularly important for a crisis country like Indonesia, where many problems arise from the micro sides. For example, research on price formation mechanism in key sectors, in-depth analysis of behavior of the hundreds of the CPI items would be useful. Equally important, understanding the portfolio behavior of the bank and market segmentation both in the money market and foreign exchange market is crucial for analyzing factors behind exchange rate and interest rate movements. Overall, the study on these micro aspects can enrich and complement the understanding from conventional macroeconomic research, and thus can better assess what policy implication that need to be addressed.

And finally, since Indonesia is under the IMF program, an arrangement need to be developed for the plan for adopting inflation targeting. The prospect that countries with IMF-supported programs may adopt inflation targeting has prompted a reconsideration of monetary policy conditionality in those countries (Schaechter, et.al., 2000). The IMF has, on an experimental basis, adopted a reviews-based approach to monetary conditionality under inflation targeting as an alternative to the traditional configuration of performance criteria. A variant of the reviews-based approach is currently in use in Brazil, the only inflation targeting country supported by an IMF arrangement. Under this approach, monetary policy would be subject to quarterly reviews focusing on indicators of inflation prospects, including recent inflation outturns and various leading indicators of inflation. A floor for net international reserves would also be retained under this approach to limit the use of the IMF's resources for foreign exchange market interventions.

These are some of preconditions that still constrain the adoption of a full-pledged inflation targeting at present in Indonesia. Of course, none of these conditions would last forever. Eventually, the political conditions will stabilize, the economy will recover, the fiscal situation will improve, and the banking problems will recede. And at that point, with the much progress in both the institutional frameworks and operational issues, it will much desirable to adopt a full-pledged inflation targeting.

VI. Concluding Remarks

We have reviewed extensively the efforts that Bank Indonesia has been contemplating for the preparation to implement inflation targeting. In particular, we review these preparations by focusing on efforts and constraints in dealing with aspects of institutional framework, operational issues and organizational implications for successful implementation of inflation targeting in the future. Experiences from the existing framework and performances of inflation and monetary stability over 2000 and 2001 have been analyzed to dwell into a number of preconditions for implementing inflation targeting. In general it can be said that, while its potential benefits would be fruitful in the future, the existing preconditions point to a conclusion that it will be premature for Indonesia to implement a full-pledged inflation forecasting at present.

While these preparations are underway or being planned for next year, current framework of base money targeting may provide as a temporary suitable venue for disciplining the conduct of monetary policy. With understanding about some drawbacks in its effectiveness to achieving the future inflation target, base money can be a relatively useful guide for monetary policy in crisis situation.[39] Essentially, this is because the relation between interest rates and inflation may not be more stable and predictable than the base money either. Nevertheless, a caution should be taken for a rigid base money targeting. Under a crisis situation like in Indonesia, with unstable demand for money, this framework may result in abrupt and drastic increases in interest rates. As this could have detrimental effects to banking condition, fiscal position, and economic recovery as a whole, the efficacy of that framework for attaining inflation target may be put on risks. In this kind of environment, the central bank should gather and analyze more information variables to detect the state of the economy and the likelihood of future inflation, and to adjust its instruments accordingly. Continuing use of instrument mix, i.e. by combining open market operation, rupiah intervention, and foreign exchange sterilization, is also useful to explore and be adjusted based on the information variables it acquired. The focus should be directed toward efforts to achieving its inflation target.

Jakarta, November 10, 2001

[39] For a strong case for the base money targeting, see Felman (2000).

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