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5. Author (s)
1. Reza Anglingkusumo
2. William G. Tyler
3.

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DISCUSSION NOTE
Reza Anglingkusumo and William Tyler[1]
June 11, 1999

Moving Towards Inflation Targeting in the Pursuit of Monetary Policy: Some Thoughts on Defining a Work Program

Introduction

With the enactment of the recent central banking law, Bank Indonesia is afforded greater independence from the government in its activities and in particular in the pursuit of monetary policy. In addition, with the new legal environment monetary policy in Indonesia is assigned the overriding objective of assuring price stability. Assigning such an objective for monetary policy is a recognition that one instrument can not reasonably be expected to pursue multiple, and sometimes conflicting, objectives. Indonesia is not alone in taking this important step. Indeed, there has been a rethinking of the role of central banks and monetary policy worldwide.

Starting from a point of departure that the price stability is the overriding objective of monetary policy, a number of countries have adopted inflation targeting as a guide and disciplinary framework for the conduct of monetary policy. This note proposes a line of research with *three basic objectives*: (a) to examine the suitability of inflation targeting for the Indonesian economy and, more specifically, its suitability for the country's monetary authorities; (b) to analyze the prerequisites for the possible successful adoption of inflation targeting in Indonesia; and, most importantly; (c) to prepare the analytical underpinnings for carrying out inflation targeting in the event that the decision should be made to pursue that approach. The work program does not presume that inflation targeting will be adopted, but that certain analytical work is necessary to provide BI with that option.

What is Inflation Targeting? Inflation targeting formally is the announcement of a target level or range of inflation for a future period and the accompanying commitment on the part of the monetary authorities to use monetary policy instruments primarily, if not exclusively, to attain such an inflation objective. It does not represent an ironclad rules approach to monetary policy; nor does it imply that the monetary authorities disregard other economic policy objectives, such as employment and the level of economic activity. Rather, it provides a framework and set of general guidelines for the conduct of monetary policy.

Country Experience with Inflation Targeting

Over the past ten years a number of countries have adopted inflation targeting as a monetary policy strategy. New Zealand was the pioneer in implementing inflation targeting when specific inflation targets were introduced in 1989, with the Reserve Bank of New Zealand given the authority and accountability to achieve those targets. New Zealand has

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[1] Economic Advisor, Bank Indonesia, Partnership for Economic Growth (PEG) Project. PEG is a USAID-funded Project with the Government of Indonesia. The views expressed in this report are those of the author and not necessarily those of USAID, the U.S. Government or the Government of Indonesia. The authors wish to thank their colleague Iskandar for insightful comments on an earlier version of this note.

maintained inflation targeting since then, refining its operational techniques and bringing good economic results in the form of low inflation, reasonable economic stability and growth. Since 1989 a number of other countries, following the New Zealand example, have adopted inflation targeting. The current list includes Australia, Canada, the Czech Republic, Finland, Israel, Spain, Sweden and the United Kingdom. In addition, it can be argued that Germany and Switzerland have adopted *de facto,* if not formal, inflation targeting as perceived through the conduct of monetary policy by the authorities.[2] Given the experience to date, the new European Central Bank is said to be debating the adoption of inflation targeting as a guideline for its monetary policies. Discussion also exists in the United States concerning the desirability to pursue inflation targeting in that country, despite recent success in curtailing inflation.

The growing international experience with inflation targeting has been, in most instances, positive to date.[3] In general, countries employing inflation targeting have experienced lower rates of inflation and lower inflation expectations - lower in comparison both with respect to time and other countries. In addition, it is observed that those countries experience less "pass through" of inflation into the inflation rate of price level shocks to the economy. In general, the inflation-targeting countries have also enjoyed lower interest rates.

The observed success in reducing inflation for countries that have adopted inflation targeting accounts for it being seriously considered in a growing number of countries. Without exception however, the successful experience with inflation targeting has occurred in developed countries. Just because inflation targeting as a monetary policy strategy may be suitable and appropriate in other, and especially more developed, economies does not necessarily mean that would be the most appropriate strategy for Indonesia. There are some questions as to the applicability of inflation targeting to less developed economies in general and to Indonesia in particular. Some of these questions relate to: (a) the depth and stability of financial markets; (b) the capacity to adequately forecast inflation; (c) the understanding of the monetary transmission mechanism; (d) the ability of the monetary and governmental authorities to deal with shocks; and (e) statistical adequacy and reliability. Prior to the adoption of inflation targeting by the Indonesian authorities there should be a consensus among those policy-makers concerning its prospects for success.

One specific issue that needs to be addressed deals with the possible instability of real economic activity as a result of pursuing inflation targeting. Exogenous economic disturbances, including volatile external financial flows, may imply larger fluctuations in domestic economic activity and exchange rates than might be the case in the absence of inflation targeting. This question is treated and debated in the professional literature on inflation targeting. To some extent the question is one of how to accommodate external economic shocks. In any event, some special consideration is warranted in the case of Indonesia's possible pursuit of inflation targeting.

Prerequisites for Successful Inflation Targeting

Aside from the overall question of the suitability of inflation targeting for the Indonesian economy, there are a number of prerequisites for the successful pursuit of

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[2] Bernanke and Mihav, 1997.

[3] See, *inter alia*, Bernanke *et al.* (1999), Allen (1999), and Haldane (1995).

inflation targeting as a monetary policy strategy. These are necessary, but not sufficient, conditions. If BI and the Indonesian Government are to pursue inflation targeting, the prerequisites should be firmly in place. To put these elements in place will require some high-level policy understandings and considerable analytical work. There are three general categories of prerequisites for successful inflation targeting: (i) overall macroeconomic policy coordination and political commitment; (ii) technical capacity; and (iii) an adequate and open reporting format. This note will concentrate mostly on the technical capacity prerequisite.

i. Overall Macroeconomic Policy Coordination and Political Commitment

Inflation targeting cannot be successful unless it is pursued as part of a consistent set of macroeconomic policies. Monetary discipline in itself can only enforce fiscal discipline at a high economic (and political) cost. Independence for the central bank is indeed an important step and perhaps even a prerequisite for inflation targeting. In addition, however, there needs to be a general understanding on a consistent macroeconomic policy framework and a government-wide commitment to the attainment of the general economic policy objectives of economic growth, price stability, and fiscal sustainability over time.

In addition to this general understanding, especially as related to the government's fiscal stance, two more specific understandings are also required. First, inflation targeting implies a freely fluctuating exchange rate regime. The monetary authorities can not be expected to use monetary policy instruments to attain an inflation target and at the same time defend a certain, predetermined exchange rate. The two targets may well to be in conflict. It is one or the other, but not both. Of course, a fixed exchange rate (or target band) may coincidently be consistent with low inflation, but the two may be in conflict, especially if inflation abroad is high or if there are adverse external shocks.

Second, an inflation target has to be agreed upon for the monetary authorities to focus on. Although this target can be subject to and influenced by economic analysis, in the end it will need to be a political bargain. In most countries practicing inflation targeting, the inflation target is set by the government in consultation with the monetary authorities. Few central banks, no matter how independent, have the ability to set the target themselves, i.e., possess *goal independence*. Once set however the monetary authorities will presumably have *instrument independence*, i.e., the authority to pursue monetary policies without outside interference. Such instrument independence is consistent with the central bank independence. At the same time, however, (and also consistent with the new Indonesian central banking law) the monetary authorities will need to be held accountable to achieving this agreed target.

ii. Technical Capacity

The successful pursuit of inflation targeting requires a fairly sophisticated technical and analytical capacity on the part of the monetary authorities. If inflation targeting is to be introduced in Indonesia, considerable preparatory would be necessary to insure its effectiveness. Any work program related to inflation targeting would have to include analytical work in a number of areas. These areas include, most importantly: (a) the specification of the inflation target; (b) inflation forecasting; (c) the monetary transmission mechanism; and (d) the time horizon for inflation targeting. Some comments on each are in order.

a. Specification of the Inflation Target

It is a relatively easy matter to say that the objective of monetary policy is low inflation, but to do so raises questions of *definition and measurement*. On the defining and actually setting the target, what is meant by low inflation? How low - or high - is low? How should that price level target be determined? What economic considerations are important in that determination? Is there such a thing as an “optimal” rate of inflation? What are the downside arguments for deflation? Should the target be expressed as a point or a range? If there is a target band, how wide should that band be? Should there be a transition period in the specification of the inflation target?

Similar questions exist with respect to the actual *measurement of inflation*. How should inflation be measured? Should the CPI be used? If so in principle, should some re-weighting occur? Or should another price index, e.g., the WPI, be used? Or should some other adjusted price index be employed? Should asset prices be included in the price index? Should energy and food prices be excluded on the grounds of their greater exogeneity? How should seasonal adjustment factors be introduced? What loss of credibility might exist for the monetary authorities if they use another index other than the BPS measured CPI (so-called “headline” inflation)? All of these questions, and others, raise a number of issues that need to be carefully assessed and developed for possible use in Indonesia.

b. Inflation Forecasting

The ability to accurately forecast inflation is at the core of being able to successfully pursue inflation targeting as a strategy. Simply put, without that ability inflation forecasting becomes a game of charades and chance and is likely to eventually undermine the central bank’s credibility. Currently, Bank Indonesia does not have the analytical tools in place to adequately forecast inflation. Therefore it follows that BI would have to further develop its forecasting capability before embarking on any rigorous form of inflation targeting.

At the core of inflation forecasting there needs to be a flexible modeling framework. The purpose of that model would be simply to forecast inflation. The modeling framework needs to be flexible in the sense that judgmental factors need to be taken into account (e.g., changes in business expectations) and incorporated into the modeling framework. What counts is the robustness of the inflation forecasts. The model does not have to be complete from an economic structural viewpoint as long as the relationships are plausible (no sunspots, please).

Many countries have now experimented with different modeling approaches as a necessary and central part of the inflation targeting approach. The question posed in the analysis is straightforward. Assuming no change in the monetary policy stance, what will the inflation outcome be over the next few quarters? Secondly, assuming a change in monetary policies, what will be the inflation outcomes?

The existence of models developed for a wide variety of countries presently pursuing inflation targeting represents an opportunity to learn from the experience of those countries. Rather than starting afresh (reinventing the wheel?) and developing a model for Indonesia from the ground up, it presumably would be more efficient to survey what has been done elsewhere and adapt one or more of those models to Indonesia’s specific circumstances and economic structures. The models for New Zealand and Canada appear to be especially promising. But they would have to be substantially reformulated, partly through trial and error, to provide a modeling framework that could produce good results for the Indonesian economy.

One alternative that would be worth pursuing, although not exclusively, would be to develop a quarterly inflation bloc within the annual MODBI. This bloc could be separable from the MODBI but could be folded into the normal MODBI exercise.

Given the uncertainty surrounding inflation and economic forecasts, efforts need to be made to present the forecasts as probability distributions over time. The modeling should incorporate such considerations.

The question of periodicity is one that will need to be addressed in the inflation forecasts. Presumably the forecasts will need to be done more than on an annual basis. Should they be done monthly, or are quarterly forecasts sufficient? The experience of most inflation targeting countries suggests that quarterly forecasts are the most appropriate. Inflation rates can fluctuate significantly from month to month (despite any existence of good seasonal adjustment factors). Moreover, doing the forecasts on a monthly basis is likely to overtax the scarce BI staff resources likely to be charged with those forecasts.

c. Monetary Transmission Mechanism

Closely related to the question of being able to accurately forecast inflation is the ability to trace the effects of monetary policy changes. But it is not necessary, strictly speaking, to formally incorporate the monetary transmission mechanism into the inflation forecasting model itself. Nevertheless, there needs to be a clear understanding of the monetary transmission mechanism. How do changes is the monetary policy stance affect the rate of inflation? And when are these effects felt?

With the existing BI use of a base money target in the monetary program, the current *de facto* and implicit assumption of an operational monetary transmission mechanism is a simple one, involving assumptions about money demand and the velocity of money. In reality the money transmission mechanism may be more complex. While complexity in the relationship may complicate the analysis, in the end a more elaborate modeling of the transmission mechanism may provide more robust and better results. Figure 1 suggests a possible monetary transmission mechanism to be further discussed, elaborated, calibrated and tested for the Indonesian economy.

The choice of a policy instrument is an important one. BI can affect base money through its open market operations, which in turn affect the benchmark SBI interest rate. But both interest rates and base money cannot be consistently targeted. An alternative to targeting base money would be to target the SBI interest rate itself. This alternative should be considered, after appropriate analysis, in any move toward inflation targeting.

In addition, efforts will need to be focused on building, for operational considerations, a monetary conditions index. Such an index, used widely in countries pursuing inflation targeting, combines movements in interest rates and exchange rates.

The use of money aggregate targets has been employed in a number of countries, although this practice in recent years has given way to targeting inflation directly. Yet, there is something to be said for the use of an intermediate target such as the money aggregates. This is especially the case in those countries where inflation is considered to be largely unpredictable. If there is inflation unpredictability, there is an issue of how to evaluate whether the central bank has made its best effort in hitting the inflation targets. A central bank could of course claim bad luck, adverse shocks or extenuating circumstances in missing the targets - rather than bad faith. Too much of this rationalizing however would ultimately undermine the credibility of the central bank. A possible way out of this dilemma is to target an intermediate variable such as the monetary aggregates. This indeed is implicitly the current BI practice. Some transition might be possible until greater inflation predictability is achieved.

Another problem in forecasting inflation and tracing through the effects of changes in monetary policies is the long lags that such policy changes have. Lags of twelve to eighteen months are common in the industrial countries. There are no reasons why this should be so different in the case of Indonesia, but analysis of the lags and lag profiles is required.[4]

d. Time Horizon for Inflation Targeting

The (presumed) long lags in the monetary transmission mechanism present the issue of the time horizon for inflation targeting. If changes in monetary policy implemented today only begin to affect inflation in twelve months time, preventing inflation above the target is impossible for the first year of the forecast (depending of course upon where the target is set). Accordingly, the central bank has to employ monetary policy to manage the path of inflation relative to the inflation target. The starting point in the future would be the time at which policy actions taken in the near term have their effects. An outer time limit in the presentation of the forecasts, say, for eight quarters, would have to be considered. The further out in time the forecasts, the less robust they are likely to be.

ii. Reporting Format

The credibility of any central bank pursuing inflation targeting will necessarily involve openness and transparency. Internationally, a number of different courses are pursued to achieve openness and transparency, including publications of central bank inflation forecasts and analysis, public testimony of central bank board members to parliaments, extensive and carefully maintained websites, and speeches of central bank officials in different fora. Also central to the credibility of the central bank is the perceived accountability of the central bank Governor for meeting the agreed inflation targets.

Most countries pursuing inflation targeting publish a quarterly Inflation or Monetary Policy Report.[5] These reports include a discussion of recent economic events, an analysis of monetary policies, and forecasts of inflation and economic activity. The current BI Quarterly Economic Report could easily be transformed into a format commonly used elsewhere. The difficulty of course is not with the format but in doing the inflation and economic forecasts.

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[4] One might argue that the tightening of monetary policies by BI beginning in March 1998 is only now (March-May 99) beginning to show its effects fully on inflation rates.

[5] See, for example, Bank of England (1999), Reserve Bank of New Zealand (1999), Reserve Bank of Australia (1999).

Organization of the Work

A number of decomposable tasks are apparent with the topic and the suggested work program. The advantage of having separate tasks is that some of them can proceed separately at different paces, although under common guidance and supervision. A number of specific tasks involving inflation targeting are currently ongoing in UREM. An overall listing of some existing and new tasks, depicted and presented in the form of separate reports or papers, would include the following:

a. *Analysis of the International Experience with Inflation Targeting and its Suitability for Indonesia*. The purpose of this paper would be to draw the lessons from the accumulating international experience as to their relevance for Indonesia. The underlying question would be the suitability of inflation targeting for Indonesia, based upon the experience elsewhere. A working seminar to discuss the results of this work should take place fairly early on in the overall work program. However, no decision as to whether or not to proceed with inflation targeting would be required to proceed with the other components in the overall work program.

b. *The Measurement of Inflation.* This paper would address those issues related to the measurement of inflation, including which index to use, what adjustments should be made in the index, etc.

c. *The Specification of the Inflation Target.* This effort, related to the measurement of inflation, would examine the questions of what the inflation target should be. In this regard, consideration would be given to the concept and estimation of an "optimal" rate of inflation. Given what may appear to be existing inflationary inertia in the economy, that rate may indeed involve a path over a transition period.

d. *Review and Evaluation of the Different Models used for Inflation Forecasting in Inflation Targeting Countries.* This purpose of this analysis would be to define what elements from the models used elsewhere could be incorporated into an Indonesian model.

e. *The BI Inflation Forecasting Model.* This effort would build upon the elements that can be adapted from the models used elsewhere. Building, calibrating and testing a new model should be viewed as a process rather than an effort which has an ending point in time. Experimentation and refinement would continue over the life of the model's usefulness. In undertaking this work, the recently signed cooperative agreement between BI and the Reserve Bank of New Zealand should be pursued.

f. *Development of a Quarterly Price and Inflation Bloc in the MODBI.* This effort would independently pursue an alternative route from the inflation forecasting model envisage above. The objective however would be the same, i.e., to develop a robust and useful modeling framework to forecast inflation. This effort could possibly be carried out with limited resources - hopefully as an adjunct of the ongoing proposal to reinvigorate the MODBI.

g. *Development of Leading Economic Indicators and Leading Indicators for Inflation.* This task would extend and build upon ongoing work in SSR to develop leading indicators. Such indicators will provide important information and be used to form judgments for inflation forecasting, both as a part of the modeling exercise and for the overall context. Some short-term international consulting support from the Center of Business Cycle Research in New York would be supportive and is proposed.

h. *Issues in Estimating the Output Gap for Indonesia.* In most of the inflation forecasting models the concept of an output gap, or the measurement of excess capacity, is an important independent variable. Efforts should be made to refine the concept for Indonesia and provide alternative estimates to be used in the modeling exercises.

i. *Research on the Monetary Transmission Mechanism for Indonesia.* This effort, to be closely coordinated with the inflation forecasting exercises, would seek to identify and estimate the causal links between monetary policy instruments, on the one hand, and changes in inflation, on the other. A hypothesized monetary transmission mechanism, such as that presented in Figure 1, might serve as a point of departure. In the econometric work special attention will have to be given to the time lags.

j. *Research on the Stability of Money Demand*. As a part of providing a better understanding of the links between monetary policy and inflation, this paper would focus on the estimation of money demand functions and test for their stability. It would also examine the constraints of currency and asset substitution on the conduct of monetary policy. A short-term international consultant for this work has been identified (Dr. Paul McNelis from Georgetown University) and is proposed.

k. *Development of Dissemination Techniques and Instruments for BI Economic Information and Inflation Forecasts.* This work would consist of two components: (i) design of the format of a quarter inflation report, using the present Quarterly Economic Report as the point of departure; and (ii) upgrading the BI website with a view towards providing more complete and up-to-date information on monetary policies and the economy. Both efforts would be intended to enhance the BI's credibility through providing greater openness and transparency.

l. *Overview and Status Report on Inflation Targeting Capabilities and Preparatory Work.* This report, to be prepared for the Board, would take stock of the work done on inflation targeting in BI. It would assess the technical preparedness to carry out inflation targeting as a monetary policy strategy for Indonesia. Drawing on this and work on the suitability of inflation targeting for the country, it would make recommendations as to whether to proceed with inflation targeting.

l. *Development of a Strategic Plan for Implementing Inflation Targeting in Indonesia*. Depending upon the desires of the Government and BI's management to proceed with inflation targeting, a plan for its implementation will be necessary. Such a plan would have to involve timing, sequencing, training, transitional issues and organizational changes within BI to make inflation targeting effective.

The above thirteen distinct tasks suggested as part of a work program to prepare BI to a point where it could implement inflation targeting indeed encompass a wide range of topics. Inflation targeting does not promise to make the pursuit of monetary policy easy. But it does have the distinct advantage of focusing attention and research efforts on important technical issues that need to be clarified to make monetary policy effective.

Administration of the Work

The work would be administered and managed by UREM using its staff resources and possibly drawing upon short-term outside consultants. The envisaged work program would be ongoing over time as circumstances related to the possible adoption of inflation targeting evolve. Nevertheless, an overview of the analytical work and its status should be expected by December 1999.

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Moving Towards Inflation Targeting in The Pursuit of Monetary Policy

Some Thoughts on Defining a Work Program

Background

- ✓ New legal environment for BI presents the possibility for adopting an inflation targeting regime as a framework for monetary policy, though the choice remains optional.
- ✓ Recent enactment of central banking law (Act 23 /1999)
  - BI is assigned the overriding objective of assuring “the stability of the Rupiah value”.
  - BI granted “instrument independence”.

What is Inflation Targeting (IT) ?

- It is the announcement of a target level or range of inflation for a future period and the accompanying commitment on the part of monetary authorities to use monetary policy instruments primarily, if not exclusively, to attain such an inflation objective.

- Some Caveats:
  - IT does not represent an ironclad rules approach to monetary policy
  - IT does not imply that monetary authority disregards other economic policy objectives (such as, employment and level of economic activity)

- Thus, IT provides a framework and set of general guidelines for the conduct of monetary policy

Country Experience

- Pioneered by RBNZ in 1989
- Current list includes: Australia, Canada, Czech Republic, Finland, Israel, Spain, Sweden, and UK.
- De facto: Germany and Switzerland
- Recently, new European Central Bank is discussing the adoption of inflation targeting.
- In general, countries employing inflation targeting have experienced lower rates of inflation and lower inflation expectation. They also experience less price level shocks and lower interest rates.
- Question: Is IT applicable to developing countries ?

Some Key Issues on Implementing IT in Developing Countries

- ✓ Central bank independence and autonomy
- ✓ The depth and stability of financial markets
- ✓ Capacity to adequately forecast inflation
- ✓ Understanding of monetary transmission mechanism
- ✓ Ability of monetary authorities to deal with shocks
- ✓ Statistical adequacy and reliability

What would be the prerequisites for implementing IT in Indonesia?

- **Overall macroeconomic policy coordination and political commitment**
- **Technical capacity**
  - **Specification of inflation target**
  - **Inflation forecasting**
  - **Monetary transmission mechanism**
  - **Time horizon for inflation targeting**
- **Adequate and transparent reporting format**

What would be possible tasks within UREM ?

- Analysis of the international experience with inflation targeting and its suitability for Indonesia
- The measurement of “appropriate” inflation
- The specification of the “optimal” inflation target
- Review and evaluation of the different models used for inflation forecasting in inflation targeting countries

- **The BI Inflation Forecasting Model (BIIFM)**
- **The development of a quarterly price and inflation block in the MODBI**
- **The development of reliable leading economic indicators and leading indicators for inflation**
- **Estimation of the output gap for Indonesia**
- **Research on the monetary transmission mechanism for Indonesia**
- **Research on the stability of money demand**

- **Development of dissemination techniques and instruments for BI economic information and inflation forecasts**
- **Overview and status report on inflation targeting capabilities and preparatory work**
- **Development of a strategic plan for implementing inflation targeting in Indonesia**

Better late than never:

Happy BI Independence Day !!!