Toward Improved Monetary Policy in Indonesia

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Abstract: Indonesia's depreciation vastly exceeded that of all other countries hit by the Asian crisis. It also experienced far higher inflation. This paper argues that there is a close medium- to long-term relationship between money growth and inflation in Indonesia, and that this has not been greatly disturbed by the crisis. It argues that Indonesia's disappointing performance in relation to maintaining the value of the rupiah can be explained by the central bank's failure to sterilise the monetary impact on base money of its last resort lending to the banks. The fundamental lesson is that Bank Indonesia would be well advised to adopt slow and steady growth of base money as the nominal anchor for monetary policy, now that the pre-crisis policy of slow and steady depreciation of the rupiah has been abandoned.

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Keywords: base money, inflation, depreciation, banking crisis, lender of last resort.

INTRODUCTION

Four Asian countries in particular—Indonesia, Thailand, Korea and Malaysia—experienced very great macroeconomic disturbances in 1997–98. In terms of the impact on output, Indonesia and Thailand suffered much larger and more persistent declines than Korea and Malaysia. But in relation to exchange rate movements and inflation, Indonesia has been in a class of its own.

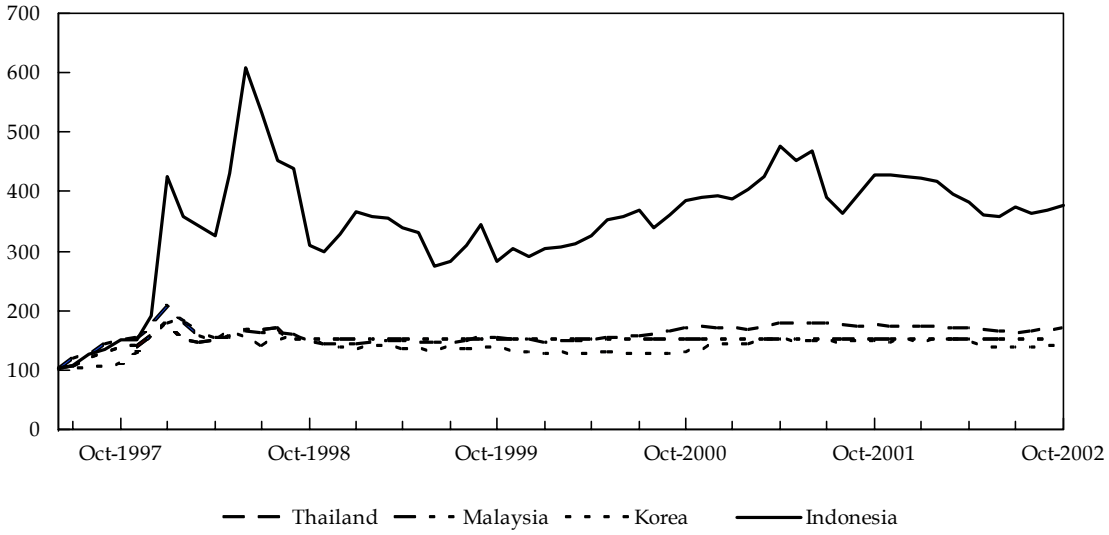
Although all four Asian crisis countries have had significant and lasting depreciations of their currencies, the scale of the depreciation and exchange rate volatility in Indonesia's case has been vastly greater (Figure 1). The depreciation of the rupiah can be explained in part by a significant increase in the perceived risk of holding assets in Indonesia on the part of both foreign and domestic investors.[1] This meant that asset yields needed to increase in order for equilibrium to be re-established. In turn, this could be achieved by way of a reduction of capital inflow, which would result in a real depreciation of the rupiah. The *nominal* depreciation of the currency was far greater than necessary, however, because it was accompanied by a huge increase in domestic prices in 1998.

In other words, the depreciation of the rupiah has been far greater than can be explained by investors' concerns. Presumably it is *real* exchange rates that matter to investors, and if we focus on the real exchange rate (approximated by the nominal exchange rate deflated by the consumer price index) we find that by end-1999 the real depreciation of the rupiah during the previous two years was just 50%—much closer to that of the ringgit, the baht and the won (37%, 34% and 18%, respectively). On this measure Indonesia still exhibits the largest decline, but it is no longer an obvious outlier.

The second indicator of the quality of macroeconomic policy-making of concern here is the inflation rate (Figure 2). Here, also, Indonesia's performance has been far from satisfactory: alone amongst all the Asian crisis countries, it experienced a burst of very high inflation in 1998. And, although this was quite quickly brought under control, there was a significant resurgence in 2000 and 2001. The purpose of this paper is to explain Indonesia's disappointing performance in relation to inflation and depreciation, and to propose a different approach to the formulation of monetary policy that promises far superior outcomes.

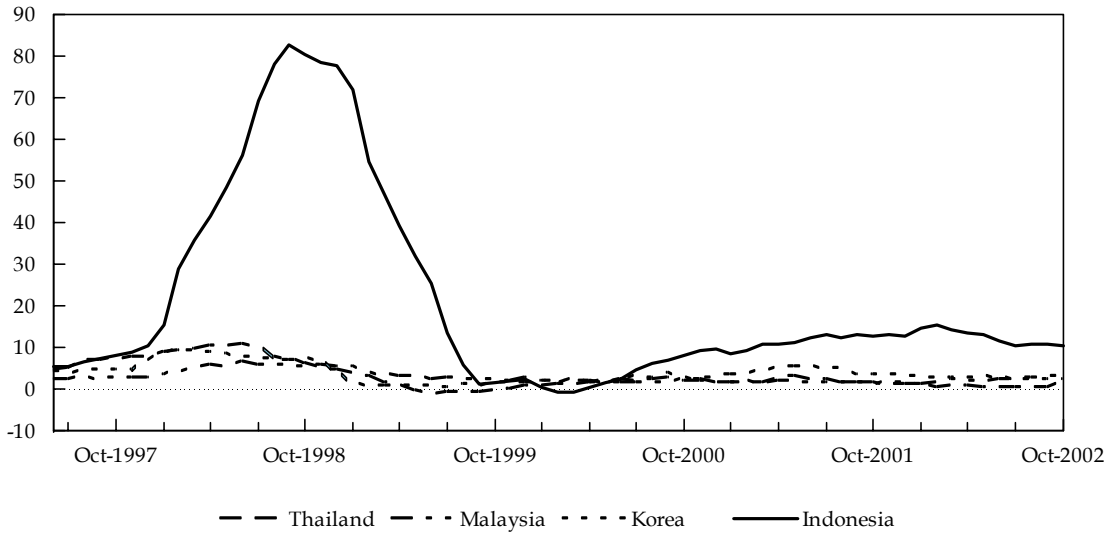
[1] The reasons for this are complex, but would appear to be closely interrelated with the demise of Indonesia's president of three decades, Soeharto.

Figure 1 Nominal Exchange Rates during Crisis
(local currency per $US, Jun-1997=100)



Source: CEIC Asia Database

Figure 2 Inflation during Crisis
(% p.a.)



Source: CEIC Asia Database

CONDUCT OF MONETARY POLICY IN INDONESIA

For several years prior to the beginning of the crisis, Indonesia had experienced inflation generally in the range of 5–10% p.a., notwithstanding a target ceiling of 5% (McLeod 1997a: 392). As Figure 2 shows, towards the end of 1997 the rate began to increase, accelerating rapidly in the first half of 1998. Fears were voiced of an outbreak of hyperinflation such as had been experienced in the mid-1960s but, having risen rapidly to about 80% p.a., the rate

then began to decline just as rapidly. Monthly rates of inflation fell to zero within about three months, and the year-on-year inflation rate declined accordingly. But although inflation was only about 2% in 1999, this low rate was not sustained: inflation began to trend upward from about August of 1999, and by early 2002 reached about 15% p.a.

It is natural for anybody familiar with the concept of monetarism to look at what had been happening to the money supply during this period. As Friedman (1968: 31) once put it: '… if you want to analyze the process of inflation, "*Cherchez la monnaie*."' And to monetarists it will come as no surprise to find that money growth followed a pattern similar to inflation during this period. Although somewhat erratic, the growth of base money was relatively slow in the years prior to the crisis, but it accelerated very rapidly from the time the IMF accepted Indonesia's request for assistance in handling the crisis. From about November 1997 through July 1998 base money grew very rapidly, but with the fall of Soeharto and the ascendance of BJ Habibie to the presidency, monetary policy was quickly tightened. Base money actually fell in absolute terms over several weeks from late July 1998, after which growth resumed at a much less rapid rate than in the first half of that year.

Target growth trajectories for base money had been specified in several letters of intent (LOIs) from the government to the IMF (in October 1997, January 1998 and April 1998: see <http://www.imf.org/external/index.htm>), but in practice each of these sets of targets was ignored by the central bank (Bank Indonesia, BI) (Fane and McLeod 1999: 399–401; Deuster 2002: 25). Only under Habibie was any discipline able to be imposed; the targets began to be met, and the rate of inflation almost immediately began to fall dramatically. At the same time, the exchange rate recovered a great deal of lost ground, recovering from about Rp 15,000 per dollar to about Rp 7,500 per dollar within a little over three months. Moreover, nominal interest rates also began to fall rapidly, with the benchmark one month SBI (BI Certificate) rate falling from about 70% to only 13% over the next 12 months.[2]

In May 1999 the Habibie government took a further step in the direction of monetary policy reform by enacting a new law on BI that, among other things, insisted that the central bank be free from outside interference. This was a reflection of the experience during the Soeharto era, especially during its last several months, when the then president placed enormous pressure on the central bank to lend large amounts to many of the private banks, which were by that time in deep trouble. McLeod (1999a: 148) warned that legislated independence could not be assumed necessarily to result in better monetary policy performance, and indeed it has not. On the contrary, BI began to miss the targets specified in the LOIs from about August

[2] Nasution's assertion that the Habibie government 'could not take [the] bold … measures … normally required by a short-run stabilization programme' (Nasution 2001: 25) is hard to follow in view of this quick turnaround in the principal monetary indicators.

1999, and continued to do so until early 2002.[3] As had been the case in the first half of 1998, the IMF seems to have been surprisingly amenable to revising the targets upward rather than insisting that the original targets should be met.

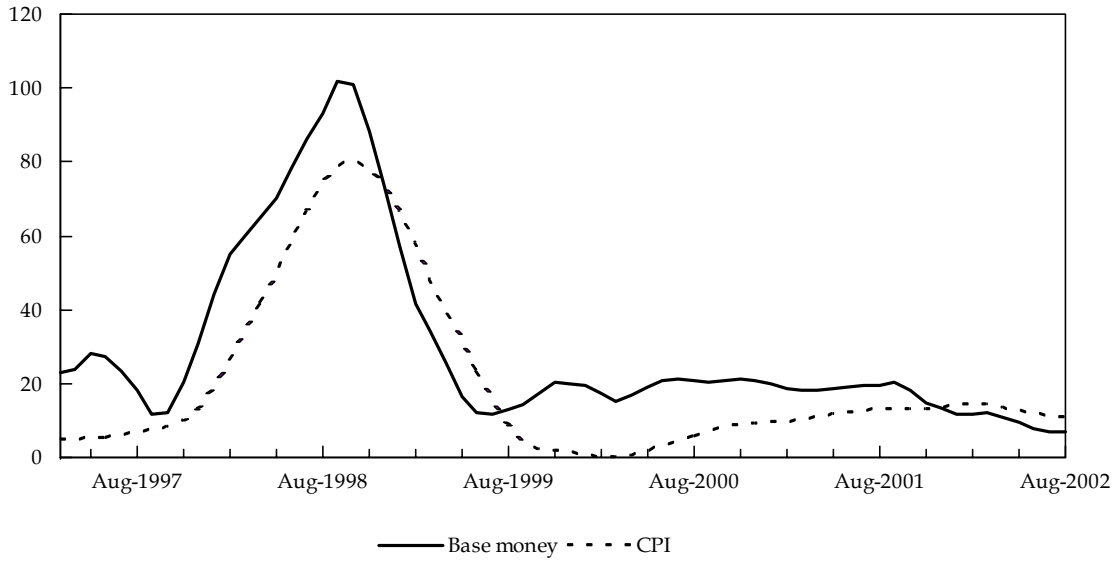
Figure 3 tells the story of inflation in Indonesia during this period from the monetarist perspective, showing base money and prices (the CPI) in terms of yearly growth rates. By smoothing both curves (using 4 month centred moving averages), it can be seen that inflation clearly reflects the pattern of base money growth. Figure 4 shows that Indonesia's monetary policy during the crisis is just as much an outlier relative to the other crisis countries as its experience with inflation and nominal depreciation: base money has grown by a vastly greater proportion in Indonesia than in the three other crisis countries considered here. From the monetarist perspective, it is no surprise then that Indonesia's inflation and depreciation experience has been so dramatically different.

A central bank in denial

To those who are persuaded that 'inflation is always and everywhere a monetary phenomenon' (Friedman 1968: 39), the facts revealed by Figure 3 are unsurprising. It appears, however, that Friedman's views carry little weight at Indonesia's central bank. A review of BI's annual reports for the last few years reveals almost no discussion of monetary policy as a cause of inflation, although inflation itself is discussed in considerable detail. Similarly, an article by the current Senior Deputy Governor of BI, Anwar Nasution, which describes the early years of the crisis and how it was handled by BI, says nothing whatsoever about the impact of monetary policy—for better or worse—on prices during this period (Nasution 2001). In short, there is nothing to suggest that officials at BI see the central bank as being in any way responsible for the dramatic but short lived burst of inflation in 1998, nor for its equally dramatic disappearance, nor for the steady resurgence of inflation during March 2000 through February 2002.

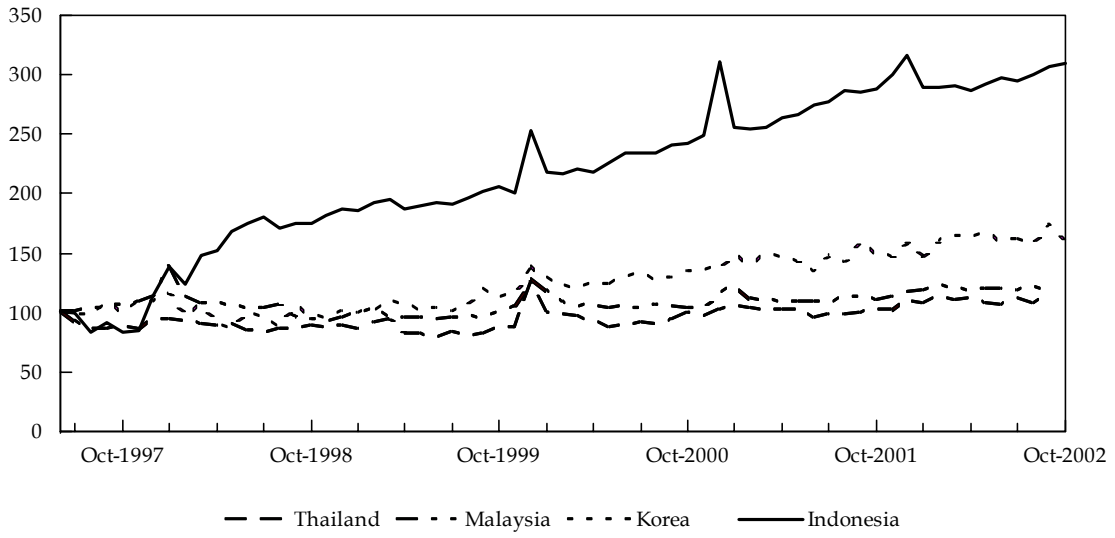
[3] There was virtually no growth in base money in the eight months to April 2002, and only about 5% growth in the year to August 2002.

Figure 3: Base Money Growth and Inflation
(% pa, 4 month moving averages)



This perplexing disjunction between monetary policy and inflation outcomes in the minds of BI personnel provides a strong clue as to Indonesia's recent failure to maintain the value of its currency. The following sections set out the writer's understanding of how BI sees its role in macroeconomic management, and contrasts this with the elementary monetarist view of inflation and monetary policy. We begin with some observations on the new law on the central bank.

Figure 4 Base Money during Crisis
(Jun-1997=100)



Source: CEIC Asia Database

Note: Series for Malaysia is currency in circulation.

THE NEW LAW ON BANK INDONESIA

Alamsyah *et al*. (2001: 311) see the enactment of the new central bank law as the beginning of a new era in Indonesian monetary policy-making:

> The 1999 central bank law … has provided the basis for BI to search for a new and appropriate nominal anchor [for monetary policy].

As we have seen, however, the granting of independence to the central bank was followed by a deterioration in monetary policy outcomes. Certain weaknesses in the law itself provide at least some of the explanation for this. At first glance, it seems clear that the law sets a single objective for BI: that of maintaining the stability of the rupiah (Article 7). The first problem here, however, is that the term 'stability of the rupiah' is ambiguous. It might be interpreted to mean stability in terms of prices of goods and services, but equally it might be interpreted to mean stability in terms of other currencies. Indeed, the elucidation of this article in the law mentions both these interpretations, but fails to recognise the possibility of a conflict between them. As Alamsyah *et al*. note, although price stability and exchange rate stability tend to go hand in hand, this is not always the case.[4]

Faced with these ambiguities in the law (which, it should be noted, was drafted by the central bank itself), BI has chosen to interpret its objective to be rupiah stability in terms of purchasing power over goods and services (Alamsyah *et al*. 2001: 314). The second problem that becomes apparent, however, is that the law does not specify what level of inflation can be regarded as reflecting price 'stability'. The law not only gives BI 'instrument independence' (that is, freedom to choose the instruments with which monetary policy is conducted), but also gives it 'goal independence'. BI itself determines the target rate of inflation in each calendar year—in contrast to the practice in countries such as New Zealand and Australia, where inflation targets are determined by, or in negotiation with, the government. Human nature being what it is, this seems an invitation to the central bank to set targets for itself that should not be difficult to meet. Combined with the lack of any provision in the law for the imposition of penalties on top management for failure to meet its own targets, this appears to impart an upward bias to inflation through the mechanism of inflationary expectations. That is, BI sets a relatively 'soft' target to begin with, and then exceeds it. The actual inflation rate is then built into expectations, making it more difficult to meet a similar target in the following year, so the target is then revised upwards.

This seems to be precisely what was happening from mid 1999 through the end of 2001. Even though inflation had been held to just 2% in 1999, BI decided on a target inflation range

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[4] Moreover, the law is silent as to *which* bilateral exchange rate might be the focus of policy. It is usually taken for granted in Indonesia that 'the exchange rate' refers to the rate of the rupiah against the US dollar, but in a world of floating exchange rates, this does not imply stability against other currencies more generally.

of 5–7% for 2000. The actual rate recorded was well above this range at 9.4%, resulting in an even looser target of 7–9% for 2001 (Alamsyah *et al*. 2001: 316).[5] By July 2001 year-on-year inflation was well above this, at 13%, but there appeared to be little or no pressure on BI from the People's Representative Council (DPR), to which the central bank is accountable under the new law, to achieve the objectives it sets for itself.[6] In short, until recently the experience has been that targets have been exceeded, and for BI to respond to this by softening its targets progressively, rather than toughening its monetary policies. There is clearly a reluctance to set a target that is too challenging.[7] Many other countries aim for headline inflation closer to 2–3%, and there is no reason why similar rates could not be achieved on a sustained basis in Indonesia.

For the sake of discussion, let us assume that the law can be interpreted as requiring BI to maintain a low rate of inflation, without specifying exactly what is meant by 'low'. A third problem with the law is that in the elucidation of Article 10, which refers to BI's choice of the inflation target, it is stated that this target should be determined 'bearing in mind macroeconomic developments and prospects'. Although seemingly innocuous, this is a serious defect in the law. The phrase 'macroeconomic developments and prospects' is so vague that it can mean virtually anything. As a result, BI can never be held properly to account for any perceived failure to control inflation, because it can always argue that it felt obliged to sacrifice its own inflation target because of this wider responsibility. In the context of the ongoing economic crisis, with growth considerably less than desired and with the banking system remaining extremely fragile, BI has argued that it had to maintain a fairly permissive monetary stance in order not to curtail recovery and not to harm the banking system.[8] To the extent there was criticism of the gradual increase in inflation from zero to 10% by March 2001 and then to over 15% by February 2002, this was explained away by appealing to these concerns.

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[5] These figures are the sum of BI's targets for 'core' inflation and its projections for 'noise' inflation. These concepts are explained below.

[6] Iljas (2001) mentions the possibility of penalties such as salary reductions or even dismissal for BI managers for failure to achieve inflation targets, but there is no such provision in the law. The most severe threat is nothing more than that of a public admonition of BI by the DPR.

[7] Alisjahbana and Manning (2002: 285) note that the 2003 budget inflation target was set as high as 8%, even though inflation had already been reduced to just 10% by August 2002 from over 15% in February 2002.

[8] 'Bank Indonesia encountered a dilemma … [It] wanted to implement a tight monetary policy to achieve the inflation target, with the consequence that the interest rate would increase sharply, which could block the fragile economic recovery.' (Annual Report 2000: 43). 'Higher interest rates would increase [the] already heavy burden on the budget, and might prove unsustainable. They would also undermine efforts to restructure the huge volume of non-performing loans in the banking sector.' (Alamsyah *et al*. 2001: 320).

What should be the central bank's objective?

The reason for the widespread (though not universal) trend to setting a single objective for central banks is the belief that central bank instruments are the most appropriate for controlling inflation, and that other arms of government should carry the burden of other objectives—in particular, matters such as full employment and fiscal sustainability. It is clear, however, that although BI has written a law for itself that seems at first glance to require it to meet only one objective, in fact it is neither philosophically wedded nor legally tied to this concept. Its actions and its words suggest that it really doesn't believe that having a single objective is best practice; it wants to take on a much larger burden. In terms of country comparisons, the managers of BI seem to see themselves playing an overall macroeconomic management role like that of the US Federal Reserve rather than the purely inflation-focused role of the Reserve Bank of New Zealand. Indeed, it is clear that in practice BI regards both inflation and growth as important in determining the stance of monetary policy, as is evident in its desire to move toward implementing a 'type of Taylor rule' (Alamsyah *et al.* 2001: 318):

$$r_t - r_{t-1} = \alpha(\pi_{t+k} - \pi^*) + \beta(y_{t+k} - y^*), \qquad (1)$$

where r_t is the interest rate set by the central bank in current period, t, π_{t+k} is the projected inflation rate and y_{t+k} the projected growth rate, k periods hence, $\pi^*$and y^* are the targeted inflation and growth rates, and α and β are positive constants. This indicates clearly that if the projected growth is less than targeted, BI would be prepared to reduce the interest rate in order to try to stimulate economic activity, even though this could be expected to have an upward impact on inflation. In order to maintain the illusion that BI desires to follow the inflation targeting approach to monetary policy (which is frankly acknowledged to have become 'fashionable' in the last decade), the authors distinguish between 'strict' and 'flexible' inflation targeting, but it would seem more straightforward simply to acknowledge that the central bank in fact wants to continue to involve itself in macroeconomic management more generally, rather than concentrating solely on stability of the value of the currency.

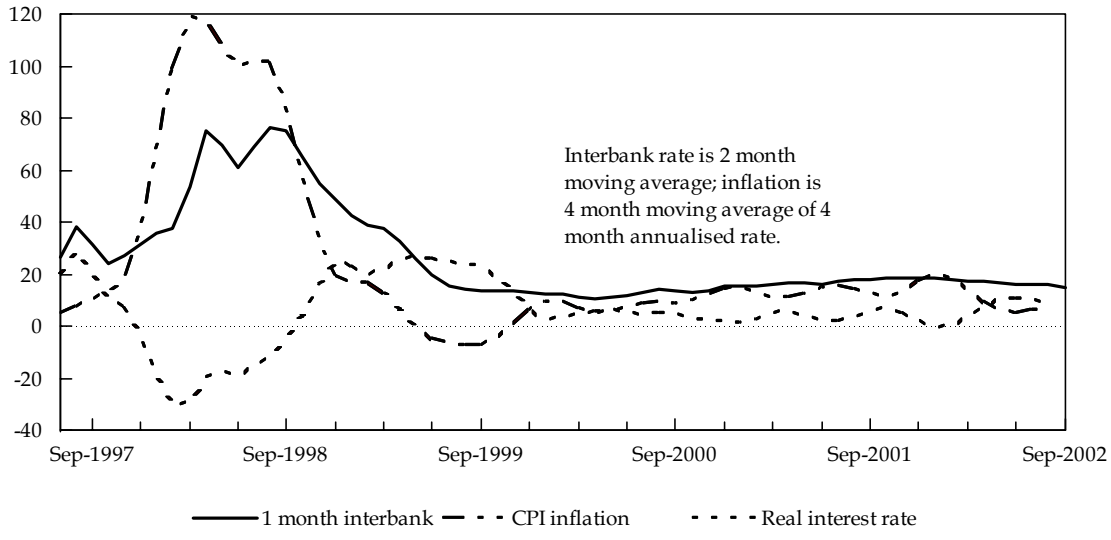
Monetary policy and the real economy

This raises the issue of the ability of monetary policy to influence the level of output of the economy by manipulating the monetary aggregates. McLeod (1993b: 21–2) noted the weak relationship in Indonesia between bank lending (over which BI has indirect influence by virtue of its control over the supply of base money) and economic activity. The more recent experience during the crisis supports this observation: even by more than doubling the stock of base money in just nine months, the central bank could not prevent quarterly GDP falling by 18% in the year to the fourth quarter of 1998, and when it eventually brought money growth under control from mid 1998, this was no hindrance to halting the decline in output, which turned around in 1999.

To be able to explain these observations it is necessary to understand the impact of manipulating the rate of money growth on interest rates. BI's view on this reflects the common perception of the business community and the general public: decreasing the growth rate will cause interest rates to rise, and conversely. The data do not support this view, however, except perhaps in the very short run. We have already seen that inflation follows changes in the rate of base money growth. Figure 5 shows that, in turn, interest rates follow inflation. Thus in the first half of 1998 when money was growing rapidly, interest rates were also on the increase. In mid 1998 when BI began to bring money growth under control, interest rates responded by declining quite rapidly. With the gradual increase in the rate of growth of the money supply from mid 1999, interest rates again responded, increasing from a low of around 9% in April 2002 to over 18% in January 2002. Finally, with declining base money growth in 2002, interest rates have also begun to decline again.

The explanation for this is straightforward. The Indonesian public is very conscious of inflation, having suffered the consequences of hyperinflation in the mid 1960s. CPI data are released on a monthly basis, and are given considerable prominence. As inflation increases, the threat of reduced purchasing power of money brings with it a demand for interest rates on deposits sufficient to compensate. Borrowers are willing to pay higher nominal rates in view of the prospective decline in the real value of their debts. Faster money growth thus results before long in higher, not lower, nominal interest rates, as suggested by Figure 5. Thus it would appear that in fact BI has very little control over *real* interest rates (except in the short run when it can surprise the public with a sudden change in the rate of inflation)—yet presumably it is real rather than nominal rates that determine the behaviour of borrowers and lenders.

Figure 5 Interest Rates and Inflation
(% p.a.)



Source: CEIC Asia Database

This tends to suggest that, notwithstanding its revealed preference to play a larger role in macroeconomic policy-making, BI really has a very limited capacity so do so. Ideally, therefore, the law on BI should state unambiguously that the central bank has only a single objective: that of keeping the rate of inflation close to some specified level—say, 2 or 3% p.a. To reflect the reality that it is not feasible to have more than a single nominal anchor for macroeconomic policy (McLeod 1997b), it could be stated explicitly in the elucidation of such a requirement that the exchange rate and the level of interest rates are *not* policy objectives of BI—in other words, that these two key financial prices are to be fully market determined. It should also be stated explicitly that it is the government's responsibility to ensure that the economy always operates close to full capacity, not that of the central bank.

BI as prudential regulator

Another weakness in the law, which is capable of causing problems in the future, is that BI still retains the role of prudential regulator.[9] There is always the danger of a conflict between formulating monetary policy and acting as the prudential regulator of the banking system. This was most obvious during the first half of 1998 when, as regulator of the banks, BI was lending huge amounts to them through a variety of mechanisms in the hope that this would prevent their failure; it was this that caused the very rapid growth of base money at that time.

As Figure 6 shows, BI lending to banks increased by Rp 111 trillion during the year ending July 1998, while net injections—that is, lending to banks less the net amount withdrawn through open market operations[10]—increased by Rp 90 trillion, which is equivalent to *well over twice the stock of base money* at the start of this period. Any suggestion that the extent of BI's 'last resort lending' was justified by the need to offset cash withdrawals by depositors concerned about bank safety is obviously misguided: cash in the hands of the public rose by only Rp22 trillion, while rupiah deposits at the banks actually *grew* by about 50%. Base money itself increased by Rp 35 trillion, from which we can conclude that roughly Rp 55 trillion of BI's liquidity support to the banks was actually used to speculate against the rupiah, resulting in BI's gross foreign assets falling by some $9 billion. We may note in passing that the huge decline in international reserves, especially in the five months through February 1998, clearly indicates that Indonesia's 'floating' of the rupiah in August 1997 was largely an illusion—if by floating is meant market determination of the exchange rate. BI obviously intervened very heavily in the foreign exchange market during this period.

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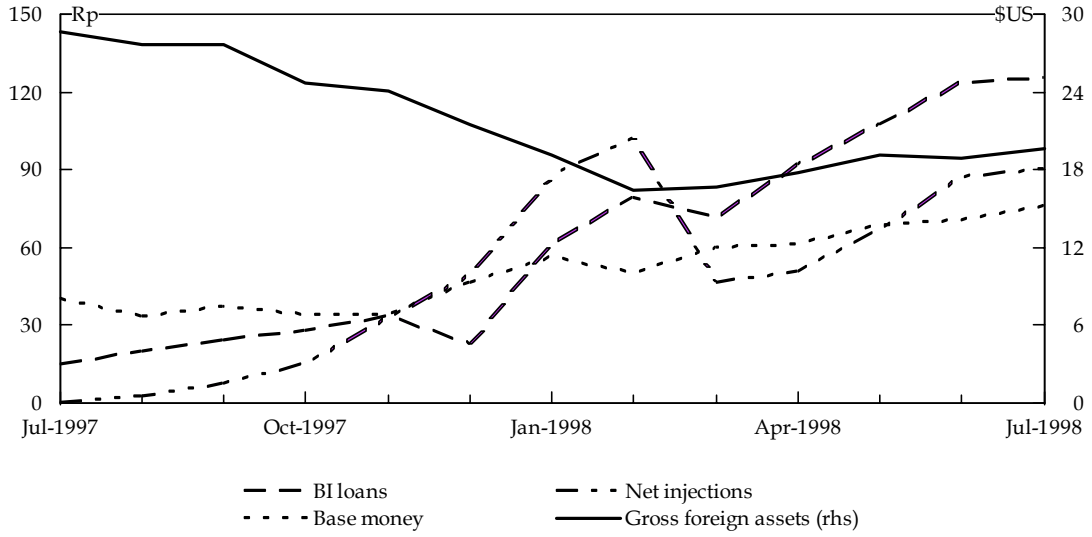
[9] The law requires the function of monitoring prudential regulations to be separated from BI, and for this to be located in a new agency, but responsibility for formulating these regulations is to remain with BI. The deadline for this change to be implemented was the end of 2002, but this was not met. It is also proposed to set up a deposit insurance institution (McLeod 1999: 149–50), but little progress appeared to have been made in this direction at the time of writing.

[10] In turn, this is the difference between the issue of SBIs and the purchase of money market securities (SBPUs) by BI.

The $9 billion reduction in gross foreign assets may be contrasted with the much smaller figure of $3–4 billion reported by Grenville (2000: 47) as the rundown in international reserves in the three quarters through June 1998; the provenance of his estimate is not clear. This discrepancy aside, Grenville's account of BI's actions during this period seems to miss some of the key points. The most obvious of these is that the scale of BI lending to the banks was vastly in excess of the public's desire to withdraw cash, and that this facilitated large-scale speculation against the currency (including the repayment of unhedged foreign currency borrowings), thus aggravating the decline of the rupiah. Thus an investigation by the Audit Board of Indonesia into BI's provision of 'liquidity support' to the banks during this period reported that almost 60% of this support (which eventually grew to Rp 145 trillion) had been misused by the recipient banks—for example, to repay their own debts and those of their affiliates (BPK-RI 2000).

Figure 6 Aspects of M0 Injections
(Rp trill, $US bill)



Source: CEIC Asia Database

One important aspect of the early impact of the crisis on the banking system was that deposits were being transferred from one group of (private) banks that were perceived to be weak to two other groups (state and foreign owned) that were perceived to be safe by virtue of their ownership. This meant that the latter were bound to be experiencing an excess of liquidity, because few firms were interested in increasing their borrowing at the time (except for the purpose of speculating against the currency). In the absence of sound lending opportunities, the recipient banks would have been only too happy to hold additional quantities of SBIs, rather than holding growing quantities of reserves earning little or no interest; no significant change in interest rates would have been necessary. BI would then have been performing the function of intermediating funds between the 'strong' and weak banks, accepting the risk of lending to the latter that the former were not prepared to take, thus sterilising the monetary impact of its last resort lending.

As Figure 6 shows, however, the quantities of SBIs made available by the central bank were much too small to be able to absorb this excess liquidity. BI should have issued roughly the same amount of SBIs as the extra amount of liquidity it was supplying to banks that were suffering from a loss of deposits, less the extra amount of cash being demanded by the public. It remains unclear why did not do so: whether it did not understand the monetary impact of its loans to the banks, or whether it did not want to carry the interest burden of new securities that it might issue, preferring instead to collect the inflation tax generated by the rapidly expanding volume of its own monetary liabilities. The issue is simply not mentioned in the account by former governor Sudradjad Djiwandono of BI's actions during this period (Djiwandono 2000), while Grenville (2000: 48) regards this as a mere 'side issue'.

BANK INDONESIA'S PERCEPTION OF INFLATION AND ITS ROLE IN CONTROLLING IT

BI's view of the inflation process is basically Keynesian. If prices are rising it is because of various factors outside the central bank's control—most particularly (although not exclusively, as shall be discussed later), the demand for goods and services exceeding the supply of them.[11] According to Alamsyah *et al*. (2001: 314):

> Under an [inflation targeting] framework, monetary policy is directed at influencing aggregate demand so that it is consistent with economic capacity from the supply side, to keep the rate of economic growth sustainable.

Implicit in this is the notion that prices rise because of excessive aggregate demand for goods and services. It is argued that the role of the central bank in such circumstances is to tighten monetary conditions, thus increasing interest rates and thereby reducing spending on investment and consumption. There is no elaboration as to how prices might increase rapidly at the same time that the economy is operating well below its capacity to produce, however. Recall that in 1998 when inflation suddenly soared to 80%, the economy was simultaneously entering a severe recession: in the year to the December quarter the year-on-year fall in output was 18%. It is very difficult to explain what was going on during this period using a simple Keynesian model of inflation that relies on a condition of excess demand for goods and services.

The monetarist model, by contrast, has no trouble at all. Focusing on the demand for and supply of money, rather than goods and services, inflation is seen as the symptom of the supply of money growing faster than the demand for it. In conditions of chronic excess supply of money, most economic entities will be trying to reduce their holdings of it. As buyers they will be purchasing goods and services, but at the same time, as producers and suppliers, they will be reluctant to sell goods and services, so as to avoid accumulating additional money balances. To put it more formally, in such circumstances both the demand

[11] 'Inflation is the outcome of the interaction of aggregate demand and aggregate supply' (Iljas 2001a, writer's translation).

curve and the supply curve for goods and services move upwards, perhaps at much the same rate, so that prices may increase even though the volume of transactions—an indicator of the real level of economic activity—does not. Indeed, if the supply curve is moving up more quickly than the demand curve, the volume of transactions will be falling at the same time that prices are rising: there is no requirement for the demand for goods and services to exceed the productive capacity of the economy for inflation to occur.[12]

In BI's discussions of inflation there seems never to be any mention of the possibility that changes in monetary conditions might also affect the *supply* of goods and services. Indeed Iljas (2001; translation by the writer) explicitly rules this out:

> Monetary aspects, which can be controlled by BI, only influence aggregate demand.

More generally, monetarist views do not seem to commend themselves to the central bank, which has never shown itself keen to put forward explanations of inflation that would place the blame on itself. In the period leading up to the current crisis BI liked to blame the commercial banks for undertaking too much lending, especially to property developers (Parker and Hutabarat 1996: 14–16). This was said to be a principal cause of inflation, which persistently exceeded the target ceiling of 5%. But the central bank directly determines the supply of base money, and through this it indirectly determines the supply of the commercial bank components of narrow and broad money and the volume of bank lending. So if inflation is to be explained by excessive growth of any of the monetary aggregates, BI must ultimately bear the blame.

During the crisis the property development and construction sectors have been virtually moribund and policymakers have been concerned with the banks not lending enough rather than too much, so a new scapegoat has had to be found for inflation. In fact, BI managed to find three. First, there was Mother Nature, who visited an El Niño weather pattern on Indonesia in 1997: the lack of rainfall supposedly reduced the harvest significantly, pushing up rice prices. Second, there was the government—of which the newly independent BI was no longer a part. The government insisted on raising a range of prices directly under its control, such as those of electricity, fuel, public transport and so on. Third, there were politicians, whose failure to stabilise the political situation led to great uncertainty and continuing capital outflow. In turn, this led to renewed depreciation of the rupiah, resulting in increases in the price of tradables.

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[12] Extending this argument to the foreign exchange market, the buyer response will be to try to exchange domestic for foreign currency, while on the supply side there will be a tendency to hoard existing holdings of foreign exchange. Thus the price of foreign currency will tend to rise along with the prices of goods and services; there is no presumption that the volume of currency traded must increase. A similar argument follows in the case of asset markets.

In short, the concept of central banks as the primary cause of inflation is alien to BI. It sees a modest role for monetary policy in reducing aggregate demand if it should become excessive, but it argues that a wide range of prices—including those of all tradables and all non-tradables with administered prices—are beyond its control, and that it should therefore only bear responsibility for that component of inflation contributed by the remainder. In conditions of recession, in which demand is well below the capacity of the economy to produce, this seems to put BI in the position of having nothing to contribute: a mere passenger on a rudderless ship buffeted by winds and seas over which it has no control.

Headline and core inflation: circumscribing BI's responsibility

There seems to be a superficial logic in BI's argument that it cannot be responsible for increases in administered prices, prices of tradables resulting from depreciation of the currency, and prices of food crop products such as rice. Clearly BI cannot stop the government if it wants to increase the price of fuel or electricity; it cannot prevent bad weather that results in crop failure and increased food prices; and it cannot prevent increases in the prices of tradable goods and services if the currency should happen to depreciate as a result of increasing political uncertainty. Thus we are left with the concept of *core inflation*: increases in prices of goods and services over which BI *can* exert control by virtue of monetary policy. *Noise inflation*, by contrast, is inflation that—according to BI—is not susceptible to its control. *Headline inflation* is the overall inflation figure, consisting of the weighted sum of core and noise inflation (Alamsyah *et al.* 2001: 316).

As noted already, the model of inflation that BI has in mind is one in which the average level of prices is determined by the interaction of aggregate demand for, and aggregate supply of, goods and services. By tightening monetary conditions (raising interest rates), demand is made to fall relative to supply, resulting in reductions in prices (or less pressure for price increases). But this policy obviously will have little if any effect on administered prices or the prices of tradables, and BI also argues that it would have no effect on prices of food crop products or imports.[13]

But the logic is indeed superficial. To see why this is so, it is helpful to think of inflation as a *decline in the value of money*, rather than a general increase in prices. By thinking of inflation in this way we are led naturally to a model that focuses on the supply and demand for money,

[13] The last point is in fact highly dubious. The supply curve for agricultural products certainly moves around considerably under the influence of climatic conditions. If the demand for such products were perfectly elastic, this would not result in price changes; the fact that there are such prices changes proves (as intuition suggests) that the demand curves are not perfectly elastic. In turn, this strongly suggests that BI's monetary policies have an impact on agricultural prices just as they do on other products. Wherever the supply curve may shift to, a tightening of monetary conditions can be expected to move the demand curve to the left, and thus to reduce prices.

not on the supply and demand for goods and services, as BI prefers. The familiar quantity theory of money is based on the equilibrium condition in the money market:

$$M_s = M_d, \tag{2}$$

where M_s is the supply of money, and M_d is the demand for it. In the most elementary monetary models it is usually assumed that

$$M_d = M_d(P,Q), \tag{3}$$

where $\frac{\partial M_d}{\partial P} > 0,$ and $\frac{\partial M_d}{\partial Q} > 0$.

That is, the higher the price level (P), and the higher the quantity of goods and services being produced and traded (Q), the higher the demand for money. The idea is simply that the demand for money reflects the value of transactions going on in the economy, which can increase either because of prices increasing or because of greater volumes being traded. Equations (2) and (3) imply that any increase in money supply will lead to increases in prices or output.

Although equation (2) is usually applied at the level of the economy as a whole, the same notion can also be applied at the level of individual goods and services, i:

$$M_d^i = M_d^i(p_i, q_i), \tag{4}$$

where $\frac{\partial M_d^i}{\partial p_i} > 0,$ and $\frac{\partial M_d^i}{\partial q_i} > 0$.

That is, the demand for money attributable to transactions in good i increases with increases in the price (p) or quantity traded (q) of i. We can then write

$$M_d = \sum_i M_d^i(p_i, q_i). \tag{5}$$

That is, the total demand for money is simply the sum of the demand for money attributable to transactions in all goods and services combined.

Equation (4) tells us that if the price of good i increases, the demand for money attributable to that good increases. If all else remains the same, this means that the total demand for money increases and, if we were previously in equilibrium, this means that real money balances have fallen and there must now be an *excess demand for money*. If the supply of money does not change, one possibility for regaining equilibrium is that q_i might fall far enough in response to the increase in p_i that the demand for money attributable to i is unchanged. But it is more likely that other goods and services will be either substitutes or complements for i, and so

their prices will rise or fall as well. Ultimately, however, the overall demand for money, M_d, must fall back to its original level, provided the supply of money has not changed. When this happens, the price index P, which is a weighted average of the individual prices, p_i, will be much the same as before. There is no presumption that it will have increased.

The first important conclusion from this very brief and simple analysis is that *price increases are not inflationary*. To assert, therefore, that a country experienced inflation during a particular period because the price of, say, food products increased, is simply incorrect. Indeed, such a statement is a tautology: it amounts to saying that prices increased because prices increased![14] Relative prices change constantly, but there is no reason why this should be inflationary. The discussion above suggests that when one price changes, other prices and quantities traded must adjust such that the overall demand for money is kept in equilibrium with the supply of money. If supply does not change, the overall price level will remain more or less constant.

A second important conclusion from this analysis is that the *cause* of any price increase is irrelevant to what happens with inflation. The discussion above was perfectly general. It did not matter *which* good's price rose, or *why* it rose. Regardless of these considerations the end result is still the same. As long as the money supply does not change, there is no reason why a change in the price of any individual good (or broad category of goods) should have a significant impact on the overall price level, regardless of the cause of the price change. In particular, it does not matter if food prices change (because of climatic effects on harvests); administered prices like transport fares change (because of government policy decisions); import prices change (because of a change in the exchange rate); or any other price changes, for whatever reason. Such price changes are not inflationary. Inflation is not *caused by* individual price increases. Inflation *is* a rise in prices on average—better thought of as a decline in the value of money. The *cause* is the addition to the supply of money.

The basic flaw BI's thinking about core and noise inflation is that it ignores the fact that the demand for and supply of each good depends on the prices of all other goods and on the size of the money supply. Thus it is imagined either that an increase in one price will have no effect on other prices, or that it will lead only to *increases* in other prices (for example, the price of final goods will rise if the price of intermediate goods such as fuels rises). There is strong resistance to the notion that if some prices increase, others will eventually decrease, provided the money supply remains the same. Focusing on the supply of, and demand for, money is the way to see the fallacy of the argument that price increases are inflationary.

To summarise: any price increase must upset the initial equilibrium, and if the money supply does not change, the temporary excess demand for money can only be dissipated by declines

[14] This kind of explanation for the resurgence of inflation during 2000–01 is offered by Nasution (2002: 40).

in at least some other prices (assuming output volumes in aggregate change little), although re-establishing equilibrium might take some time. The writer therefore has no disagreement with the argument that BI has no control over particular sets of prices, but the point is entirely irrelevant. If the average of prices overall increases, it can only be because the supply of money has been made to exceed the demand for it at the initial set of prices.

Policy implications of targeting only core inflation

The policy implications of these arguments are of considerable importance. BI's contention that it is not responsible for that part of inflation attributable to increases in administered prices implies that the government is to blame—a view that finds ready acceptance in the DPR and among the general population.[15] Thus BI's stance adds strength to the populist view that if, for example, the state electricity company (PLN) raises its prices this will harm the economy by adding to the level of inflation. As we have just seen, this view is fallacious.

Indeed, so far as harm to the economy is concerned, the truth of the matter is quite the reverse. Other (non-administered) prices rose dramatically during the crisis, and with electricity prices not being allowed to increase commensurately this implied a huge fall in the relative price of electricity.[16] As the resulting price distortion became more severe, PLN became increasingly unprofitable. It became an ever increasing drain on the budget, and its standards of service declined as it tried to cut costs by skimping on maintenance. More and more power blackouts like those experienced in September 2002 (Alisjahbana and Manning 2002: 297) can be expected as a consequence of its failure to invest in new production and distribution capacity for want of adequate funding. In short, the government needs all the support it can get in its battle against populist pressure to bring administered prices back into line with market determined prices. BI's attitude to changes in administered prices is therefore both misleading and detrimental to the best interests of the general public.

Similar comments apply in relation to increases in the prices of tradables resulting from depreciation of the currency. If investors change their views on Indonesia's prospects and decide to withdraw their capital, this amounts to a change in Indonesia's circumstances that should be reflected in a depreciation of the real exchange rate: in other words, there needs to be a decline in the price of non-tradable goods and services relative to tradables. If BI responds to the depreciation-induced increase in tradables' prices by increasing the money

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[15] This is a new twist to an old story: '… nobody likes to admit that he is responsible for inflation. It is far easier for Government to attribute inflation to the profiteers, or the bad trade unions that insist on pushing up the wages, or the intractability of agricultural producers who are unable to expand food than it is for the Government or government officials to say, *mea culpa*' (Friedman 1968: 28–9). In present day Indonesia the government itself becomes the scapegoat in the eyes of the central bank.

[16] In the period June 1997 to February 1999, the price index for fuel, electricity and water (dominated by administered prices) fell by 35% relative to the CPI.

supply so as to offset the impact of declining real money balances on the demand for non-tradables, the view that depreciation is inflationary will become self-fulfilling.

Some observers argue that Indonesia's outlier performance in relation to inflation during the crisis can be attributed to precisely this mechanism, under which base money becomes endogenous rather than subject to BI's control. According to this view, BI was obliged to increase base money in response to depreciation of the currency resulting from the exogenous shock of deterioration in investor perceptions, which had the effect of reducing the demand for non-tradables, and thus could have caused an increase in unemployment.[17]

There are a number of reasons for scepticism in relation to this argument, however. First, it ignores the fact that the negative impact on non-tradables production would have been offset by the positive impact of depreciation on tradables, which should have resulted in the reallocation of productive resources between the two sectors; this structural shift was precisely what was required given the way that Indonesia's circumstances had changed, notwithstanding that this would involve hardship for some groups. Second, the scale of the increase in base money (116% in just 9 months!) was surely far beyond that which could ever be considered as an appropriate monetary response to the threat of a downturn. Third, even such a huge injection of base money failed to prevent output growth turning strongly negative in 1998, which is consistent with the view that the relationship between monetary aggregates and output is extremely tenuous.[18] Fourth, the other crisis countries were able to face up to the similar sized depreciations of their own currencies in the early months without expanding the supply of base money to any great extent; Thailand, in particular, which experienced an economic downturn similar in severity to Indonesia's, did not allow base money to rise at all in the four years from mid 1997. Finally, as discussed above, it seems clear that the surge in base money was not a carefully considered response to the problems of the non-tradables sector but an unintended by-product of the central bank's attempt to keep deeply troubled banks afloat.

With these comments in mind, it can be seen that BI's approach of targeting core inflation rather than headline inflation is the central bank analogue to pro-cyclical fiscal policy, such as always running a balanced budget.[19] Precisely at times when 'noise inflation' from

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[17] The writer is indebted to Takatoshi Ito and Eric Ramstetter for bringing this argument to his attention.

[18] Indeed, the apparent loss of control by the central bank may well have heightened investor perceptions that economic conditions were about to deteriorate even more, thus aggravating the initial shock.

[19] The Soeharto government's strong attachment to its balanced budget policy was an important early contributor to the deep recession in 1998. Faced with an imminent decline in tax revenues following the blow-out in the rupiah value of corporate debt, the government cut back its own expenditure (with the encouragement of the IMF), thus compounding the effect of falling private sector spending on aggregate demand.

whatever source is increasing, the central bank needs to hold money supply steady, in order that other prices will fall. On the contrary, however, by accepting responsibility for, and targeting, only core inflation, BI is led to increase the money supply whenever a surge in noise inflation temporarily reduces real balances, thus impeding the process of relative price adjustment and adding unnecessarily to inflation.

KEEPING LIFE SIMPLE

The implication of economists' relative poverty of understanding of the short-run mechanics of the inflation process in Indonesia is that it is a waste of time trying to fine-tune inflation, and that it makes much better sense to keep the settings of monetary policy fairly constant so as to achieve a steady, low rate of inflation over periods of several months, without being too greatly concerned by possible short-run fluctuations. The rationale for this suggestion is the hypothesis that the demand for base money is roughly proportional to nominal GDP—that is, the product of the general price level and the level of output—over periods of several months or more, even though it is rather unpredictable over shorter periods:

$$M_d = kP.Q. \tag{6}$$

On this assumption,

$$m = p + q, \tag{7}$$

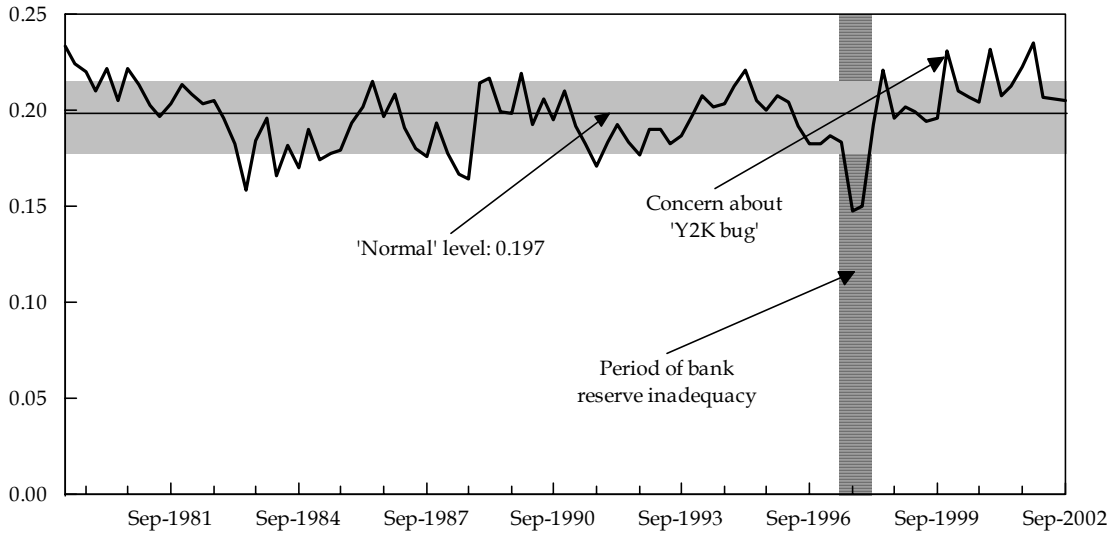
where lower case letters stand for rates of change in the relevant variables. Thus, for example, if output is expected to grow at 3.5% p.a., and the target inflation rate is 2.5% p.a., M0 should be made to grow at 6% p.a.[20] Presumably this was the kind of simple model the IMF had in mind when it negotiated with the government to incorporate a slow and steady rate of growth of base money in the LOIs that have been formulated during the crisis.

The empirical basis for the hypothesis that money demand is proportional to nominal GDP can be seen in Figure 7, which shows the ratio of base money to nominal GDP.[21]

[20] This approach to inflation targeting was discussed in detail in McLeod (1997a).

[21] The base money data have been adjusted for changes in the regulatory reserve ratio requirement, which creates an artificial (policy-induced) extra demand for base money on the part of the commercial banks. This ratio was reduced from 15% to 2% in October 1988, then raised from 2% to 3% in February 1996 (with cash excluded from the definition of reserves from that time on), and then further from 3% to 5% in April 1997. We are only interested here in the market driven demand for base money.

Figure 7 Ratio of Base Money to Nominal Quarterly GDP
(quarters)



Sources: CEIC Asia Database, BI, BPS

The figures from mid 1997 through mid 1998 show uncharacteristic volatility. A large volume of reserves was suddenly withdrawn from the system in August in response to speculation against the currency. Almost immediately, however, the banks were permitted to overdraw their accounts at BI, in belated recognition of the fact that there was no practical way for them to adjust to a liquidity squeeze of such severity.[22] This had an impact similar to a reduction in the reserve requirement, but it is difficult to discern the amounts involved from BI's various reports of its own, and the commercial banks', balance sheets, which are inconsistent. These problems aside, the ratio stays close to a flat trend over longer periods, although it is quite variable in the short run. In the absence of a more sophisticated model incorporating other variables such as interest rates and expected inflation, these short-term fluctuations can be treated simply as a reflection of temporary disequilibria in a monetary system in which the supply of base money has been quite volatile, and of errors in the data.

The denominator in the ratio is the product of prices and output. The variation in output from trend is very small compared with the volatility of the stock of base money. For operational purposes, therefore, it seems quite acceptable in current circumstances simply to assume that output will grow by something like 3–4% p.a.: this is unlikely to be far wrong. Small adjustments (say a percentage point or so) could be made to the chosen M0 growth rate if the inflation rate turns out to be higher or lower than the target over a period of at least a couple

[22] This was the most recent in a series of savage liquidity squeezes commencing in September 1984, and repeated in July 1987 and February 1991 (Cole and Slade 1996: 48–59). On this occasion the banks' reserves were initially reduced by no less than two-thirds.

of years, but the need for such adjustment will not be great. Certainly there is no chance whatsoever of recording 80% inflation if the supply of base money grows at only 7%.

Simulating inflation

Ex ante, equation (6) can be used by the monetary authorities to estimate the rate of money growth needed to achieve any particular inflation target. *Ex post*, it can also be used to compare the actual course of inflation with that predicted on the basis of this relationship. In the simulation exercise described here it is assumed that money affects prices with lags of up to four quarters: that is, the size of the money stock in the previous four quarters determines the level of prices in the current quarter.[23] Since quarterly data on real GDP have only been produced since 1993, it is assumed that quarterly GDP before this time was equal to one-quarter of the annual figure. The amount of cash in circulation is used in preference to base money, since the latter has been significantly affected by changes in the required reserve ratio (which artificially changed the banks' demand for base money; see footnote 21) and by enormous changes in the regulatory environment of the banking system (McLeod 1999b); cash in circulation is by far the largest component of base money.

The results of the simulation are shown in Figure 8, in which three things stand out. First, projected inflation is considerably more volatile than actual inflation. Second, the average level of projected inflation over long periods is very close to the average level of actual inflation: indeed, the predicted overall increase in consumer prices between March 1983 and September 1998 is identical with the actual increase during this period.[24] Third, both the spike in actual inflation in the early months of the crisis and the subsequent mild resurgence of inflation are quite closely tracked by projected inflation, although projected inflation somewhat overstates actual inflation in the latter period. The volatility of the projected inflation series mainly reflects the similarly high volatility of money growth, since output growth is much less volatile (seasonal factors aside). This would seem to imply that a policy of maintaining a steady rate of money growth would largely eliminate volatility in the projected inflation series, so that it would track actual inflation much more accurately.

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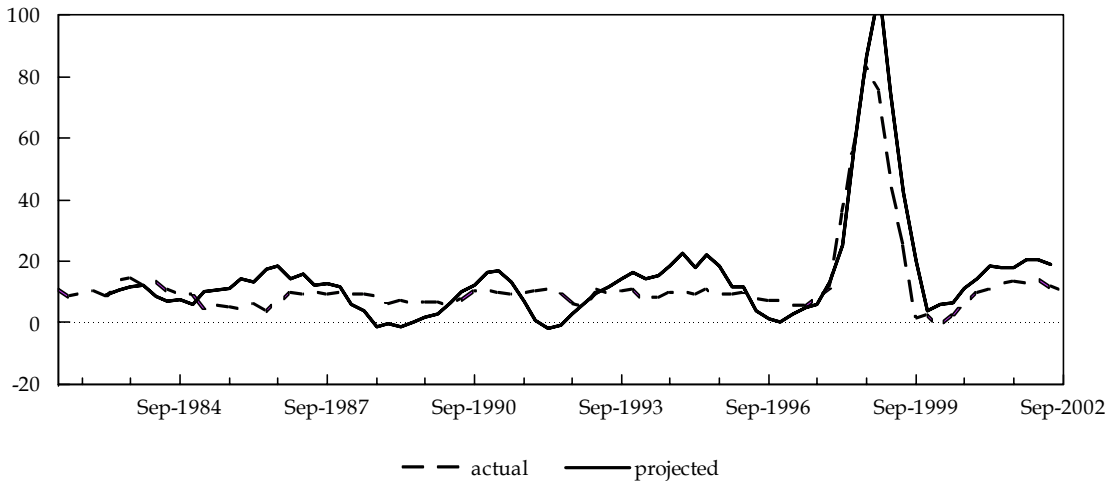
[23] Specifically, the value of *M* is calculated as a weighted average of its value for the last four quarters, where the weights range from 0.125, 0.2, 0.3 and 0.375, with the heavier weights applying to the more recent values.

[24] It is difficult to reconcile this observation with Grenville's assertion that 'the empirical relationship between base money and … the growth of nominal GDP … is, for most countries, not stable … over a longer-term secular horizon (Grenville 2000: 45).'

Figure 8 Projected and Annual Inflation
% p.a.



Source: CEIC Asia Database, author's calculations

WHY BASE MONEY?

The discussion above has been based on the view that base money (or its dominant component, currency in circulation) is the most appropriate aggregate for controlling inflation. This is somewhat unorthodox because, whereas macroeconomists once focused on controlling narrow money (M1), the trend subsequently—if monetary growth is looked at at all—has been to look at wider aggregates. By contrast, M0 has rarely taken the limelight. Base money, narrow money and broad money (M2) are, of course, closely correlated; the question of which is most closely linked with policy variables such as output and inflation is an empirical one. It is interesting to note, however, that while BI is now aware that the relationship of M0 to M2—and through M2 to inflation—has been significantly disturbed by far-reaching deregulation of the banking system in the 1980s (Alamsyah *et al*. 2001),[25] switching the focus to M0 as a possible solution to this problem does not seem to have been considered. Rather, the instability of the multipliers that relate M0 to M1 and M2 seems to have been interpreted to mean that the effectiveness of monetary policy has been seriously compromised.

The basis for the writer's preference for focusing on M0 is straightforward, and is guided by the principle of keeping monetary management as uncomplicated as possible. Base money consists solely of liabilities of the central bank, and so is under its direct control (provided interest rates and exchange rates are allowed to be market determined). Even if a broader aggregate containing bank deposits—M2, say—has a closer relationship with inflation than

[25] By contrast, former BI director Mukhlis Rasyid had previously concluded that there had been no structural break in the relationship (Rasyid 1993). McLeod (1997a: 402-3) argued that such a break was readily apparent using Rasyid's data.

M0, the central bank can only influence this broader aggregate indirectly and imperfectly, by manipulating M0. Thus BI's control over inflation derives ultimately from its control over M0, and nothing useful is gained by focusing on two links—from M0 to M2 and from M2 to prices—rather than the single link between M0 and prices suggested by the simple monetary model relied on earlier. To put it another way, the role of the commercial banks in the inflation process is of minor significance relative to that of the central bank. Although the money created by commercial banks far exceeds the money created by the central bank, the former is primarily determined by the latter (McLeod 1993a: 118–19); focusing on broader money aggregates obscures these realities, and helps the central bank shift the blame for inflation to the commercial banks.[26]

Is controlling base money feasible?

Grenville asserts that the textbook exposition of monetary policy implementation never questions the ability of the central bank to control base money, and that 'there is no OECD central bank that [uses] money base as an operating target' (2000: 65). Some obvious responses to this are: first, choosing not to control base money is quite different from not being able to do so; second, there should be no presumption that what is regarded as appropriate for developed countries is also appropriate for a developing country such as Indonesia; and third, the simple fact that particular policies are commonly followed surely does not prove that they are the best available—after all, the OECD countries once all tried to implement independent monetary policies while simultaneously maintaining fixed exchange rates, but eventually concluded that this was not sensible.

In an attempt, perhaps, to justify its unwillingness to control base money, BI also argues that it is not practicable to do so. Alamsyah *et al*. (2001: 311–12), citing former BI director Boediono (1998), argue that this has been difficult:

> … the markets for the instruments with which open market operations were conducted … were relatively thin and fragmented. … With this fragmented market it was quite difficult for BI to control system liquidity without creating pressures on interest rates. For example, in September 1984, when BI squeezed liquidity from the market, the interbank overnight rate jumped to 90% per annum. …

This discussion pertains to the 1980s and early 1990s—that is, to the pre-crisis, quasi-fixed exchange rate era when indeed there were problems stemming from the attempt to meet a range of conflicting objectives (McLeod 1997b), and it confuses the difficulty of controlling base money with the impossibility of doing so while also attempting to control interest rates

[26] The usefulness of M2 as a policy relevant variable in the Indonesian context is also seriously compromised by the fact that it is defined to include foreign currency deposits, which are significantly large, and whose rupiah value moves proportionately with changes in the exchange rate.

and exchange rates. The central bank has no difficulty issuing SBIs to the banks if it is willing to pay market rates of interest: anything can be sold if the price is right. This same confusion has been evident in recent years in relation to the conduct of open market operations: BI has complained that sometimes it failed to sell the full targeted quantity of SBIs at its regular auctions, even though it claimed merely to determine the quantity to be sold, accepting whatever rates were bid by the banks. The only conceivable explanation for this is that in fact BI was unwilling to accept rates higher than a certain level, and had ways of making the banks aware that they should not bid higher rates than this.[27]

More importantly, the episodes Boediono discusses were occasions on which the central bank applied *sudden and drastic liquidity squeezes* in order to put a halt to speculation against the currency. It is not surprising that the side effects were severe, but this is entirely irrelevant in relation to the proposal to adopt a policy of *slow and steady base money growth*.

Alamsyah *et al*. (2001: 312) also argue that

> … in certain periods base money is endogenous with respect to output. For example, during periods of upswing in the economy, rising aggregate demand is accompanied by both increased foreign borrowing and the liquidation of SBI by sale to BI, both of which result in increases in base money (*given the quasi-fixed exchange rate policy and a reluctance to allow SBI rates to rise*). Controlling the growth of base money … is therefore a difficult job that sometimes needs extremely high interest rates (emphasis added).

Again, the problem here is that of controlling base money at the same time as trying to control the exchange rate and interest rates: there is only room for a single nominal anchor for macroeconomic policy. Increased foreign borrowing does *not* result in an increase in base money if the exchange rate is allowed to float. BI has *no reason to repurchase SBIs* unless it is trying to prevent interest rates from rising. Indeed, the tendency of interest rates to rise during an upswing reflects an automatic stabilising mechanism—something to be thankful for, not a cause for complaint.

[27] The aversion to (upward) flexibility of interest rates is also apparent in the discussion of the planned process by which interest rates should be adjusted when newly available data suggest that inflation will be higher than previously thought: the adjustment is constrained not to exceed a certain amount within a given time period (Alamsyah *et al*. 2001: 318).

CONCLUSION

The extraordinary decline in the value of the rupiah during the first year of the Asian crisis can be explained by the failure of the central bank properly to control the supply of its monetary liabilities—base money. While a *real* depreciation of the currency was an inevitable consequence of investors' perceptions of a significant increase in the risk of holding assets in Indonesia, the *nominal* depreciation that occurred was far greater than necessary. Moreover, the initial short-lived burst of inflation and the subsequent resurgence after it had been brought under control were entirely unnecessary, as the experience of the other crisis countries shows. Now that Indonesia has abandoned its policy of maintaining a quasi-fixed exchange rate, the central bank would be well advised to adopt a policy of achieving slow and steady growth of base money, and that eschews any attempt directly to influence the growth of GDP, the exchange rate or the interest rate.

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