

Can Central Bank Transparency Go Too Far?

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1. What Are the Issues?

Since the beginning of the 1990s we have seen a revolution in the way central banks communicate with the markets and the public. In the old days, central banks were generally very secretive institutions. Not only did they not clarify what their objectives and strategies were, but they even kept the markets guessing about what the actual settings of policy instruments were. Central banks were perfectly happy to cultivate a mystique as wise but mysterious institutions, prompting popular books about central banks to have titles like *The Secrets of the Temple* (Greider 1987).

The rationale for the secretive behaviour of central banks was that, as one former Fed official put it bluntly, ‘secrecy is designed to shield the Fed from political oversight’.² Although central bank secrecy reflects the natural desire of a bureaucracy to maximise power and prestige by avoiding accountability, the theory of time-inconsistency of optimal policies articulated by Kydland and Prescott (1977) and Calvo (1978) suggests that there might be a rationale for central bank secrecy because, as this same Fed official stated, ‘most politicians have a shorter time horizon than is optimal for monetary policy’. In order to avoid the pressures from politicians on central banks to pursue overly expansionary monetary policy to exploit the short-run trade-off between employment and inflation, central banks might want to obscure their actions and avoid the time-inconsistency problem by focusing on the long run and ‘just doing it’ as McCallum (1995) has proposed.³ Another way to deal with the time-inconsistency problem is to appoint conservative central bankers, as suggested by Rogoff (1985), who put more weight on controlling inflation relative to output than does the general public and thus will resist inflationary policies. However, for this to work, conservative central bankers need to be independent of the political process, which is facilitated by central bank secrecy.

There are several problems with this secrecy approach to dealing with the time-inconsistency problem. First, having secretive central banks is inherently

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 2. As quoted in ‘Monetary zeal: how Federal Reserve under Volcker finally slowed down inflation’, *Wall Street Journal*, 7 December, 1984, p 23.
 3. The model of Barro and Gordon (1983) has the time-inconsistency problem residing inside the central bank. But as I have argued elsewhere in Mishkin (2000), the source of the time-inconsistency problem is in the political process because central bankers are very aware of the time-inconsistency problem and are indeed extremely averse to falling into a time-inconsistency trap.

undemocratic. Although it makes sense to insulate central banks from short-run pressures to pursue overly expansionary monetary policy, basic democratic principles require that the central bank be accountable for its actions: this requires that the public understands what the central bank is doing. In addition, democratic principles indicate that the preferences of policy-makers need to be aligned with those of the society at large. Furthermore, in the long run a central bank cannot operate without the support of the public. A secretive central bank may heighten suspicions that it is not acting in the public interest and so can eventually lead to curbs on its independence.

With the advent of inflation targeting in the early 1990s, central banks have been taking a different route to solving the time-inconsistency problem. They now recognise that transparency and improved communication with the public and the markets is the key to having a successful monetary policy. Inflation targeting has promoted a huge increase in transparency about inflation objectives and stresses regular communication with the public.⁴ Inflation-targeting central banks now have frequent, periodic communications with the government, and central bank officials take every opportunity to make public speeches on their monetary policy strategy. These channels are also commonly now used by central banks that have not adopted inflation targeting, such as the Federal Reserve, but inflation-targeting central banks have taken public outreach a step further: not only have they engaged in extended public information campaigns, even engaging in the distribution of glossy brochures as in New Zealand, but they have engaged in the publication of inflation report-type documents. Inflation reports are far more user-friendly than previous central bank documents and explain the goals and limitations of monetary policy, including the rationale for inflation targets, the numerical values of the inflation targets and how they were determined, how the inflation targets are to be achieved, given current economic conditions, and reasons for any deviations from targets.

This emphasis on transparency and communication has produced several benefits for central banks. By explicitly announcing their objectives on the inflation front, central banks have been able to increase their credibility and anchor inflation expectations (Levin, Natalucci and Piger 2004). Not only has this helped them achieve low and stable inflation, but output volatility has, if anything, fallen. The strengthening of the nominal anchor apparently helps move the economy toward the efficient frontier of the trade-off between inflation and output gap variability, generating better performance on both the inflation and output fronts.⁵

Transparency and communication, especially when it has demonstrated the success in achieving a pre-announced and well-defined inflation target, has also helped build public support for a central bank's independence and for its policies. As documented in Mishkin and Posen (1997) and Bernanke *et al* (1999), the increased transparency of its inflation-targeting regime led to increased support for the Bank of Canada's policies, while it led to the granting of operational independence to the Bank of England in May 1997. Indeed, when announcing the decision, Gordon Brown, the Chancellor of the Exchequer indicated that a key factor behind granting

4. For example, see Bernanke *et al* (1999) and Mishkin (1999).

5. The so-called Taylor curve first outlined in Taylor (1979).

the Bank of England greater independence was that the increased transparency of the inflation-targeting regime enhanced political oversight. An important benefit of the transparency of an inflation-targeting regime, therefore, is that it makes it more palatable to have an independent central bank which focuses on long-run objectives, but which is consistent with a democratic society because it is accountable.

Although inflation targeting has increased transparency with substantial benefits, transparency is far from complete. As seen in Table 1, although almost all inflation-targeting central banks publish their inflation forecasts in their *Inflation Reports* (the Bank of Israel and Central Bank of the Republic of Turkey being the only exceptions),⁶ a larger number do not publish output forecasts (the central banks of Australia, the Philippines, Poland, Romania, South Africa, South Korea and Turkey).⁷ Furthermore, except for the Reserve Bank of New Zealand and most recently the central bank of Colombia, inflation-targeting central banks do not formally announce their forecasts of the future path for the interest-rate policy instrument.⁸ No central bank describes their objective function for monetary policy, while almost all central banks are reluctant to discuss publicly their concerns about output fluctuations. This raises the question of whether central banks should increase transparency much further. Some monetary economists, with the most prominent example being Lars Svensson (2002), suggest that the answer is yes. Indeed, he advocates not only publication of output and inflation forecasts, but also announcement of projections of the future policy path and the central bank objective function. But can transparency go too far?

To answer this question, we need to keep the following basic question in mind: Does increased transparency help the central bank to do its job – that is, enable it to conduct monetary policy optimally with an appropriate focus on long-run objectives? The answer might well be no, particularly if the increase in transparency violates the KISS (Keep It Simple Stupid) principle. This paper uses this basic question as the lens through which it evaluates how far transparency should go. In the next three sections I look at the following three questions: (i) Should the central bank publish its forecasts, including projections of the future path of policy rates? (ii) Should the

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6. The Bank of Israel publishes an inflation forecast based on a survey of private sector expectations, but not its own inflation forecast. The Central Bank of the Republic of Turkey (CBRT) does not officially call its framework inflation targeting but instead refers to it as ‘implicit inflation targeting’. However, the end-of-year inflation target is agreed on by the government and the IMF. Like Israel, the CBRT does not publish its own forecasts, but does publish inflation forecasts based on a private sector survey. Note that although the European Central Bank (ECB) does not call itself an inflation targeter, it does have an explicit inflation objective and so has some elements of an inflation-targeting regime. The ECB does publish its inflation and output forecasts.
 7. The central banks of Australia and South Korea do announce output forecasts in other settings, but the frequency of these forecasts is not as high as in *Inflation Reports*.
 8. The central banks of Brazil, the Czech Republic, Hungary, Iceland, Norway, Poland and the United Kingdom do publish projections of the future policy-rate path, but it is based on market expectations and not their assessment of the expected policy-rate path. The central bank of Norway does have an extensive discussion of future monetary policy in their *Inflation Report*, but it is still quite qualitative. Other inflation-targeting central banks, such as the central banks of the Czech Republic, Iceland and Romania, have provided less formal discussions of their assessment of the future policy-rate path.

Table 1: Do Inflation-targeting Central Banks Publish their Forecasts?

Central bank	Policy rate projections?	Inflation forecasts?	Output growth forecasts?	Output gap forecasts?
Australia	No	Yes	No ^(a)	No
Brazil	No [†]	Yes	Yes	No
Canada	No	Yes	Yes	No [‡]
Chile	No	Yes	Yes	No
Colombia	Yes	Yes	Yes	Yes
Czech Republic	No [†]	Yes	Yes	Yes
Hungary	No [†]	Yes	Yes	Yes
Iceland	No [†]	Yes	Yes	Yes
Israel	No	No	No	No
Mexico	No	Yes	Yes	No
New Zealand	Yes	Yes	Yes	Yes
Norway	No [†]	Yes	Yes	Yes
Peru	No	Yes	Yes	No
Philippines	No	Yes	No	No
Poland	No [†]	Yes ^(b)	No	No
Romania	No	Yes	No	No
Slovakia ^(c)	No	Yes	Yes	No
South Africa	No	Yes	No	No
South Korea	No	Yes	Yes ^(d)	No
Sweden	No	Yes	Yes	No [‡]
Switzerland	No	Yes	Yes	No
Thailand	No	Yes	Yes	No
Turkey ^(e)	No	No	No	No
UK	No [†]	Yes	Yes	No

Notes: [†] Indicates central banks which publish the market expectations of future policy rates even though there is no official policy-rate forecast. The central banks of Hungary, Iceland and Poland publish macro forecasts based on a constant policy-rate path, the Czech Republic and Norway based on market expectations of the policy-rate path, and Brazil and the UK based on both a constant policy-rate path and market expectations of the policy-rate path.

[‡] The central banks of Canada and Sweden publish estimates of the current output gap.

- (a) The Reserve Bank of Australia does not publish output growth forecasts in the *Statement on Monetary Policy*. However, GDP forecasts are given twice a year in the Governor's Opening Statement to the House of Representatives Standing Committee on Economics, Finance and Public Administration.
- (b) The National Bank of Poland publishes extensive survey-based inflation expectations by market participants, but refrains from making an exact inflation forecast of its own. Instead, a commentary on the likelihood of fulfilling the inflation target is included in the *Inflation Report*.
- (c) The National Bank of Slovakia does not refer to itself as an inflation targeter. However, the ECB defines it as an 'implicit inflation targeter'. (Source: 'The acceding countries' strategies towards ERM II and the adoption of the euro: an analytical review', ECB Occasional Paper No 10, February 2004)
- (d) The Bank of Korea does not publish output growth forecasts in the *Inflation Report*. However, GDP forecasts for the year ahead are given twice a year in their publication *Economic Prospects*.
- (e) The Central Bank of the Republic of Turkey does not call its framework 'inflation targeting' but rather 'implicit inflation targeting'. However, it follows an end-of-year inflation target, which is negotiated by the government and the IMF.

Sources: central bank websites as of August 2004

central bank announce its objective function? (iii) How should the central bank talk about output fluctuations? The final section contains some concluding remarks.

2. Should the Central Bank Publish its Forecasts Including Projections of the Future Path of Policy Rates?

Inflation-targeting theory, as illustrated in the simple model of Svensson (1997), shows that inflation forecasts are central to the conduct of monetary policy. His model comprises an aggregate supply curve in which the change in inflation is affected by the output gap with a one-period (one year) lag:

$$\pi_t = \pi_{t-1} + \gamma y_{t-1} + \varepsilon_t \quad (1)$$

and an aggregate demand curve in which the output gap is a function of the past output gap to reflect persistence, and of the real interest rate, again with a one-period (one year) lag:

$$y_t = \rho y_{t-1} - \varphi(i_{t-1} - \pi_{t-1}) + \eta_t \quad (2)$$

where $\pi_t = p_t - p_{t-1}$ is the inflation rate at time t (with p_t the log of the price level), y_t is the output gap (the log of the ratio of actual to potential output), i_t is the nominal interest rate, and ε_t and η_t are independently and identically distributed aggregate supply and demand shocks, respectively.

Optimal monetary policy involves setting the interest rate each period to minimise the intertemporal loss function:

$$E_t \sum_{\tau=t}^{\infty} \delta^{\tau-t} L_{\tau} \quad (3)$$

where $\delta < 1$ is the authorities' discount rate and where the period-by-period loss function is:

$$L_{\tau} = (\pi_{\tau} - \pi^*)^2 / 2 + \lambda y_{\tau}^2 / 2 \quad (4)$$

given the inflation target π^* . In the case of $\lambda = 0$, where the central bank only cares about inflation fluctuations, Svensson (1997) has shown that the optimal setting of the interest rate is one in which the following target rule is followed:

$$E_t \pi_{t+2} = \pi^* \quad (5)$$

In other words, the monetary policy instrument is set so as to attain the inflation target over the horizon at which policy changes take effect, which in this model is two periods (years) ahead. If $\lambda > 0$, so that monetary policy-makers are also concerned about output fluctuations, then the interest rate instrument is set according to a target rule in which the approach to the inflation target is more gradual, that is:⁹

9. Models with more forward-looking behaviour such as the dynamic new Keynesian model in Clarida, Gali and Gertler (1999) would yield similar conclusions.

$$E_t \pi_{t+2} - \pi^* = c(E_t \pi_{t+1} - \pi^*) \quad (6)$$

Svensson (1997) calls this type of policy reaction ‘flexible inflation targeting’, and the evidence discussed in Bernanke *et al* (1999) suggests that it is a more realistic approximation of what inflation-targeting countries do in practice.

Equations (5) and (6) illustrate that central bank decisions about monetary policy necessarily focus on the inflation forecast, and so inflation targeting is more precisely described as being ‘inflation forecast targeting’. Clearly, if inflation forecasts are the key to the conduct of monetary policy in an inflation-targeting regime, then full transparency requires that the inflation forecasts of the central bank be revealed to the public. Because inflation forecasts are generated with forecasts of other variables, especially output, full transparency also requires that forecasts of these variables are published.¹⁰ There are a number of advantages from publication of forecasts. First, publication of forecasts can help the public and the markets understand central bank actions, thus making it easier for them to assess whether the central bank is serious about achieving its inflation goal. Second, publication of forecasts enables the public to evaluate the quality of central bank forecasts which will enhance central bank credibility if these forecasts are viewed as constructed using best practice. Third, publication of forecasts increases the incentives for the central bank to produce good forecasts because a poor forecasting record would be embarrassing.

The three advantages above together point to the more general advantage from publication of forecasts, that it increases central bank accountability. Because of the long lags in the effects of monetary policy, which in the simple Svensson model is two periods (years), inflation outcomes are revealed only after a substantial lag. Thus without additional information, the inflation target by itself does not provide an immediate signal to both the public and the markets as to whether the current stance of monetary policy is appropriate. Because, as Equations (5) and (6) illustrate, optimal monetary policy involves ‘inflation forecast targeting’, publication of forecasts provides immediate information that helps the public to assess whether the central bank is taking the appropriate steps to meet its objectives. If the public and the markets think that the central bank’s forecasts are not honest, or that the current policy stance is inconsistent with the inflation forecast, or that the inflation forecast differs too markedly from the stated target, they can immediately voice their criticisms of the central bank. Increased accountability of the central bank is then the result.

However, despite the obvious advantages of publishing forecasts, there are some thorny problems. The first is the tricky issue: What path of the policy interest rate should the forecast be conditioned on? There are three choices: (i) a constant interest rate path; (ii) market forecasts of future policy rates; or (iii) a central bank projection of the policy interest rate path. A constant interest path would almost surely never be optimal because future projected changes in interest rates will be necessary to keep inflation on the appropriate target path.¹¹ The second choice is

10. However, for reasons outlined in the next section, there are arguments against the publication of forecasts of output gaps.

11. See Svensson (2003a, 2003b) and Woodford (2003).

also problematic because, as Bernanke and Woodford (1997) have shown, there is a circularity problem if the central bank sets its policy rate on the basis of market forecasts. The markets' forecasts are just guesses of what the central bank will be doing, so if the central bank just does what the market expects, there is nothing that pins down the system and inflation outcomes will be indeterminate. Theory therefore tells us that the only appropriate and logically consistent choice is the third one, the central bank projection of the policy path. Clearly, an inflation forecast is meaningless without specifying what policy it is conditioned on, and this is why Svensson (2002) argues that in publishing its forecasts the central bank also needs to announce its projection of the policy-rate path used in producing its forecast, which will almost surely be time-varying.

Although Svensson's argument for announcing the projection of the policy path is theoretically sound, announcing the policy path is highly problematic. One objection to a central bank announcing its policy projection, raised by Charles Goodhart (2001), a former member of the Monetary Policy Committee of the Bank of England, is that it would complicate the decision-making process of the committee that makes monetary policy decisions. The current procedure of most central banks is to make decisions only about the current setting of the policy rate. Goodhart argues that 'a great advantage of restricting the choice of what to do now, this month, is that it makes the decision relatively simple, even stark'.¹² If a policy projection with time-varying rates is announced, this clearly requires that the monetary policy committee come to an agreement on this policy path. Svensson (2002) argues that this could be done by a 'simple' voting procedure, but this procedure is far from simple and I agree with Goodhart that this is unlikely to work. Forcing committee members to make a decision about the future path of rates and not just the rate today may complicate matters so much that the decision-making process could be impaired. Although committee members might have some idea of a future direction for policy rates, they are likely to have trouble thinking about a precise policy-rate path rather than just the setting of the rate today. Furthermore, getting committee members to agree on a future path of the policy rate might be very difficult and could end up being very contentious.¹³

I had a glimpse of the problems with projections of the policy-rate path when I sat in on Federal Open Market Committee (FOMC) meetings while I was the director of research at the Federal Reserve Bank of New York from 1994 to 1997. Upon my arrival at the Fed, the Green Book forecasts (prepared by the Board staff) were conditioned on a non-constant interest rate path. Several of the FOMC members objected to this procedure and this was probably for two reasons. First, having a staff projection of future interest rates might lead to some prejudgement of the committee's decision. Second, it is far easier to make a decision just on the rate today and not have to discuss the path for future policy rates at the same time. The

12. Goodhart (2001, p 173).

13. Kohn (2000) comes to a similar conclusion. He reports that members of the Bank of England's Monetary Policy Committee stressed the difficulty of getting agreement on a future path of interest rates.

objections eventually won the day: the procedure for generating the Green Book forecasts was changed so that they are now conditioned on a constant policy-rate path, at least in the short term. Thus, I side with Goodhart. Announcing a projection for the policy-rate path which would require agreement on this path by the committee deciding on monetary policy would be counterproductive.

The second problem with announcing a projection of the policy-rate path is that it might complicate communication with the public. Although economists understand that any policy path projected by the central bank is inherently conditional because changes in the state of the economy will require a change in the policy path, the public is far less likely to understand this. When new information comes in and the central bank changes the policy rate from its projected path, the public may see this as a reneging on its announced policy or an indication that the central bank's previous policy settings were a mistake. Thus even when the central bank is conducting its policy in an optimal manner, deviations from its projected policy path may be viewed as a central bank failure and could hurt the central bank's credibility. In addition, the deviations of the policy rate from its projected path might be seen as flip flops on the part of the central bank. As we often see in political campaigns, when a candidate changes his position, even if it reflects changes in circumstances and thus reflects sound judgement, the candidate is vulnerable to attacks by his or her opponents that he or she does not have leadership qualities. Wouldn't central banks be subject to the same criticism when changing circumstances would force them to change the policy rate from its previously projected path? The result might be a weakening of support for the central bank and its independence.

The recent Federal Reserve experience with the language of their post-FOMC statement illustrates the problem of the public not understanding that projected policy paths are conditional on the evolution of the data. In order to underscore its commitment to preventing a deflationary spiral from getting underway in the United States, the FOMC announced in August 2003 that it would maintain policy accommodation for a 'considerable period'. As Eggertsson and Woodford (2003) have shown, a commitment to keeping the policy rate unusually low beyond the time when the economy begins to recover is an important policy tool to deal with deflationary shocks. However, as is clear from Eggertsson and Woodford (2003), the length of the 'considerable period' is dependent on the actual evolution of the economy. The public may not fully understand this and so if the economy comes back far stronger than is anticipated, monetary policy may need to be tightened even when there has been a commitment to easy monetary policy for a 'considerable period'. We would then have the problems described above where the central bank's credibility might be tarnished. Thus the commitment to a policy path, even when it is needed, is not without its problems. As is indicated in Ito and Mishkin (2004), I still believe that deflationary environments, like the one we see in Japan, are sufficiently damaging that a commitment to the zero interest rate for an extended period is needed to reflate the economy. However, the cost of a commitment to a projected policy-rate path is trickier when the deflation risks are not as serious. This problem has been recognised by officials at the Fed, and explains why they have been seeking an exit strategy from their commitment to a policy-rate path by first changing

the language, in January 2004, to say that the FOMC can be ‘patient’ in removing policy accommodation and then, in May 2004, to say that policy accommodation can be removed at a pace that is likely to be ‘measured’.

The bottom line is that except in exceptional deflationary circumstances like the one Japan has experienced, announcement of a policy-rate path does not have much to recommend it. It is likely to complicate policy discussion within central banks which might impair the quality of monetary policy decisions, and it also may lead to a loss of credibility of the central bank and a weakening of the support for central bank policies. Thus announcement of its projection of the policy-rate path may make it harder for the central bank to conduct monetary policy optimally with an appropriate focus on long-run objectives.

The problem with announcing the projection of the future policy path creates a problem for publishing forecasts. Clearly, in order for a forecast to be evaluated, the central bank must reveal the policy path on which it is conditioned. But if it does not make sense for central banks to announce their projection of a time-varying, policy-rate path, then the forecasts that they publish cannot be based on such a projection. The alternative is for the central bank to publish forecasts that are either conditioned on the policy rate remaining unchanged or on market expectations of future policy rates. Indeed this is what almost all central banks that publish forecasts do. Only the central banks of New Zealand and Colombia publish their forecasts based on a projected policy-rate path which they intend to set in the future.¹⁴

If publishing forecasts based on a projected policy-rate path may do more harm than good, and yet this is the only logically consistent approach for producing these forecasts, then is publishing forecasts based on a constant policy rate or on market expectations of the policy rate truly transparent? After all, the central bank knows that neither of these interest rate paths is what it plans to do and the public and markets know this as well.¹⁵ Publishing these logically inconsistent forecasts might even be viewed as non-transparent and so could potentially damage the central bank’s credibility.¹⁶ The case for publishing forecasts is thus no longer clear cut: there are costs and benefits. However, for central banks that have lower credibility, particularly those in emerging market economies, there may be a greater need for them to publish forecasts in order to provide more information to the public, even if the forecasts are not based on the central bank’s projection of future policy rates.

14. The central banks of Brazil, the Czech Republic, Norway and the United Kingdom publish forecasts based on projections of the future policy-rate path that are *based on market expectations*. Norway does have an extensive section in its *Inflation Report* on the setting of future policy rates which is qualitative.

15. This criticism of the Bank of England’s published forecasts has been raised by Martijn and Samiei (1999).

16. Although a forecast based on a constant-interest-rate path is logically inconsistent, it is internally consistent: that is, a forecast can be conditioned on any assumption about an interest-rate path. Indeed, Edey and Stone (this volume) argue that if a monetary policy committee makes decisions based on unchanged future policy then the publication of these forecasts is consistent with transparency.

3. Should the Central Bank Reveal its Objective Function?

In order for the public and the markets to fully understand what a central bank is doing they need to understand the central bank's objectives. As argued in the introduction, the announcement of an explicit, numerical objective for inflation is an important step in the right direction and has clear-cut benefits. However, central banks are not 'inflation nutters' (King 1997): they do care about output fluctuations as well as inflation fluctuations, and so λ is greater than 0 in the central bank objective function in Equation (4). Thus announcing an inflation target is not enough: full transparency requires that the central bank reveal its objective function (Svensson 2002).

Again, we need to ask the question whether revealing its objective function will help the central bank to do its job. I will argue that the answer is no because pushing transparency further in this direction violates the KISS (Keep It Simple Stupid) principle and is likely to hinder the communication process.

The first problem with announcing an objective function is that it might be quite hard for members of a monetary policy committee to specify an objective function. Having watched how members of a monetary policy committee operate, I can attest that members of monetary policy boards don't think in terms of objective functions and would have a very hard time in describing what theirs is. Indeed, I would suggest that most monetary economists, even brilliant ones, would have trouble specifying what their λ would be. A counter to this argument is that the λ could be backed out by revealed preference. Monetary policy committee members could be confronted with hypothetical choices about acceptable paths of inflation and output gaps and then their choices would reveal their λ s. Although committee members would be able to do this when confronted with a real world situation, and this is effectively what was done in Brazil in early 2003, I think they would find this difficult to do when the choices are hypothetical – I know I would.

A second problem, raised by Goodhart (2001), is that it would be difficult for a committee to agree on its objective function. As mentioned above, committee members might have trouble defining their own objective function, but because the composition of the committee changes frequently and existing members may change their views on objectives depending on circumstances, they would also have to revisit the decision on the committee's objective function frequently. Deciding on the committee's objective function would thus substantially increase the complexity of the decision process and might also be quite contentious. This violation of the KISS principle would then have the potential to weaken the quality of monetary policy decisions.

A third problem is that it is far from clear who should decide on the objective function. If the members of the monetary policy board do so, isn't this a violation of the democratic principle that the objectives of bureaucracies should be set by the political process? An alternative would be for the government to do so. But if we think that it would be hard enough for a monetary policy committee to do this, it would clearly be even more difficult for politicians to decide on the objective function.

Even if it were easy for the monetary policy committee or the government to come to a decision on the objective function, would it be easy to communicate it to the public? If economists and members of a monetary policy committee have trouble quantifying their objective function, is it likely that the public would understand what the central bank was talking about when it announced its objective function? Announcement of the objective function would only be likely to complicate the communication process with the public and is another violation of the KISS principle.

The announcement of the central bank's objective function can add a further complication to the communication process that might have even more severe consequences for the ability of the central bank to do its job well. The KISS principle argues for articulation of monetary policy in as simple a way as possible. The beauty of inflation-target regimes is that by focusing on one objective – inflation – communication is fairly straightforward. On the other hand, with the announcement of the objective function, the central bank will be announcing that it has two objectives, minimising both output and inflation fluctuations. Discussion of output as well as inflation objectives can confuse the public and make it more likely that the public will see the mission of the central bank as elimination of short-run output fluctuations, thus worsening the time-inconsistency problem.

One outcome is that it may make it more likely that workers and firms will raise wages and prices because they know that the monetary authorities are likely to accommodate these rises by pursuing expansionary policy to prevent output gaps from developing. The result is that a self-fulfilling equilibrium can occur in which wages and prices rise, then monetary policy accommodates this rise, and this leads to further rises in wages and prices, and so on, thus leading to a new equilibrium with higher inflation but without a reduction in output fluctuations. Chari, Christiano and Eichenbaum (1998) have described this bad equilibrium as an 'expectation trap'. Discussing monetary policy objectives in terms of output fluctuations can thus lead to a loss of inflation-fighting credibility for the central bank, with the result that the trade-off between inflation and output fluctuations worsens.

Announcement of the objective function not only requires the announcement of λ and the inflation target, but it also requires the central bank to announce its estimates of the current and future output gaps and hence its estimate of potential output and its growth rate. The announcement of estimates of potential output, and particularly its growth rate, may increase the probability that the public sees them as a target for monetary policy and thus may increase political pressures on the central bank to eliminate output gaps and pursue high growth in the short run, with the resulting negative consequences mentioned above. This problem is likely to be even more damaging because potential output is very hard to measure.

One measurement problem for potential output occurs because the monetary policy authorities have to estimate it with real-time data, that is, data that are available at the time they set the policy instrument. GDP data are frequently revised substantially and this is one reason why output gaps are mismeasured in real time. Even more important: it is notoriously hard to know what potential GDP and its growth rate actually are without hindsight. For example, in the United States it was not until the 1980s that policy-makers recognised that potential GDP growth had slowed

markedly after 1973: Orphanides (2001) has shown that the errors in measures of output gaps have been very large in the post-war period.

An even more severe measurement problem occurs because conceptually the y_t that belongs in the aggregate supply curve in Equation (1) is not at all clear and may be quite different from conventionally measured output gaps. Clarida *et al* (1999) point out that new Keynesian aggregate supply curves should have y_t specified as a marginal cost measure rather than an output gap and they find that the marginal cost measure has substantially different movements and timing than the conventionally measured output gap. McCallum and Nelson (2000) and McCallum (2001) argue that conventionally measured output gaps, which estimate the gap as deviations from a trend, differ substantially from more theoretically grounded measures based on the output level that would prevail in the absence of nominal price stickiness. It is true that there are measurement problems with inflation as well as output gaps, but both the conceptual and real-time measurement problems for inflation are of a far smaller magnitude.

The severe measurement problems for the output gap could interact with an increased focus on eliminating output gaps to produce serious policy mistakes as occurred in the United States in the 1970s. Orphanides (1998) shows that the use of real-time data on output gaps might lead to such inaccurate estimates that active monetary policy which reacts strongly to output gaps increases economic instability. Indeed, Orphanides (2002) argues that the reason for the Federal Reserve's poor performance during the 1970s was *not* that it was unconcerned with inflation, but rather that it focused too much on eliminating output gaps.

Given the objections raised here, it is not surprising that no central bank has revealed its objective function to the public. Furthermore, the discussion here suggests that even if the central bank does not announce its objective function, announcement of current and future potential output and output gap estimates still has the potential to worsen monetary policy performance. Thus the discussion also argues against the publication of central bank estimates and forecasts of potential output and the output gap even if publication of inflation and output forecasts is felt to be beneficial. Indeed, although the majority of inflation-targeting central banks publish output and inflation forecasts, only the central banks of Colombia, the Czech Republic, Hungary, Iceland, New Zealand and Norway publish their forecasts of potential output or output gaps, while the central banks of Canada and Sweden publish only current estimates of the output gap (Table 1).

4. How Should Central Banks Talk about Output Fluctuations?

One advantage of a central bank announcing its objective function is that it would make clear the central bank's views on how it will deal with output fluctuations. But since central banks do not announce their objective functions, and arguments against doing this are strong, they still have the problem of how to talk about output fluctuations. The reality is that central bankers, whether they target inflation

or not, are extremely reluctant to discuss concerns about output fluctuations even though their actions show that they do care about them. This lack of transparency is the ‘dirty little secret of central banking’. One remarkable manifestation of this occurred in August 1994 at the Federal Reserve Bank of Kansas City’s Jackson Hole Conference, when Alan Blinder, then the vice-chairman of the FOMC, had the temerity to mention that a short-run trade-off between output and inflation exists and that, therefore, monetary policy should be concerned about minimising output as well as inflation fluctuations. Blinder was then pilloried by many central bankers and in the press, with a Newsweek columnist declaring that he was not qualified to be a central banker (Samuelson 1994). From an academic economist’s perspective, this was quite amazing since Alan Blinder didn’t say anything that was inconsistent with what our models tell us or what central bankers deep down believe. However, it does indicate the discomfort that central bankers as a group have with discussing the role of output fluctuations in the conduct of monetary policy.

The problems with revealing the objective function discussed in the previous section explain why central bankers have difficulty with being transparent about their concerns about output fluctuations. Central bankers fear that if they are explicit about the need to minimise output fluctuations as well as inflation fluctuations, politicians will use this to pressure the central bank to pursue a short-run strategy of overly expansionary policy that will lead to poor long-run outcomes. Furthermore, a focus on output gaps could lead to policy mistakes similar to those that occurred in the United States in the 1970s. The response to these problems is that central bankers engage in a ‘don’t ask, don’t tell’ strategy.

However, the unwillingness of central banks to talk about their concerns regarding reducing output fluctuations creates two very serious problems. First, a don’t-ask-don’t-tell strategy is just plain dishonest. Doing one thing but saying another is the height of non-transparency, and central banks not admitting that they care about output fluctuations can erode confidence in other elements of their transparency that are clearly beneficial. Second, if central bankers do not discuss their concerns about output fluctuations, they may end up being characterised as ‘inflation nutters’, and this can cause an erosion of support for a central bank’s policies and independence because this set of preferences is clearly inconsistent with the public’s.

The case for increasing transparency with regard to central banks’ concerns about output fluctuations is quite strong. But how can central banks do this?

One answer is that a central bank can discuss the setting of its policy instruments in terms of the target rule in Equation (6). It can announce that it will not try to hit its inflation target over too short a horizon because this would result in unacceptably high output losses, especially when the economy gets hit by shocks that knock it substantially away from its long-run inflation goal. Inflation-targeting central banks have been moving in this direction: for example, the Reserve Bank of New Zealand has modified its inflation-targeting regime to lengthen the horizon over which it tries to achieve its inflation target.¹⁷

17. See Sherwin (1999), Drew and Orr (1999) and Reserve Bank of New Zealand (2000).

Although inflation-targeting central banks have lengthened the horizon for their targets to two years or so, with the Bank of England being a prominent example, this still does not solve the problem because it gives the impression that the horizon for inflation targets is fixed, which is not flexible enough.¹⁸ Up to now, the use of a specific horizon like two years has not been a problem for inflation targeting in advanced countries like the United Kingdom; because inflation has not been subject to large shocks, it has remained close to the target level. In this case, having the horizon for the target equal to the two-year horizon at which policy changes take effect, as in Equation (5), is consistent with optimal policy. However, as we have seen in Equation (6), when there is a concern about output fluctuations and the inflation rate is shocked sufficiently away from its long-run target, the path for the medium-term inflation-target horizon needs to be modified.

A striking example of how large shocks to inflation can be handled occurred in Brazil recently (Fraga, Goldfajn and Minella 2003). Brazil experienced a major exchange rate shock in 2002 because of concerns that the likely winner in the presidential election would pursue populist policies that would lead to currency depreciation. The resulting depreciation then led to a substantial overshoot of the Brazilian inflation target. In January 2003, the Banco Central do Brasil announced a procedure for how it would modify its inflation targets. First, the central bank estimated the regulated-price shock to be 1.7 per cent. Then taking into account the nature and persistence of the shocks, it estimated the inertia from past shocks to be 4.2 per cent of which two-thirds was to be accepted, resulting in a further adjustment of 2.8 per cent. Then the central bank added these two numbers to the previously announced target of 4 per cent to get an adjusted target for 2003 of 8.5 per cent ($= 4\% + 1.7\% + 2.8\%$). The central bank then announced the adjusted target in an open letter sent to the Minister of Finance in January 2003, which explained that getting to the non-adjusted target of 4 per cent too quickly would entail far too high a loss of output. Specifically, the announcement indicated that an attempt to achieve an inflation rate of 6.5 per cent in 2003 would be expected to entail a decline of 1.6 per cent of GDP, while trying to achieve the previous target of 4 per cent would be expected to lead to an even larger decline of GDP of 7.3 per cent.

The procedure followed by the Banco Central do Brasil had tremendous transparency, both in articulating why the inflation target was missed and also in explaining why the new target path for inflation was chosen. The discussion of alternative target paths, with the explanation that lower inflation paths would lead to large output losses, showed that the central bank did indeed care about output fluctuations, thus demonstrating that it was not an 'inflation nutter' and that its concern about output losses was aligned with similar concerns by the public.

Even though advanced economies have not yet had inflation shocks of the magnitude that Brazil has recently experienced, outlining the procedures that they

18. The fixed horizon is also problematic because it is inconsistent with optimal monetary policy: for example, see Woodford (forthcoming). Indeed, critics of inflation targeting, most notably Don Kohn (2004), who is a member of the Board of Governors of the Federal Reserve, have also worried that inflation targeting may be too rigid because inflation-targeting central banks in advanced economies have often adopted a fixed horizon for their inflation targets.

will use to respond to future adverse shocks provides a vehicle for them to explain that they do indeed care about output fluctuations.¹⁹ By announcing that they would do what the Brazilians did if a situation arose in which inflation shifted substantially away from the long-run goal, central bankers can get the dirty little secret out of the closet that they do have an appropriate concern about output fluctuations. Yet, they will still be able to assure the public that they continue to worry about the long run and the importance of achieving price stability. A procedure like the one followed by Brazil conveys the idea that the central bank cares about output fluctuations in a forward-looking context because it highlights decisions that the central bank will make about the future path of inflation and the horizon over which inflation will return to the target. It therefore continues to make clear that the central bank is focused on output fluctuations in a longer-run and not a short-run context, which is necessary for minimising the time-inconsistency problem.

Monetary authorities can further the public's understanding that they care about reducing output fluctuations in the long run by emphasising that monetary policy needs to be just as vigilant in preventing inflation from falling too low as it is in preventing it from being too high. They can do this (and some central banks have) by explaining that an explicit inflation target may help the monetary authorities stabilise the economy because they can be more aggressive in easing monetary policy in the face of negative demand shocks to the economy without being concerned that this will cause a blowout in inflation expectations. However, in order to keep the communication strategy clear, the explanation of a monetary policy easing in the face of negative demand shocks needs to indicate that it is consistent with the preservation of price stability.

In addition, central banks can also clarify that they care about reducing output fluctuations by indicating that when the economy is very far below any reasonable measure of potential output, they will take expansionary actions to stimulate economic recovery. In this case, measurement error of potential output is likely to be swamped by the size of the output gap. Thus, it is far clearer that expansionary policy is appropriate and that inflation is unlikely to rise from such actions. In this situation, the case for taking actions to close the output gap is much stronger and does not threaten the credibility of the central bank in its pursuit of price stability.

5. Concluding Remarks

Transparency is a virtue, but like all virtues it can go too far. The famous fashion designer Chanel came up with the marvelous dictum that 'You can never be too rich or too thin'. But you can be too thin – either anorexia or starvation is a killer. Similarly central banks can be too transparent. Central bank transparency must always be thought of as a means to an end. Transparency is beneficial when it serves

19. Central banks in advanced countries do have an awareness of the need to modify the inflation path if the economy is subjected to large shocks. For example, in the United Kingdom, the inflation-targeting regime stipulates that if inflation is knocked more than 1 percentage point away from the target (now 2 per cent), then the Bank of England will need to specify the path of inflation and the length of time that it will take to get back to the target.

to simplify communication with the public and helps generate support for central banks to conduct monetary policy optimally with an appropriate focus on long-run objectives. Some types of transparency may not do this.

This paper has argued that some suggestions for increased transparency, particularly a central bank announcement of its objective function or projections of the path of the policy interest rate, will complicate the communication process and weaken support for a central bank focus on long-run objectives. Transparency can indeed go too far.

However, there is one area in which the lack of central bank transparency does create problems: the unwillingness of many central banks to honestly discuss that they do care about reducing output fluctuations. Here transparency could be substantially improved. By describing procedures for how the path and horizon of inflation targets would be modified in the face of large shocks, by emphasising that monetary policy will be just as vigilant in preventing inflation from falling too low as it is in preventing it from being too high, and by indicating that expansionary policies will be pursued when output falls very far below potential, central banks can get the dirty little secret out of the closet that they do care about output fluctuations. These steps to improve transparency will increase support for the central bank's policies and independence, but avoid a focus on the short run that could interfere with the ability of the central bank to do its job effectively.

References

- Barro RJ and DB Gordon (1983), 'A positive theory of monetary policy in a natural rate mode', *Journal of Political Economy*, 91(4), pp 589–610.
- Bernanke BS, T Laubach, FS Mishkin and AS Posen (1999), *Inflation targeting: lessons from the international experience*, Princeton University Press, Princeton.
- Bernanke BS and M Woodford (1997), 'Inflation forecasts and monetary policy', *Journal of Money, Credit and Banking*, 29(4), pp 653–684.
- Calvo G (1978), 'On the time consistency of optimal policy in the monetary economy', *Econometrica*, 46(6), pp 1411–1428.
- Chari VV, LJ Christiano and M Eichenbaum (1998), 'Expectation traps and discretion', *Journal of Economic Theory*, 81(2), pp 462–492.
- Clarida R, J Galí and M Gertler (1999), 'The science of monetary policy: a new Keynesian perspective', *Journal of Economic Literature*, 37(4), pp 1661–1707.
- Drew A and A Orr (1999), 'The Reserve Bank's role in the recent business cycle: actions and evolution', *Reserve Bank of New Zealand Bulletin*, 62(1), pp 5–24.
- Eggertsson GB and M Woodford (2003), 'The zero bound on interest rates and optimal monetary policy', *Brookings Papers on Economic Activity*, 1, pp 139–211.
- Fraga A, I Goldfajn and A Minella (2003), 'Inflation targeting in emerging market economies', in M Gertler and K Rogoff (eds), *NBER Macroeconomics Annual 2003*, MIT Press, Cambridge, pp 365–400.
- Goodhart CAE (2001), 'Monetary transmission lags and the formulation of the policy decision on interest rates', *Federal Reserve Bank of St. Louis Review*, 83(4), pp 165–181.
- Greider W (1987), *Secrets of the temple: how the Federal Reserve runs the country*, Simon and Schuster, New York.
- Ito T and FS Mishkin (2004), 'Monetary policy in Japan: problems and solutions', Columbia University, mimeo.
- King M (1997), 'Changes in UK monetary policy: rules and discretion in practice', *Journal of Monetary Economics*, 39(1), pp 81–97.
- Kohn DL (2000), 'Report to the non-executive directors of the Court of the Bank of England on monetary processes and the work of monetary analysis', 18 October, available at <<http://www.bankofengland.co.uk/kohn/pdf>>.
- Kohn DL (2004), 'Inflation targeting', in Panel Discussion on 'Inflation Targeting: Prospects and Problems', *Federal Reserve Bank of St. Louis Review*, 86(4), pp 179–183.
- Kydland FE and EC Prescott (1977), 'Rules rather than discretion: the inconsistency of optimal plans', *Journal of Political Economy*, 85(3), pp 473–491.
- Levin A, FM Natalucci and JM Piger (2004), 'The macroeconomic effects of inflation targeting', *Federal Reserve Bank of St. Louis Review*, 86(4), pp 51–80.
- Martijn JK and H Samiei (1999), 'Central bank independence and the conduct of monetary policy in the United Kingdom', IMF WP 99/170.
- McCallum BT (1995), 'Two fallacies concerning central-bank independence', *American Economic Review*, 85(2), pp 207–211.

- McCallum BT (2001), 'Should monetary policy respond strongly to output gaps?', *American Economic Review*, 91(2), pp 258–262.
- McCallum BT and E Nelson (2000), 'Timeless perspective vs. discretionary monetary policy in forward-looking models', NBER Working Paper No 7915.
- Mishkin FS (1999), 'International experiences with different monetary policy regimes', *Journal of Monetary Economics*, 43(3), pp 579–605.
- Mishkin FS (2000), 'What should central banks do?', Federal Reserve Bank of St. Louis *Review*, 82(6), pp 1–13.
- Mishkin FS and AS Posen (1997), 'Inflation targeting: lessons from four countries', Federal Reserve Bank of New York *Economic Policy Review*, 3(3), pp 9–110.
- Orphanides A (1998), 'Monetary policy evaluation with noisy information', Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series No 1998-50.
- Orphanides A (2001), 'Monetary policy rules based on real-time data', *American Economic Review*, 91(4), pp 964–985.
- Orphanides A (2002), 'Monetary-policy rules and the great inflation', *American Economic Review*, 92(2), pp 115–120.
- Reserve Bank of New Zealand (2000), *Monetary policy statement*, March.
- Rogoff K (1985), 'The optimal degree of commitment to an intermediate target', *Quarterly Journal of Economics*, 100(4), pp 1169–1189.
- Samuelson R (1994), 'Economic amnesia', *Newsweek*, 12 September, p 52.
- Sherwin M (1999), 'Inflation targeting: 10 years on', speech to the New Zealand Association of Economists Conference, Rotorua, 1 July.
- Svensson LEO (1997), 'Inflation forecast targeting: implementing and monitoring inflation targets', *European Economic Review*, 41(6), pp 1111–1146.
- Svensson LEO (2002), 'Monetary policy and real stabilization', in *Rethinking stabilization policy*, a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, pp 261–312.
- Svensson LEO (2003a), 'The inflation forecast and the loss function', in P Mizen (ed), *Central banking, monetary theory and practice: essays in honour of Charles Goodhart, volume one*, Edward Elgar, Cheltenham, pp 135–152.
- Svensson LEO (2003b), 'What is wrong with Taylor rules? Using judgement in monetary policy through targeting rules', *Journal of Economic Literature*, 41(2), pp 426–477.
- Taylor JB (1979), 'Estimation and control of a macroeconomic model with rational expectations', *Econometrica*, 47(5), pp 1267–1286.
- Woodford M (2003), *Interest and prices: foundations of a theory of monetary policy*, Princeton University Press, Princeton.
- Woodford M (forthcoming), 'Inflation targeting: a theoretical perspective', Federal Reserve Bank of St. Louis *Review*.