Commentary

K. Alec Chrystal

This paper builds on earlier work by Steve Cecchetti and his colleagues that looks at the institutional characteristics of central banks and the regimes they operate and analyzes their influence on macroeconomic performance. This is stimulating work that makes considerable progress in monetary policy analysis. It is also elegant in the sense that it makes a great deal of progress with simple tools logically applied. I have learned a lot from reading this paper and some earlier related work by the same authors and their collaborators.

The job of a discussant, of course, is to point out problems and limitations of the research. I cannot criticize much of the data on which the study is based, as it was collected by my former colleagues at the Bank of England; and I agree with the main conclusion of the current paper, which is that credibility matters a lot for monetary policy. However, I shall argue that the way in which credibility is measured leaves a lot to be desired, and so the main empirical result in the paper should be treated with some caution. There is, as usual, plenty of room for further work on this fascinating issue.

The current paper builds on measures of macro performance and efficiency derived in a previous paper (Cecchetti, Flores-Lagunes, and Krause, 2001 [CFK]). As the meaning and measurement of these terms bears directly on the results obtained in the current paper, it is worth discussing briefly what these concepts mean and how they are measured. "Macroeconomic performance" relates to whether a preference-weighted average of inflation and output variances has increased or decreased, i.e., in effect whether the Taylor curve has shifted closer to the origin. "Efficiency" relates to the extent to which a performance gain can be attributed to policy better offsetting demand shocks as opposed to being a result of reduced variance of supply shocks.

CFK estimate a two-equation linear aggregate supply/aggregate demand (AS/AD) model for 23 countries and then use the estimated structure in a Theil-Tinbergen type policy optimization exercise to solve for the optimal policy rule. The optimum

is compared with the actual outcome; by comparing 1980s and 1990s results, they derive estimates of the extent to which the improvements in actual performance can be attributed to more efficient policy and the extent to which they are due to reduced supply shocks. The conclusion according to the CFK estimates is that nearly all countries in their sample showed an improvement in performance between the 1980s and 1990s, and the bulk of this improvement was due to increases in the efficiency of policy rather than to reductions in supply shocks.

These are interesting and important results. But as with all empirical work there are some questions one can ask about implicit assumptions on which the key results depend. My first question relates to time periods. The authors have compared two time periods of equal length, but these represent different and partial phases of two different business cycles. Roughly speaking the 1980s cycle is measured trough to peak while the 1990s cycle is close to being peak to peak (or at least peak to more then half way back up). This distinction may not be critical, but it would surely be desirable when the ultimate historical research on these topics is done to compare complete cycles in terms of policy impacts.

My second question relates to the spillovers between countries. Is it really a coincidence that most countries have improved their macroeconomic performance at the same time? It could be that central bankers have all been on the same courses or attended the same conferences where they have learned the secrets from their colleagues in other countries. However, it could also be that successful stabilization policy in one country makes policy much easier for neighboring countries. This does not diminish the achievement of better performance but it does affect who should get the credit. CFK do make allowances for external prices in their empirical models, but there are no other ways in which it is apparent that a more stable external environment makes domestic policymaking easier.

This point is given greater force when one looks at the countries with the lowest policy inefficiency loss in the 1990s (as shown in Appendix Table A1 of Cecchetti and Krause as derived from the estimates in CFK). Five of the six most efficient central banks are those of the Netherlands, Belgium, Denmark, Ireland, and France, all members of the exchange rate mechanism (ERM) with mutually pegged exchange rate bands. In the cases of France, the Netherlands, and Belgium especially, these were pegged in a narrow fluctuation band and thus they had minimal

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K. Alec Chrystal is a professor of Money and Banking and head of the Finance faculty at City University Business School, London.

discretionary ranges for domestic monetary policy. Since they were not free to alter monetary policy to offset demand shocks, what should we make of this result? Certainly we could not conclude that it was the optimal manipulation of the domestic policy interest rate that delivered the efficient outcome, since policy rates in these countries were focused on the exchange rate target rather than domestic aggregate demand or inflation.

So how can we claim that policy was efficient if there was no room for activist policy? Surprisingly, CFK do not comment on this outcome. It could be that the optimal policy is indeed to tie the hands of the authorities, but then it would be hard to argue that they were being efficient in offsetting demand shocks when they have no way of doing so. Could it be instead that a pegged exchange rate regime has some role in reducing shocks? If so, how can we explain the improvements in policy outcomes in those countries that had pegged rates in both the 1980s and the 1990s? An alternative interpretation for the European Monetary Union (EMU) member countries is that it was German monetary policy that improved between the 1980s and 1990s and by pegging to the Deutsche mark they imported this policy gain. This of course requires us to alter the analysis of each country optimizing its policy in isolation, and it raises the further question of how policy could be more efficient in the five countries pegged to the Deutsche mark (mentioned above) than in Germany itself.

What is new in the paper presented to this conference (Cecchetti and Krause, 2001) is the bringing together of the results from CFK with some measures of institutional differences between central banks. Three of these measures—independence, accountability, and transparency—are taken directly from indexes constructed by Maxwell Fry et al. (2000) for the Bank of England study on which this paper draws. A new measure of credibility is constructed, and, since this (and the results associated with it) is the key innovation of the paper, I shall concentrate on discussing this variable. It turns out that, of the other factors, transparency is the only one that has even marginal significance.

The credibility index is based on actual average inflation in the period 1985:Q1 to 1989:Q4. Credibility is zero if inflation in this period exceeded 20 percent and it is unity if it was less that 2 percent. Otherwise, credibility is assigned a number between 0 and 1 depending on where inflation sits in the range of 2 to 20 percent.

The key results are (i) that, for those 23 countries studied in CFK, the measure of credibility is highly correlated (negatively) with macroeconomic performance and with policy efficiency and (ii) that, for a larger sample of countries, credibility is the characteristic that most contributes to lower inflation in the 1995-99 period.

The key issue is whether we think this measure of credibility is itself credible. I do not. Why, for example, should the credibility of the U.K. Monetary Policy Committee (MPC) after 1997 be judged by inflation in the United Kingdom ten years before the MPC was established and even several years before inflation targeting was first contemplated? The answer surely is that it makes no sense at all.

It is no real surprise that macroeconomic performance and this measure of credibility should be highly correlated because credibility (by this measure) and performance are both related to the level of inflation—those countries with high inflation in the late 1980s will still have had relatively high inflation in the 1990s. Furthermore, the fact that this "credibility" (as measured by the inflation of the late 1980s) appears to cause lower inflation in the late 1990s could simply mean that that inflation is autocorrelated—high-inflation countries in the late 1980s are still, on average, high-inflation countries in the late 1990s. Two particular countries stand out as being clearly misrepresented by this credibility measure. The first is Indonesia, which is rated as having high credibility on the basis of its relatively low inflation in the late 1980s. But could there be any country with lower credibility after 1997? The other is Chile, which managed a highly credible (and creditable) disinflation in the late 1990s yet is accorded zero credibility on the basis of its high inflation in the late 1980s.

Another obvious point is that virtually no country had an inflation-targeting regime in the late 1980s, and yet many did have such regimes by the late 1990s. How can it make sense to judge the credibility of these new regimes from the outcomes in some earlier regime?

So how should we measure credibility? I would suggest that it has to be some measure that can be taken within the period of operation of a regime rather than from earlier periods. Also it cannot be based purely upon economic outcomes because that fails to identify the separate effects of beliefs and actions. In an inflation-targeting regime, credibility must surely be measured by the deviations between expectations of inflation and the stated

target. These expectations could be measured either from expectation surveys or from inflation expectations implied by comparisons between nominal and indexed bonds. Of course these measures are not available for many countries. But this does not alter the fact that using actual inflation from some time ago doesn't do it. Any measure based upon inflation outcomes in backward-looking data fails to identify the separate influences of credibility, policy actions, shocks, and history.

Any convincing attempt to measure the impact of credibility must also surely do more than look at a one-shot cross section of countries. In the paper under discussion it is just about acceptable to calculate policy efficiency in a first stage and then see if it correlates with "credibility" later. However, in a panel study in which credibility within individual countries was allowed to evolve over time, it would be important to calculate efficiency conditional on credibility. Only this way could we potentially answer the most interesting question relating to successful monetary policies: To what extent was the actual policy outcome achieved due to the interest rate changes themselves and to what extent was it due to the credibility of the authorities? It is no great surprise to find that in a one-off cross section the countries that had the best macro performance (lowest weighted combination of inflation and output variance) also had the most efficient policy (closest outcome to the optimum) and the most credible regimes. However, we cannot say from this work whether credibility was a by-product of the good policy outcome or whether credibility helped produce it.

One argument in defense of the specific measure of credibility used by Cecchetti and Krause might be that, because it is measured prior to the years in which the inflation impact and policy efficiency are estimated, then it must be credibility that causes the outcomes and not vice versa. However, this is not very convincing because most of the leverage in the regressions reported (in column 1 of Table 2 of Cecchetti and Krause) is achieved by the extreme classification (in effect a 0,1 dummy variable) of totally credible and totally incredible countries, and most who fit these extreme categories would continue to be in the same class in the late 1990s as they were in the 1980s. For all of such countries we cannot say that their better policy outcome was due to credibility because their credibility was identical in both decades (according to the measure used in this study). At best we can only attribute credibility

as the cause of an improved policy outcome where some *increase* in credibility has been demonstrated. And a measurement exercise along these lines has not been attempted; we only have an index of credibility at one point in time. Credibility surely does matter, but more work needs to be done to answer the question: How much?

So why am I persuaded that credibility matters while being skeptical about the apparently strong results achieved by Cecchetti and Krause? As I have stressed, the doubts about the Cecchetti and Krause results relate to the way they measure credibility. My belief that credibility must matter comes from a related perspective on the same issue. Is the macroeconomic performance of the 1990s superior to that of the 1980s simply because the monetary authorities learned how to pull the strings of the monetary puppet show in a more timely and accurate manner than their predecessors? The order of magnitude of interest elasticities that come out of most macro models makes it difficult to conclude that interest rate decisions more accurately offset demand shocks, and so central bankers just learned to be better optimal controllers. The Bank of England model, for example, suggests that a 100-basis-point change in the official rate today will have a 30-basis-point effect on output growth after about one year and a 30-basis-point effect on inflation after about another year. It is highly implausible that the relatively modest official rate changes we have seen in the last decade could have been sufficient to control the aggregate economy if the demand and supply shocks had been of similar magnitudes to those experienced in earlier periods.

A much more likely explanation is that, at the world level, most aggregate demand and supply shocks are endogenous and influenced by the policy regime. The greater monetary policy credibility across the world (but especially in major countries) has significantly reduced the demand and supply "shocks" to which monetary authorities have to react. This has meant that the macro outcome has been improved even though the policy responses (in terms of interest rates changes) needed to achieve this outcome have been relatively modest.

Some might call this the "Greenspan effect." U.S. inflation has stayed under control even at a high level of activity because agents have confidence that the FOMC, and Chairman Greenspan in particular, has things under control. Surely this belief is not based solely on the direct effects of specific policy rate decisions and the fact that they worked in some

mechanistic way. Rather, it is based on the self-fulfilling prophesy—if enough people believe that the Fed will successfully stabilize output and inflation, that will generate the desired outcome on its own irrespective (almost) of what the Fed actually does.

Some day the world will find out if there really is a "Greenspan effect." I hope that we will not settle this issue for many years yet. Good health, Mr. Chairman.

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