

# A Comment on “Public and Private Information in Monetary Policy Models”

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Broadly speaking, modern central banks aim to facilitate the functioning of a market economy with minimal direct interference in the decision-making of households and firms. For the most part, central bankers used to think that the best way to do so was to operate in secret and out of the limelight.<sup>2</sup> More recently, central bankers have come to appreciate the importance of transparency in connection with the emphasis on price stability. Today’s central bankers recognize that building credibility for the commitment to price stability is the best way to maximize the power of monetary policy to stabilize the macroeconomy over the business cycle. Advocates of inflation targeting emphasize that transparency rather than secrecy regarding the procedures and objectives of monetary policy is the best way to build that credibility.<sup>3</sup>

The paper by Amato and Shin recognizes that central banks must actively shape and influence events to facilitate the functioning of the macroeconomy. However, they take their analysis in a different direction. They point out a fundamental tension in central banking. A central bank needs to react to data in order to manage interest rate policy. Yet it distorts the very data from which it seeks guidance in the process of influencing behavior through public pronouncements of its objectives and its views on the fundamental state of the economy.

In other words, Amato and Shin show that a central bank’s assessment of the underlying state of the economy may be reflected in aggregate behavior in a way that causes the data generated by agents to obscure the fundamentals. There is a problem even if a central bank’s views of the aggregate state are accurate. Of course, the problem is worse when the central bank’s views are wrong. Either way, public announcements by the central bank become a powerful focal point for coordination of private agents.

The point is very interesting and potentially important. Let me give two examples of how I think Amato and Shin’s tension has worked in practice. First, consider the low inflation period in the 1950s to the mid-1960s in the US. At the time, the Fed’s denial of any persistent inflationary potential may have succeeded in holding down actual and expected inflation somewhat. Households and firms probably held back on wage and price pressures for a while because they were confident that the low inflation equilibrium would be maintained. As a result, the economy operated at a higher level of real economic activity for a while than was ultimately sustainable.

In terms of Amato and Shin, the Fed’s insistence that inflation was not a threat probably distorted behavior in a way that seemed to confirm the belief that trend inflation would remain

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<sup>2</sup> See, for instance, Goodfriend (1986).

<sup>3</sup> See, for instance, Bernanke and Mishkin (1997) and Svensson (1999).

low. This may have been one reason why monetary policy was insufficiently preemptive in the early stages of the Great Inflation.

A similar dynamic may have been operating after the Fed restored credibility for low inflation in the late 1990s. Here again, in retrospect, the economy can be seen to have operated for a few years at levels that were not sustainable. One reason may have been that the Fed's credibility for low inflation made wage and price setters confident that the low inflation equilibrium would be maintained. In this case, the unsustainability did not precipitate an outbreak of inflation. It resulted instead in extreme asset price fluctuations, excessive consumption growth, and an unsustainable investment boom. The distorted behavior helped to delay a tightening of monetary policy that might have avoided much of the cyclical instability. Although, clearly other factors such as the terrorist attack on the World Trade Center contributed to the 2001 recession.

The paper explores the fundamental tension identified by Amato and Shin in a monopolistically competitive macromodel in which the nominal pricing decisions of individual firms depend on their own demand and cost conditions, and on the strategic complementarity among the pricing decisions of firms in the aggregate. Monopolistically competitive firms must guess the pricing decisions of their potential competitors in order to choose a nominal price that achieves their desired relative price. This, in turn, means that each firm must take into account its beliefs about the beliefs of other firms about pricing, and so on in a potentially infinite recursion.

The main point of the paper is that such concerns lead firms to set prices that are potentially far less sensitive to their best direct (idiosyncratic) estimates of the underlying fundamentals. In the limit, Amato and Shin show that firms will set prices conditional only on information known in common about the underlying fundamentals, whether that common information is accurate or not.

In the formal model used to study this issue in the paper, firms receive both private and public noisy signals of two current shocks, an aggregate demand and a productivity shock. Households and the central bank are assumed to observe the two underlying shocks perfectly. The labor market is perfectly competitive. And nominal prices and wages are perfectly flexible.

It is useful to note that the macromodel utilized by Amato and Shin may be characterized as a monopolistically competitive real business cycle model with perfectly flexible prices and wages. Equivalently, for the full information case, the equilibrium resembles the flexible price, perfectly competitive labor market version of Blanchard and Kyotaki's monopolistically competitive macromodel.<sup>4</sup> In this case, firms choose their product price to maintain the constant profit-maximizing markup at all times. The size of the markup then acts like a tax that governs how far equilibrium aggregate employment falls below the level that would be attained in a perfectly competitive macromodel.

With this insight in hand, we can consider what optimal monetary policy might look like in Amato and Shin's model where the central bank and households are fully informed but the firms are not. If firms are imperfectly informed, then they can no longer be counted upon to set prices to maintain the constant profit maximizing markup. Presumably, the all-knowing central bank could see any pricing errors in this flexible price environment and offset them with monetary policy. In other words, optimal monetary policy would stabilize the markup to reproduce the full information, flexible price outcome.<sup>5</sup>

However, when Amato and Shin analyze monetary policy in their model, they use a kind of ad hoc Taylor rule. They should also discuss the extent to which the complications for macroeconomic stabilization due to the information problems they highlight could be overcome if

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<sup>4</sup> See Blanchard and Kyotaki (1987).

<sup>5</sup> See Goodfriend (2002b).

the central bank were allowed to behave optimally with imperfect information. I will return to this point shortly.

The main surprising finding of the analysis of the flexible price macromodel is that when “firms observe fairly precise private signals of aggregate shocks, the mere presence of the public signal, interpreted as a signal with precision greater than zero, actually makes inflation more volatile.”<sup>6</sup> This is seen in the top right panel of Figure 2. Note, however, in the bottom left panel that a more precise public signal always reduces the volatility of real output.

Amato and Shin suggest that these results mean that more precise public information does not necessarily lead to better welfare outcomes. They emphasize that this finding cannot be attributed to poor information available to the central bank, since it is given full information in the analysis.

One can question their findings on two counts. First, smoothing the volatility of output is not necessarily the right metric for assessing welfare. According to the discussion above, maintaining markup constancy is a better one, since it produces the outcomes of a real business cycle model with perfectly flexible wages and prices. With markup constancy, employment could be relatively stable even if output were highly volatile due to volatile productivity shocks.

Second, although the central bank is given full information, it is forced to operate with a suboptimal Taylor rule. More precise public information might improve welfare if the central bank were allowed to pursue monetary policy optimally.

One can question whether the conditions necessary to create the possibility that public information can be harmful are likely to be met. By its very nature, a private signal is not likely to be very informative about aggregates because it will reflect a relatively small part of the economy. On the other hand, private information gets aggregated over the entire economy. To make their argument more persuasive, Amato and Shin should explain in an intuitive quantitative way whether the precision of private information necessary for public information to be harmful is likely to be attained in practice.

Assuming that the above condition is met, what would the authors have us believe about the government’s information policy? In any case, the government would need to continue to collect aggregate data to make monetary and fiscal policy. Leaks would be inevitable if such data were not made public officially. Moreover, private groups would continue to collect and disseminate data on various sectors of the economy. Surveys would continue to be collected to improve the understanding of fundamentals. Financial market prices would continue to provide valuable public information. All these sources of information would provide noisy public signals of the underlying aggregate state of the economy. Such common information would be valued and utilized by individual firms and households even if its use has negative consequences for social welfare as Amato and Shin suggest.

Actually, given that the government cannot suppress noisy common signals of the aggregate state of the economy, Amato and Shin’s findings suggest that the government might actually increase social welfare by improving the precision of the public signals! This conclusion seems possible if it is infeasible to suppress common signals, and the economy inevitably operates to the right of the maximum of the curve in the top right panel of Figure 2.

Thus, the second best information policy might actually be just the opposite of the infeasible first best. If it were impossible to eliminate the common public information, then the next best thing to do might be to devote more resources to reducing the measurement error and improving the coverage and accuracy in our national statistics. In other words, the findings of Amato and Shin could be interpreted either as favoring greater opacity or greater transparency depending on the circumstances.

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<sup>6</sup> See page 32 of the paper.

Amato and Shin compare the data generating implications of their flexible price, imperfect information model to those of a sticky price model without information imperfections. An interesting and important extension of their work would be to analyze a single model incorporating sticky prices and the kind of information processing that they emphasize in this paper. It would seem that the information imperfections that Amato and Shin are concerned about might matter less in a sticky price model, especially if strict inflation targeting were close to the optimum policy.

Amato and Shin conjecture that a central bank could do harm by targeting inflation too strictly in the short run. The reason is that doing so degrades the private information in inflation as a signal of the output gap.<sup>7</sup> This is an important point, and it should be taken seriously. Clearly, the credibility that the Fed acquired for price stability since the mid-1990s has helped to stabilize the inflation rate in spite of fairly large swings in the output gap since then. In fact, that is to be expected of successful explicit or implicit inflation targeting.<sup>8</sup>

In some ways, interest rate policy decisions are more difficult to make in the absence of cyclically volatile inflation. On the other hand, waiting for inflation to trigger interest rate policy actions created destabilizing go/stop monetary policy when it was tried in the 1960s and 1970s.<sup>9</sup> The go/stop experience suggests that the benefits to firmly anchoring inflation and inflation expectations over the business cycle are well worth the loss of inflation as a guide for interest rate policy actions.<sup>10</sup>

It will not be easy for central banks to learn to utilize signals other than inflation to guide interest rate policy. For instance, the Fed's policy problems in the late 1990s make that clear.<sup>11</sup> But with time, central banks will no doubt improve their ability to manage interest rate policy in a world of price stability.

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<sup>7</sup> Borio and Lowe (2002) call this the “paradox of credibility.”

<sup>8</sup> See Goodfriend (2003).

<sup>9</sup> See Goodfriend (1997).

<sup>10</sup> See Goodfriend (2003).

<sup>11</sup> See Goodfriend (2002).

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