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### **Enhancing Fed Credibility**

Good afternoon. It's always a pleasure to speak to the members of NABE, and I very much appreciate the invitation to participate in this year's Economic Policy Conference.

My remarks today will focus on the issue of credibility—in particular on the Federal Reserve's credibility regarding its announced commitment to maintaining price stability. I will discuss ways in which the Federal Reserve could improve transparency and communication, enhancing Fed credibility and the effectiveness of monetary policy.

To my mind, credibility is a worthy end in itself—those who are credible are often said to be “as good as their word.” But credibility is not only virtuous; it is also useful. I will argue that one of its most important benefits is shaping public expectations about inflation, and in particular, “anchoring” those expectations to price stability. As a consequence, credibility enhances the effectiveness of monetary policy which, in turn, serves a second “worthy end”, namely, maximizing the nation's economic well-being.

To give you a brief overview of the argument, the idea is that, with credibility, the Fed and the public work together toward the same goals. When this happens, one often hears the phrase “the markets do all the work of monetary policy,” meaning that market participants correctly anticipate the actions that the Fed will make in response to economic news and shocks. This alignment of the Fed's actions and the public's expectations strengthens the monetary policy transmission mechanism and shortens policy lags. In contrast, in the absence of

credibility, policymakers and the public may work at cross-purposes, and monetary policy must act to overcome and dislodge expectations that hinder the achievement of our goals. Indeed, as I will discuss more fully in a few minutes, this is exactly what happened in the 1970s in the United States.

Credibility is all about what the public expects the Fed will do in the future. Indeed, macroeconomic theory teaches us that expectations of future economic developments play a prominent role in *all* aspects of economic decision-making. For example, consumption theory tells us that consumer spending depends on one's permanent income, that is, the present value of expected future income. Similarly, bond yields depend on expected future short-term interest rates. The list goes on and on. Of critical importance for the successful conduct of monetary policy, economic theory tells us that prices set today depend on the inflation rate expected in the future. Therefore, it is only when the Fed's commitment to low inflation is credible that people will expect low inflation in the future and set prices accordingly. Clearly, then, expectations of future inflation play a central role in our analysis of the economy and in our policy deliberations.

We have certainly seen the grim consequences when the Fed's commitment to low inflation is *not* credible. Let me step briefly back in time to remind you. In the 1950s and early 1960s the Fed had accumulated an enviable track record of maintaining price stability—for example, the personal consumption expenditures (PCE) price inflation rate averaged a little more than 1-1/2 percent from 1955 to 1965.<sup>1</sup> But, starting in the late 1960s, the grip on inflation had begun to slip. By 1970, the core measure of PCE price inflation roughly tripled to over 4-1/2 percent; and then between 1970 and 1980, it doubled to over 9 percent. Not surprisingly, by 1980, the public had little faith in the Fed's commitment to price stability, and in that year, expectations of inflation for the next 10 years reached 8 percent. The economy had entered a

wage-price-expectations spiral where higher inflation fed into higher wage demands and higher expected inflation, which fed back into higher inflation. Worse yet, high inflation occurred at the same time as high unemployment: stagflation had set in.

To be sure, the 1970s were a challenging period for monetary policy. Sizable negative supply shocks, including the oil price shocks and the productivity slowdown, created difficult short-run tradeoffs between the Fed's dual goals—maximum sustainable employment and price stability. But monetary policy decisions at the time also greatly exacerbated these problems.

Research suggests that the dismal macroeconomic record of the 1970s could have been significantly improved if the Fed had “taken ownership” of the inflation situation—that is, if it had paid close and consistent attention to keeping inflation contained. By doing so, it would have done a better job of anchoring expectations to low inflation. For example, one study analyzed the effects of supply shocks when the Fed has imperfect credibility and the public continuously reevaluates its perception of Fed policy based on what occurs in the economy.<sup>2</sup> It showed that a sustained rise in inflation combined with accommodative monetary policy, like the one that occurred during the late 1960s and much of the 1970s, impels a process that undermines the public's confidence in the Fed's commitment to low inflation. In other words, these developments eventually erode the cable tethering expectations to price stability as people come to believe that the prevailing high inflation rate will persist into the indefinite future, just as occurred in the 1970s. If, instead, the Fed responds enough to stem the rise in inflation, inflation expectations remain well anchored to price stability. This research suggests that if the Fed had followed such a policy during the 1970s, even in the face of those severe supply shocks, the result would have been lower and much more stable inflation and unemployment, which, in turn, would have obviated the need for the painful disinflationary recessions of the early 1980s.

This research also suggests another very important benefit of central bank credibility—that is, of monetary policy that successfully anchors expectations to price stability. Such a policy can improve the achievement of *both* parts of the Fed’s dual mandate: maximum sustainable employment and price stability. When the public is confident in the Fed’s commitment to price stability, the Fed has more latitude to respond to fluctuations in labor and product markets, because there is less risk that an easing of policy will unleash a wave of inflation fears.<sup>3</sup>

Fortunately, the Fed’s commitment to price stability has indeed become far more credible since the 1970s, so I can illustrate this point based on some recent experience. In 2001, the Fed was able to cut rates aggressively in response to the recession, confident that inflation expectations would remain low. Similarly, over the past two years, wages, core inflation, and long-run inflation expectations have remained well contained despite a dramatic increase in energy prices. With inflation expectations under control, we have avoided a rehash of the 1970s and the need to rein in inflation by engineering a severe recession.

How has the Fed built this credibility? As I said at the outset, the Fed, like other central banks, has *earned* its credibility: It has a long track record of delivering low and stable inflation. But digging deeper into the process, I’d like to focus on two aspects of policy—one having to do with policy actions and the other with the words that support those actions—that have changed dramatically since the 1970s and that have contributed to this admirable track record.

First, in terms of policy actions, the Fed has become more systematic in its approach to maintaining price stability and promoting maximum sustainable employment. This systematic approach is well-described by the famous “Taylor Rule” (John Taylor, 1993). According to the Taylor Rule, an increase in inflation should consistently call forth a tighter monetary policy in the form of a higher *real* federal funds rate. In addition, the Fed should systematically tighten

policy as labor market slack diminishes. Such a response serves to stabilize output and employment and also to preempt an increase in inflation. The experience of 1994 exemplifies the application of these principles: faced with declining unemployment and the prospect of an unwelcome increase in inflation, the Fed engineered a strong funds rate response. Because the Fed has been consistent in its approach, over time, market participants have come to observe its reaction to news and therefore better understand the determinants of policy. Therefore, this approach has enhanced the ability of financial markets to anticipate the policy response to economic developments.

Second, the Fed has taken a number of steps to improve the public's understanding of its policy decisions through an increased emphasis on communication and transparency. In early 1994, just twelve years ago, the FOMC first started to announce explicitly changes in the federal funds rate target in the post-meeting press release. Later that year, it added descriptions of the state of the economy and the rationale for the policy action to the release. In 2000, the FOMC introduced a statement describing the "balance of risks" to the outlook, and in 2002 the Committee began releasing the votes of its individual members and the preferred policy choices of any dissenters. In 2003, the FOMC first gave forward-looking guidance on policy in the post-meeting release, stating "that policy accommodation can be maintained for a considerable period." Finally, last year, it decided to release the minutes of its meetings with a much shorter delay—only three weeks, as opposed to just after the subsequent meeting. This shorter time horizon provides the public with a more timely and nuanced understanding of the various views within the Committee.

This enhanced transparency complements the systematic approach because it, too, helps the markets anticipate the Fed's response to economic developments. Recent research highlights

the ways in which central bank communication can improve the public's ability to predict policy actions, and how this improvement can enhance the effectiveness of policy at stabilizing the economy.<sup>4</sup> The key insight of this research is that the central bank has useful knowledge about the likely direction of the economy and monetary policy that the public does not have.

Conveying this information to the public better aligns private and central bank expectations about policy and the economy. And this appears to be working in practice: financial markets have become much better at forecasting the future path of monetary policy than they were up to the late 1980s, and are more certain of their forecast *ex ante*, as measured by implied volatilities from options contracts.<sup>5</sup>

Enhanced transparency is particularly valuable when policy has to *deviate* from its normal, systematic approach. A good illustration comes from 2003, when inflation fell below a comfortable level and there was a threat of outright deflation. In post-FOMC meeting statements issued that year, the FOMC referred to "...an unwelcome fall in inflation..." and worried about "...the risk of inflation becoming undesirably low..." Consistent with the findings of economic research, it made sense for the FOMC to take a *more* accommodative stance than otherwise would be expected until this threat had passed.<sup>6</sup> For this policy strategy to work, it required that the public understand it and correctly foresee that policy would remain accommodative for some time. Again, it is the public's expectation of future actions, not just the current setting of the fed funds rate, that matters for bond rates, inflation expectations, and other economic variables. Therefore, the FOMC statement at that time said, "In these circumstances, the Committee believes that policy accommodation can be maintained for a considerable period." This forward-looking language itself seems to have helped keep long-term interest rates low, which added stimulus to the economy and helped avoid deflation.

I believe these two features of Fed monetary policy—a systematic approach to policy and the steps towards more open communication and transparency—are particularly noteworthy in contributing to our policy success over the past two decades. They have helped strengthen public confidence in the Fed and thereby helped anchor inflation expectations to price stability. Additionally, by providing clear explanations of its policies to the public, greater transparency has also enhanced Fed accountability, a vital consideration for a government institution in a democracy.

But, despite the many steps that we have made on communication and transparency, other central banks have gone further than the Fed. Indeed, a growing number of “inflation targeting” central banks explicitly state a numerical objective for the inflation rate and provide reports detailing their economic forecasts.<sup>7</sup> There has been a great deal of discussion of whether the Federal Reserve should likewise take further steps towards more open communication, including publicly announcing a specific, numerical inflation objective. I will spend the remainder of my remarks addressing this question, looking first to the results from theoretical and empirical research on the effects of such communication.

First, what are the benefits of adopting a numerical objective for inflation? In theory, effective central bank communication of a numerical long-run inflation objective to the public can simplify the complicated informational problems people face in the economy, and can reduce the uncertainty about the central bank’s goals and policies. Indeed, recent research suggests that clear communication of a numerical long-run inflation objective may assist in the anchoring of long-run inflation expectations, relative to a policy that leaves it to the public to infer the objective from experience.<sup>8</sup> The resulting improved alignment of Fed actions and public perceptions would reduce expectations errors that would otherwise add to macroeconomic

variability. As a result, the Fed would be better able to achieve both inflation and employment goals. In the parlance of economists, communication of a numerical long-run inflation objective could shift inward the “macroeconomic possibilities frontier”—the economy’s menu of feasible output and inflation volatility combinations. Of course, for communication to be effective, policymakers must consistently take appropriate actions that back up the commitment to price stability and full employment.

Another important reason to provide clear guidance to the public regarding the long-run inflation objective is that doing so may help us avoid deflation and reduce the costs of its occurrence. We have long known that inflation can be too high, but the recent experience of Japan has reminded us that inflation can be too low as well. We know from history that such an outcome can be extremely damaging to the economy. Perhaps the most unsettling aspect of the experience of Japan over the past decade is how difficult it can be to extract oneself from deflation. An explicit numerical long-run inflation objective may help anchor inflation expectations at a low positive number and avoid a potentially devastating deflationary spiral.

What is the empirical evidence on the value of an explicit numerical inflation objective? So far, it has been hard to find convincing evidence that countries with an announced numerical inflation objective have performed better in terms of inflation and macroeconomic stabilization than those that do not have one. Part of the problem is that there just aren’t enough macroeconomic data to get a clear read on this question.<sup>9</sup> But we do have data on inflation expectations that provide evidence about the effect of communication on anchoring expectations, which is the key mechanism that improves macro performance in the theoretical research I’ve discussed.

Surveys of long-run inflation expectations have been remarkably stable in both the United States and in inflation-targeting countries over the past ten years. Indeed, based on the evidence from survey data, it’s hard to argue that inflation expectations are not pretty well



anchored already.<sup>10</sup> An extreme example is provided by the Survey of Professional Forecasters; its median forecast of inflation over the next ten years has barely budged from 2.5 percent over the past 6 years, despite large fluctuations in energy prices and other disturbances.

But, the evidence on the stability of long-run inflation expectations in the United States derived from financial markets is not quite so reassuring. Researchers using measures of inflation expectations derived from bond market data find that long-run inflation expectations in inflation-targeting countries are remarkably stable and well-anchored, while in the United States long-run inflation expectations have been highly sensitive to economic news.<sup>11</sup> These studies examine far-ahead forward inflation compensation—the difference between far-ahead forward interest rates on nominal and inflation-indexed bonds—to measure long-term inflation expectations. Although this measure of long-term inflation “compensation” is noisy and by no means perfect, the extent to which it moves in response to major economic news—such as economic data releases and monetary policy announcements—nonetheless sheds light on the stability of long-term inflation expectations in a given country. Thus, if ten-year-ahead forward inflation compensation does not respond significantly or systematically to major economic news, then that suggests that financial market participants have relatively well-anchored views about the long-term outlook for inflation in that country.

For the United States, they find that far-ahead forward inflation compensation has exhibited significant, systematic responses to macroeconomic data releases and monetary policy announcements. These responses suggest that developments that affect the near-term outlook for the economy also pass through to expectations of inflation at much longer horizons. However, in countries with explicit numerical inflation objectives, including Canada and Sweden, the research finds that long-term inflation compensation has been unresponsive to economic news. Although the evidence from surveys and financial markets is admittedly mixed, taken together these studies suggest that announcing a numerical price stability objective and greater transparency in general could help further anchor long-run inflation expectations.

My personal view is that the steps that we have already taken toward greater transparency have been a good thing, and that we should think seriously about venturing further along this path. As Mae West famously said, “Too much of a good thing can be wonderful.” More seriously, although it *is* possible to carry transparency too far—I would not, for example, want live television coverage of FOMC meetings—I support the idea of a quantitative objective for price stability. I believe that it enhances both Fed transparency and accountability and that it offers important benefits, as I have discussed. In particular, it could help to anchor the public’s long-term inflation expectations from being pushed too far up or down, and thus help avoid both destabilizing inflation scares and deflations; a credible inflation objective could thereby enhance the flexibility of monetary policy to respond to the real effects of adverse shocks.

A numerical definition of price stability could also help to focus and clarify our own analysis and discussions in the FOMC. For example, the Board staff regularly prepares detailed forecasts and analyses of monetary policy options. But, this otherwise quite sophisticated analysis is hampered by the lack of clear guidance as to what exactly the long-run inflation objective is.<sup>12</sup> In particular, it is difficult to derive and analyze the appropriate path for policy when one does not know what the policy goal is. Similarly, I think the discussion of risks to price stability at the policy table would gain a sharper focus if we had a numerical price stability objective.

Indeed, articulating an explicit numerical long-run inflation objective may not be such a big step as some people imagine. Many people have interpreted the FOMC statements in 2003 that I mentioned before as signaling a lower bound for the amount of inflation the FOMC will accept and statements in other years placing an upper bound on acceptable inflation. In addition, several FOMC members have already publicly referred to their comfort zones for inflation and

these have been repeated by the press and market analysts. Therefore, such a declaration may serve to solidify and clarify what people already believe to be true.

In my view, the choice of a specific inflation objective should depend, in part, on an evaluation of the costs and benefits of very low inflation. The inflation objective should contain a buffer sufficient to make sure that the lower bound on the nominal interest rate does not interfere with the ability of monetary policy to stabilize the economy and that downward nominal wage rigidity does not interfere with overall labor market performance. Factors such as the magnitude of the neutral real funds rate, the degree of macroeconomic volatility, and the pace of productivity growth, are relevant in assessing the size of the needed buffer. Estimates of the extent of measurement bias in the relevant inflation indices must also figure into the choice of the numerical objective.<sup>13</sup>

The choices of a specific index, objective and range are matters on which judgments may differ. Taking the various factors that I mentioned into account, I see an inflation rate of 1-1/2 percent as measured by the core personal consumption expenditures price index, with a comfort zone extending between 1 and 2 percent, as an appropriate price stability objective for the Fed. In terms of setting a long-run goal, I think it makes sense to focus our public communication on one specific price index. Doing so is simpler and more transparent than giving out multiple, potentially contradictory, objectives for different price indices. Of course, the issue of the appropriate level of the long-run inflation objective should be occasionally revisited. If the fundamental factors influencing this choice of a numerical inflation objective were to change significantly, the level of the objective should be revised accordingly.

As with any change in procedure, there are potential drawbacks. One is the possibility that some observers may misinterpret the enunciation of a long-run inflation objective as a down-weighting of the Committee's mandate to foster maximum employment. Moreover, there is an

actual risk that the Committee's performance with respect to the employment goal could actually be compromised if too short a time-frame is allowed for the attainment of the price-stability objective. To reduce the risk of such an outcome, the announcement of any numerical inflation objective should be made in the context of clear and effective communication of the Fed's multiple goals. Here, I am drawn to some specific language proposed by Chairman Bernanke (2003) while he was a Fed Governor: "the FOMC regards this inflation rate as a long-run objective only and sets no fixed time frame for reaching it. In particular, in deciding how quickly to move toward the long-run inflation objective, the FOMC will always take into account the implications for near-term economic and financial stability." I concur that the numerical objective is a long-run goal, and would want the Committee to have a flexible timeframe within which to maintain it.

But, you may ask: If the FOMC were to announce a numerical long-run price stability objective, why shouldn't the Fed also announce a target for full employment, the other half of the dual mandate? In fact, the Full Employment and Balanced Growth Act of 1978 –often referred to as the Humphrey-Hawkins Act-- did that, stipulating a 4 percent unemployment rate target, as well as a zero inflation target. However, unlike the inflation rate, which is under the long-run control of the central bank, the Fed does not have the capacity to achieve any long-run unemployment objective that is not consistent with economic fundamentals.

Of course, we do attempt to gauge the level of maximum sustainable employment in analyzing the economy and evaluating policy choices. However, the two pieces of this puzzle, the natural rate of unemployment and trend labor force participation, change over time in unpredictable ways and are measured with considerable error. In the spirit of clearer communication, I think it *would* be worthwhile to communicate more fully to the public our analysis and views on the economic outlook and estimates of sustainable employment, unemployment, and output. But, raising these estimates to the level of a formal explicit

numerical long-run unemployment objective would be misguided and confusing, and could endanger our hard-won credibility.

In addition to announcing a numerical price stability objective, I believe the Fed should continue to enhance its communications regarding the economic outlook and perspectives on monetary policy. Other central banks have adopted a wide range of communications practices aimed at improving both transparency and accountability. We should carefully study whether any of these might be suitable for the Federal Reserve to adopt. Although policymakers may not see the future perfectly, we do know what we are thinking about in terms of policy, and we should convey that information to the public as best we can.

In summary, the Fed has made significant progress in building credibility over the past two decades by following systematic and appropriate monetary policy and gradually increasing the quality of our communication and transparency. I think it makes sense to take this transparency at least one step further by articulating a numerical price stability objective. I recognize that there are potential costs to doing so, but to my mind, they are outweighed by the benefits. Such a step could further enhance the credibility of the Fed and improve the effectiveness of monetary policy not only for controlling inflation but also for stabilizing employment and output.

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<sup>1</sup> For a discussion of the Fed policy during this period, see Christina Romer and David Romer's (2002) paper "A Rehabilitation of Monetary Policy in the 1950s."

<sup>2</sup> Orphanides and Williams (2005a, b)

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<sup>3</sup> Orphanides and Williams (2005b) show that when the central bank has imperfect credibility, policies that respond relatively weakly to inflation do worse at stabilizing both inflation and output.

<sup>4</sup> See Rudebusch and Williams (2006).

<sup>5</sup> See Lange, Sack, and Whitesell (2003) and Swanson (2006).

<sup>6</sup> See Reifschneider and Williams (2000) for an analysis of monetary policy when inflation rates are very low.

<sup>7</sup> These central banks have also adopted a full-fledged “inflation targeting” framework. In addition to stating a numerical inflation objective, they typically provide a time frame over which inflation is expected to return to the target level. They also periodic detailed reports on the current and projected future state of the economy, with a particular focus on the outlook for inflation See Bernanke, et al (1999) and Kuttner (2004) and citations contained therein for descriptions of inflation targeting practices around the world.

<sup>8</sup> See Orphanides and Williams (2005b, 2006).

<sup>9</sup> See, for example, Bernanke et al. (1999), Johnson (2002), and Ball and Sheridan (2004), and Schmidt-Hebbel and Mishkin (2006).

<sup>10</sup> See Kohn (2005).

<sup>11</sup> Gürkaynak, Sack, and Swanson (2003), Gürkaynak, Sack, and Swanson (2005), Gürkaynak, Levin, and Swanson (2006), Gürkaynak, Levin, Marder, and Swanson (2005).

<sup>12</sup> See Svensson and Tetlow (2005) for an example of the type of optimal monetary policy analysis conducted at the Board of Governors for the FOMC.

<sup>13</sup> See Lebow and Rudd (2003) for a recent survey of the literature on measurement bias.