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Remarks by

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## Monetary Policy: Goals and Strategy

I'm delighted to appear today before the National Association of Business Economists. To provide some background for your thinking about the conduct of monetary policy going forward, I'd like to discuss the appropriate ultimate objectives for the Federal Reserve and the strategies for attaining those goals. A backdrop for my remarks is the worldwide upsurge in sentiment supporting price stability as the primary long-term goal for monetary policy. In several foreign countries this sentiment has been reflected in a move to explicit inflation targeting, which I'll discuss. I'll touch on some innovative recent research by economists which highlights the advantages of employing policy feedback rules to implement a price stability objective. Are such approaches useful in the United States? This will be the focus of my talk.

Any discussion of the strategy for conducting monetary policy must begin by specifying the appropriate goals. In my view, the appropriate primary long-term goal for the Federal Reserve should be price stability, an objective which no one would deny is within the power of the central bank to accomplish. This view will probably not prove controversial here. Inflation clearly creates costs: it distorts price signals, complicates business planning, induces arbitrary redistributions of wealth and, under the current tax system, likely raises the cost of capital, diminishing the incentives to save and invest. Uncertainty about inflation is reflected in risk premia embodied in interest rates and in increased concern by households about their future financial security. Recent history has provided all too many country case studies--from Latin America, Eastern Europe and the former Soviet Union--which exemplify the economic disruptions which inflation causes when it reaches high or hyperinflationary levels. But even when inflation is far lower--as in the United States during the 1970's and

early 80's--it still imposes costs.

While few economists would deny that price stability should be the primary long-run goal of a central bank, some would argue that it should be the one and only goal, because the Federal Reserve can contribute little else. This wrongminded conclusion cannot be justified by appeal to the well-known natural rate hypothesis, according to which, there is no long-run tradeoff between unemployment and inflation. Like most mainstream economists, I accept the natural rate theory, as a first approximation, of how the inflation process works in the United States. Accordingly, I believe that any attempt to push the economy to operate with labor market slack below some minimum level is apt to entail not just higher but accelerating inflation--a clearly unacceptable outcome. That minimum rate--the natural rate or NAIRU--importantly reflects a number of structural aspects of the economy, including the efficiency of the labor market in matching workers to job vacancies, the geographic mobility of workers, the quality of the skills they bring to the labor market, the demographics of the labor force, and the extent of structural mismatch between job vacancies and unemployed workers. This rate can vary over time.

According to a simple version of the natural rate hypothesis, the NAIRU is immune to the conduct of monetary policy. Conceivably, however, a protracted period of high unemployment could cause an increase in the NAIRU. This could occur if workers who are unemployed for a long period of time find that their job skills deteriorate and so their labor market attachment decreases. As a result, they may--by their disengaged unemployment--afford over time a lower level of effective restraint on the wages of employed workers. Some evidence for such hysteresis effects can be found in European countries, but not, thus far, in

the United States, apparently because of the flexibility of our labor markets.

Even if we assume that Federal Reserve policy has no impact at all on the natural rate of unemployment, it does not follow that the Fed should focus exclusively on inflation. Indeed, I think that the Federal Reserve should, can and has done more. In my view, monetary policy is needed, and has succeeded, in smoothing the ups and downs of the business cycle--mitigating economic fluctuations and stabilizing output and employment in the U.S. economy. Fluctuations in output and jobs diminish welfare, impede business and household planning and create uncertainty which is harmful to investment. Volatility in employment impairs the job security of workers. Households and businesses dislike fluctuations in output and employment. Their preferences aren't foolish or irrational--they are extremely sensible. It thus follows that stabilization of output and employment is a second appropriate goal for the Federal Reserve.

In some academic audiences steeped in rational expectations theory, I would feel compelled to explain how the Federal Reserve can have any systematic real short-run effects on the economy. But I need not convince this audience that we can influence real interest rates, which in turn will impinge on real economic activity. I believe this point is amply demonstrated by U.S. experience ranging from the recession of 1981-82 through the current lengthy economic expansion. I further think that this experience suggests that our actions on balance have worked to stabilize real output and employment. I recognize the difficulty of conducting monetary policy over time in a way that will damp business cycles, and I will return to this subject later in my talk. But I do not concede that uncertainties of economic forecasts and long and variable policy lags inevitably doom our best efforts to failure. The

record to me indicates that within limits "tuning" works, even if it's not fine.

Because the American people possess multiple goals, and because the Federal Reserve can have a desirable short-run effect on economic performance across multiple dimensions, I think it follows almost automatically that the Federal Reserve should be directed to pursue multiple objectives simultaneously. Some people wonder whether the Federal Reserve can simultaneously pursue both price and output stability as dual objectives when the Fed has only one tool--the Federal funds rate--at its disposal. They argue that with one tool, the Fed should focus on just one goal and ignore all else. As I see it, in the world of the natural rate theory, there is no conflict whatever between pursuing price stability as the primary long-term goal while simultaneously operating to help stabilize the economy's real economic performance. During the transition toward price stability, placing weight on the output stabilization objective implies that progress in reducing inflation should be gradual. Even after price stability has been attained, there will remain some tradeoff between reducing the volatility of real outcomes and reducing the variability of inflation around whatever measured target is deemed to correspond to price stability. On many occasions though, as when the economy is buffeted by demand shocks, the Federal Reserve's usual policy of leaning against the wind serves the dual objectives of reduced output volatility and low and stable inflation simultaneously.

The existence of policy tradeoffs requires a strategy for managing them. John Taylor, of Stanford University, has designed a policy rule of thumb that neatly illustrates how a central bank can pursue stabilization policy without losing its focus on the long-term price stability goal. According to the Taylor rule, the Fed's key instrument, the federal funds rate,

should respond to gaps between actual and ideal performance on each of the Fed's dual objectives--price stability and output stability. The Taylor rule calls for the Fed to adjust the real federal funds rate above his estimated 2% "neutral" or "equilibrium" level, by an amount which depends on the deviation between actual and potential output and the deviation between actual and target inflation. More precisely, as Taylor originally formulated his rule, the "real federal funds rate"--measured as the gap between the nominal funds rate and the 4 quarter rate of change in the GDP deflator--was set at  $2\% + 1/2$  the gap between actual output and potential output  $+ 1/2$  the gap between actual inflation and Taylor's assumed 2% target. If both gaps are zero, the central bank sets the real federal funds rate at 2 percent, by setting the nominal funds rate 2 percentage points above the inflation rate over the last four quarters. (That is, the nominal funds rate would be 4 percent.) Taylor set the long-run inflation target at 2 percent, referring to the implicit GDP deflator. If real output were to move up relative to its potential, or the inflation rate were to rise above its target, say by 1 percentage point in either case, then the central bank would respond by moving the real federal funds rate up by  $1/2$  percentage point.

As a general strategy for conducting monetary policy, this rule-of-thumb has several desirable features. By incorporating an explicit long-run inflation target, it affords the macroeconomy a built-in nominal anchor. When output is at its potential, the rule implies that the real federal funds rate will be above its long-run equilibrium level when the trend inflation rate exceeds its long-run target. By this measure, the degree of monetary tightness would be proportional to the overshooting of inflation from this target, other things equal. Following this rule-of-thumb would set forces in motion ultimately leading to attainment of

the inflation target. The central bank would not allow the inflation rate to follow a random walk across business cycles, which in the face of economic shocks could well result if the Federal Reserve were to focus solely on real economic performance. A central bank that adhered to the Taylor rule would certainly deserve credibility in the public's mind for its anti-inflationary resolve. At the same time, the central bank would act to resist business cycles affecting real output and employment. And here too, the larger the deviation from potential, the larger the policy response, other things equal.

Another feature of Taylor's specification of his rule is a willingness to accept somewhat more temporary inflation than otherwise to prevent output from falling further below its potential in the short run. The central bank would leave the real federal funds rate unchanged if, for example, the four-quarter inflation rate rose by 1 percentage point while simultaneously real output fell 1 percent below its potential. In the face of an oil shock, therefore, the central bank would be willing to accept some near-term worsening of inflation to avoid even less output in the short run. The Taylor rule, like nominal GNP targeting rules which are first cousins, embody a strategy for handling tradeoffs on occasions when the need arises. Sometimes a central bank would lower the real funds rate to combat a rise in unemployment even with inflation above target, but such steps would be taken in the context of a systematic long-run strategy geared toward price stability. This acceptance of a specific short-run tradeoff between the two objectives strikes me as the logical consequence of having multiple objectives.

A third desirable feature of rules like Taylor's is that they have been shown in stochastic simulations using large-scale econometric models to deliver remarkably good

performance in the face of a wide variety of shocks in circumstances when policymakers know neither the structure of the economy nor the actual source of shocks which are operative. Taylor-type rules, with feedback from inflation and output gaps to short term interest rates, typically earn higher scores than such alternative approaches as pure inflation targets, fixed exchange rates, monetary aggregate targets, and nominal GNP targets when social welfare depends on both of those gaps. To the best of my knowledge, no one has demonstrated that Taylor's ad hoc reaction function is ideal in any sense, and the search for better feedback rules for monetary policy remains an active research area in academia and at the Federal Reserve. If one knew the source of a particular shock, whether it were permanent or transitory, and the appropriate model of the economy, including the precise lag structure of the effects of policy, or if one were to use forecast values of inflation and output in the feedback mechanism rather than just the current levels, one could surely do better. The Federal Open Market Committee is always trying to do better. But unfortunately, I must confess that just occasionally even your almost omniscient Federal Reserve harbors some doubt about the source of shocks, the structure of the economy and the reliability of our forecasts of inflation and output running 6-8 quarters out. So a response system which is robust in the face of mistakes has a certain appeal.

Finally, the framework of a Taylor-type rule could help the Federal Reserve communicate to the public the rationale behind policy moves, and how those moves are consistent with its objectives. For example, if inflation were at its long-run target and output were below its potential, the Fed might well choose to adopt an easier-than-average stance of policy. Making reference to the Taylor rule or some similar framework might help the Fed



communicate that such a stance was consistent with its long-run inflation objective. Clarity of communication can make the Fed's task easier by reducing the odds of unpredictable and counterproductive reactions in financial markets.

Thus, the Taylor rule has appealing properties as a *normative* description of how policy *ought* to be conducted. But as Taylor himself, and more recently *Business Week*, have noted, it also does a pretty fair job as a *positive* description of how policy actually *has been* conducted over the past decade or so. That is to say, the prescriptions from the rule capture the broad contours of Federal Reserve policy during the past decade reasonably well. Perhaps this is not too surprising, given that the two variables determining the policy stance under the rule clearly are of central concern to the Federal Reserve.

At the same time, it is also probably not terribly surprising that there have been times during the past decade when the Fed has departed quite markedly from the path that would have resulted from a mechanical reading of the rule. By far the most pronounced such departure occurred during the early phases of the current expansion, in 1992 and 1993, when the Fed responded to the so-called "financial headwinds" buffeting the economy by holding short rates well below the levels that would have been prescribed by Taylor's rule. In retrospect, this departure from the rule appears to have been right on target. Another well-advised departure occurred in the wake of the 1987 stock-market crash, when the Fed moved quite aggressively to provide liquidity to the markets.

In forming their views about the course of policy, the members of the Open Market Committee inspect a vast amount of economic data beyond those that are relevant for discerning the current level of economic activity and inflation. Consequently, while Taylor's

rule captures the broad contours of Fed policy, it is not particularly useful for explaining the precise timing and magnitude of policy actions.

With the Greenspan Fed's policies often approximating the predictions of the Taylor rule, the American economy has enjoyed a period of remarkably good economic performance. Progress has been made toward price stability, although we are not there yet, and growth has been more stable than otherwise, although the business cycle has not been fully conquered. It should not prove surprising that the Fed is not the only central bank whose behavior can be approximated by a Taylor-style rule. Recent research suggests that the Bundesbank's policies can be characterized as following Taylor-like strategies as well, even in the context of its money supply target. This can be seen in its permitting inflation to rise temporarily following German unification and cutting interest rates rapidly in 1993 to promote recovery even with inflation above target levels.

I have used the Taylor rule to illustrate in a concrete way that a sensible approach can be devised to manage dual objectives, and have emphasized its approximate fit to actual Fed behavior. The question naturally arises whether I am proposing to downsize the staff, send the FOMC on vacation, and turn the making of monetary policy over to the Board computer. Let me immediately and emphatically stress that I do not favor mechanical adherence to the Taylor rule or any other rule. As I discussed earlier, the Taylor rule is no more than a rule of thumb which works tolerably well in promoting dual objectives under conditions of uncertainty. In contrast, the Fed is constantly striving to improve its understanding of the economy's structure, to uncover the source of shocks and to devise policies to accomplish more precisely our objectives. Thus, I am certainly not proposing the mechanical use of the

Taylor rule. Nor would Taylor himself. Could the Taylor rule, or alternative feedback rules, play a role in actual FOMC decisionmaking? Speaking only for myself, I would argue that such rules provide a simple but useful benchmark to assess the setting of monetary policy in a very complex and uncertain economic environment. Used as a kind of handy cross-check for reasonableness, the rule can warn against any tendency for the Federal Reserve to go too far in tightening or easing policy, or to overstay a tight or easy stance longer than desirable. But circumstances could arise which call for substantial deviations from the rule's prescription, owing to deviations of the equilibrium real funds rate from 2 percent. Consider, for example, the two instances I mentioned earlier, namely, the 1987 stock market crash and the situation prevailing in 1992 and 1993, when a credit crunch resulting from diminished bank lending in response to a capital shortfall was working against economic recovery. Or consider budget balancing legislation prospectively.

Thus, using the Taylor rule mechanically in practice is impossible. Even the mechanical implementation of the rule would require judgment. For example, measuring the current output gap requires an estimate of potential real GDP. And estimating the level of potential GDP in turn requires measuring the natural rate of unemployment. Similarly, judging the bias in price indexes, which bears on the appropriate level for the targeted inflation rate in the Taylor rule, is a real challenge. These are not simple matters. Clearly, things would be even more complex if we were to use projections of these gaps. Addressing all these empirical issues involves sifting through new evidence as it surfaces, weighing arguments and counter-arguments, and altering one's estimates as dictated by the outcome of this process. This process, which necessarily underlies the design and implementation of

monetary policy, is an appropriate task for the central bank.

Given the possibility and desirability of pursuing two objectives simultaneously, explicit inflation targeting initiatives, like those undertaken by such countries as New Zealand, Canada, and the United Kingdom, risk being unnecessarily rigid. I recognize that the use of bands together with a variety of "escape clauses" for supply-shocks, such as hikes in indirect taxes or energy prices, provides some flexibility. Even so, I think that a quantitative target solely for inflation could undercut adequate attention to real variables in the short run. In comparison with a strategy of pure inflation targeting, flexible rules, which place some weight on smoothing output, offer all of the benefits of multi-year inflation targets without the most serious drawbacks. I'm also aware that some of these countries did not have a tradition of central bank independence or of sufficient concern for an anti-inflationary goal. A move to an explicit inflation target agreed to between the government and the central bank is one form of corrective that harnesses governmental support for resisting inflation. In addition, this approach in principle could enhance the credibility of the anti-inflationary program and could lower the transitional output loss involved in reaching the inflation objective. However, the empirical evidence on international experience with sacrifice ratios unfortunately does not support any "credibility effect" of imposing explicit inflation targets. I therefore remain skeptical of this argument for explicit inflation targets. A simple, pure inflation targeting scheme would enable a skeptical public to monitor what its central bank is doing and evaluate whether it is fulfilling its proclaimed policy. But more complicated approaches work better at enhancing welfare, even if they are a little more difficult for the public to monitor.

To my way of thinking, a better approach, at least in the U.S. context, is to codify a

longer-term price stability objective, along with one for real performance, in the legislative mandate for an independent central bank. Then the government's role appropriately becomes one of oversight to ensure adequate central bank accountability for its policy intentions and conduct. In the United States, the Federal Reserve's general success in steering the macroeconomy over the last fifteen years has taken place under the unchanged legislative mandate of the Federal Reserve Act. That Act directs the Federal Reserve to pursue "maximum employment, stable prices, and moderate long-term interest rates." This language, inserted in 1977, represents a clear instruction that the Fed should seek price stability as a goal; arguably, though, the directive to pursue price stability as the primary long-term goal of monetary policy could be strengthened. The Act's emphasis on maximum employment provides, in my mind, a mandate for the pursuit of stabilization policy. In practice, the current legislative mandate has worked well. In this sense, I do not consider the Federal Reserve Act to be seriously flawed.

Still, there are some clear problems in existing legislation. The quantitative specifications of governmental objectives for inflation and unemployment rates in the Humphrey-Hawkins Act passed in 1978 are mutually inconsistent. In addition, that Act required the Federal Reserve to report its planned growth ranges for money and credit to the Congress. This provision was based on a belief that these financial aggregates could serve as an alternative anchor for the price level to replace the gold standard anchor that had been completely severed in the early 1970s. But the experience of recent years has underscored the slippage in the relationship between such financial aggregates and inflation, even in the longer run. The reporting of target ranges for M2, M3 and debt, do not serve well as a

device for communicating either objectives or strategies. From this perspective, reforming our legislative mandate to provide an improved framework for the Federal Reserve to specify its strategy to attain legislated goals would be desirable. Independent central banks make critically important policy decisions, and they should be expected to account for their actions.

Whether the Federal Reserve Act needs to be changed has been discussed in the past and will continue to be debated in the future. In 1989, Representative Stephen Neal held widely publicized hearings on a Zero-Inflation Resolution that would have required the Federal Reserve to attain price stability within five years. The most recent prominent initiative in this regard is Senator Connie Mack's proposed reform, embodied in his "Economic Growth and Price Stability Act" introduced in the Senate in 1995. The Senator's bill would make price stability the Federal Reserve's primary long-run goal, and would require the Fed to maintain a monetary policy that effectively promotes this goal. The requirements governing the Fed's semiannual reports to Congress would also be altered. The Humphrey-Hawkins requirements for reporting money and debt aggregates would be repealed. And instead, the Fed would be required to establish numerical definitions of the term price stability, measures to help assess the attainment of this goal, a description of the intermediate variables used by the FOMC to gauge the prospects for achieving price stability, estimates of the length of time needed to attain full price stability, and a plan that takes account of short-run costs in complying with the price stability goal.

An official Federal Reserve position on the Mack bill has not been determined and it would therefore be inappropriate for me to comment on this bill in detail. But bringing to bear the various points that I've made so far in this talk, it should be apparent that there are

numerous features of the bill that I would support. However, I would have concerns about any weakening of the Federal Reserve's mandate to conduct output stabilization policy.

In the coming year, issues concerning the Federal Reserve's mandate, goals and strategy are likely to come to the fore in the public arena. I hope my comments have stimulated your interest in these important issues of monetary policy design. I'm confident that many of your voices will be heard in the debate; indeed, I look forward to any reactions to my remarks that you may have today. Thank you for your attention.