POLICY DEBATES AT THE FOMC: 1993-2002

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1. Introduction

The consideration of a variety of points of view and the absorption of new thinking over time are two of the Federal Open Market Committee's (FOMC) primary responsibilities. The range of perspectives brought to the Committee by its individual members is one the Committee's great strengths. At each meeting, 19 participants—12 voting members plus the seven nonvoting reserve bank presidents—have ample opportunity to present their respective views on US and global economic and financial conditions, monetary policy, and other matters that may be brought before the Committee. Since individual members hold widely varying views on these matters, Committee discussions are typically substantive and robust. While the general public naturally and appropriately focuses primarily on the Fed Chairman, other FOMC participants, including the reserve bank presidents, are well qualified to make meaningful contributions to policy deliberations and do so.

The paper is a case study of how one FOMC participant, J. Alfred Broaddus, Jr., President of the Federal Reserve Bank of Richmond from 1993 to mid-2004, brought the Richmond Fed's perspective to bear on several important policy questions concerning the Committee.[2] Broaddus sought consistently to address questions of concern to the FOMC with the analytical tools of modern monetary and financial economics. He worked closely with economists in the research department at the Richmond Fed to draft positions for every policy question considered by the Committee. The story is told through Broaddus's policy statements—and on one occasion a presentation by the author, who attended FOMC meetings as Broaddus's policy advisor. It also presents the reactions to these statements of Alan Greenspan, who was Fed Chairman throughout the period, and other meeting participants. The paper covers seven policy debates that were of particular concern to the Richmond Fed: transparency and communication, preemptive interest rate policy, lending to Mexico, foreign exchange intervention, inflation targeting, Fed asset acquisition, and monetary policy at the zero interest bound.[3] The account is based on statements, presentations, and debate preserved in lightly edited transcripts of Federal Open Market Committee meetings.[4] Among other things, it illustrates nicely the interplay between theoretical and practical policy matters, and shows how advances in the theory and practice of central banking were mutually reinforcing during the period.

While the seven issues considered in the paper arose at different times during the period, in retrospect they all illustrate a common principle: Fed (and other central bank) policies only have lasting effectiveness if the policies are credible to the public, i.e., the public is confident that the Fed's actions are free of political influence or manipulation and seek consistently to advance attainment of the Fed's central mandates of maintaining price stability and promoting maximum sustainable economic growth. Broaddus's positions on issues such as the loans to Mexico, foreign exchange market intervention, and Fed asset acquisition, in particular, were all motivated

[2] Obviously many other FOMC participants made significant contributions to FOMC discussions in the period considered here and throughout the FOMC's history. The focus on Broaddus's contributions reflects the author's extensive collaboration with Broaddus in formulating and articulating the Richmond Fed's policy positions.
[3] The last two of these issues are directly relevant to policy issues the Fed is confronting currently.
[4] Federal Reserve Bank of Kansas City (2006), Hetzel (2008), and Meltzer (2009) cover many of these issues and contain useful background material.

by the need to protect the Fed's independence from political interference both in fact and in perception.

2. Transparency and Communication

The story begins with the FOMC's historic decision in February 1994 to announce its federal funds rate policy actions without delay for the first time, thereby taking responsibility fully and publicly for the course of short term interest rates. The decision was taken after months of inquiry into Fed secrecy by Henry Gonzales, Chairman of the House Banking Committee. The demand for Fed transparency had been building since the Volcker Fed grabbed the headlines and took responsibility for inflation in the early 1980s. Academic work helped prepare the way. John Taylor had characterized interest rate policy as the "Taylor Rule" in a 1993 paper.[5] With Broaddus's support and encouragement, the author had argued against central bank secrecy in a 1996 paper, and had documented the role of interest rates in the conduct of monetary policy in a 1991 paper.[6]

It is important to distinguish between two aspects of the FOMC's information policy. One involves the disclosure of the process by which the FOMC arrives at its decisions. Another involves communication undertaken to accompany and enhance the effectiveness of its policy actions. The FOMC reformulated both aspects of its information policy in the early 1990s.

In late 1992, Gonzalez began a campaign to increase the transparency of the FOMC's disclosure practices. A primary concern of Gonzalez was the discontinuance of the Memoranda of Discussion (MOD) of FOMC meetings. The MOD, which dated back to the establishment of the modern FOMC in 1936, were edited narratives of points made by named speakers at FOMC meetings. In 1970 the FOMC began to release the MOD with a five-year lag, eventually making the entire MOD record public. However, the FOMC discontinued the preparation of the MOD in March 1976 in response to a Freedom of Information Act (FOIA) request.[7]

A letter from Gonzales to Greenspan on October 8, 1992 expressed regret at the discontinuance of the MOD in 1976 and requested the Federal Reserve Board's opinion on releasing a videotape of FOMC meetings with a two month lag. Gonzales also called inadequate the lack of released FOMC minutes and complained that the FOMC then released its current policy stance only after the subsequent FOMC meeting. The FOMC formed a subcommittee on disclosure policy in February 1993 to address these concerns.

At its March 1993 meeting the Committee decided to combine two then currently released documents into one which would be released on the same schedule but more visibly on the Friday after the subsequent FOMC meeting. These highly edited, not for attribution, reports of policy discussions and actions at FOMC meetings have evolved today into minutes released roughly three weeks after each FOMC meeting.

[5] Taylor (1993).
[6] Goodfriend (1986) and (1991).
[7] Goodfriend (1986).

In September 1993, Gonzales invited the entire Federal Reserve Board and all Reserve Bank Presidents to testify on a bill that he had introduced which, among other things, would have required a transcript and videotape of each FOMC meeting to be made public within 60 days and that any policy action be made public within a week. The invitation asked about notes or records that FOMC participants made of FOMC meetings. On October 5 and 15, two FOMC conference calls were held in preparation for the congressional testimony in which Greenspan informed the Committee that "raw materials still existed for drafting the MOD going back a number of years."[8] The existence of a nearly complete set of verbatim written transcripts of past FOMC meetings came out subsequently in Greenspan's congressional testimony and in the media. Greenspan's concern was to avoid "premature, detailed disclosure of our deliberations" that would compromise "openness and free exchange of views so essential to monetary policy."[9] Increasingly the Fed appeared in an unfavorable light with regard to its disclosure policy.[10]

The FOMC continued to work on disclosure policy for its *deliberative* process: but events forced its hand on the disclosure of its *policy actions*. When the FOMC considered taking preemptive interest rate policy actions against inflation at its February 1994 meeting, Greenspan asked that its interest rate actions be made fully transparent:

> …This really gets to the issue that when we move in this particular context, which of course will be the first time we have moved since September 1992, we are going to have to make our action very visible…I am particularly concerned that if we choose to move tomorrow, we make certain that there is no ambiguity about our move…In the circumstances a draining [of reserves] action will be unambiguous to the professionals. But I'm not sure that more widespread recognition will come out very quickly; it will sort of dribble out. Under ordinary circumstances, that is not only fine but desirable. One of the things that we have argued…is that there is a distinction between a discount rate and a federal funds rate action in the sense that we don't want an announcement effect ordinarily on the funds rate. It gives us a much more calibrated instrument.[[11]] But a federal funds change in this particular instance is a discount rate change, as far as the Federal Reserve System is concerned. I am very strongly inclined to make it clear that we are doing this but to find a way to do it that does not set a precedent.
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> …we are going to have to deal with this issue in conjunction with the question of transcripts and tapes and all of the other disclosure issues…So, I'm caught in this particular situation where I would feel very uncomfortable if when we make a move …we do not make it very clear that we are moving…I would very much like to have the permission of the Committee to announce that we're doing it and to state that the announcement is an extraordinary event.

This was a dramatic moment for those in the room like the author who were aware of the longstanding reluctance of the Fed to be fully clear about its interest rate policy, and for those who thought more openness was necessary and beneficial. Greenspan did not present his

[8] Transcripts, October 5, 1993, p. 2.
[9] Transcripts, November 16, 1993, p. 6.
[10] Berry (1993), pp. H1, H5.
[11] Goodfriend (1991), pp. 19-22.

proposal as revolutionary. But by announcing its federal funds rate action explicitly and immediately the Fed would take full public responsibility for the level of short term interest rates. And by announcing its federal funds rate action immediately the Fed would make it front page news for the first time and likely for evermore. Despite Greenspan's pretense to the contrary, the step would be revolutionary. There would be no turning back. The market would become evermore demanding of FOMC interest rate policy concerns and intentions. In time, the FOMC would talk explicitly in terms of its intended federal funds rate target and sharpen the forward guidance on its rate intentions. The FOMC would become increasingly ambitious in managing interest rate expectations.

The following statement was released immediately following the decision to raise the federal funds rate by 25 basis points:

> Chairman Greenspan announced today that the Federal Open Market Committee decided to increase slightly the degree of pressure on reserve positions. This action is expected to be associated with a small increase in short-term money market interest rates. The decision was taken to move toward a less accommodative stance in monetary policy in order to sustain and enhance the economic expansion. Chairman Greenspan decided to announce this action immediately so as to avoid any misunderstanding of the Committee's purposes given the fact that this is the first firming of reserve market conditions by the Committee since early 1989.

The statement was transitional in nature, continuing to speak of "pressure on reserve positions" as it spoke of the FOMC's interest rate intentions. In spite of implying that the explicitness about its action was exceptional, the FOMC has announced its interest rate policy actions explicitly and immediately ever since.

The FOMC was inclined to be more open about its policy actions for three practical reasons. First, more timely announcements of policy actions would not impair the FOMC's deliberative process, which it was most anxious to protect. Second, to do otherwise would be to invite leaks of its intended policy stance. Third, continued delayed announcement of its interest rate policy stance would feed into an increasingly unfavorable opinion about Fed secrecy building in Congress and the media.

More fundamentally, by 1994 the ground had been prepared for enhanced transparency of the Fed's interest rate policy actions. The Fed was inclined to talk openly in terms of interest rate policy because academics had begun to do so a few years earlier and an academic literature had developed indicating that communication could enhance the effectiveness of interest rate policy. The Fed was positioned to be more transparent because under Volcker and Greenspan it had put in place a strategy based on maintaining price stability within which the FOMC could talk systematically and productively about policy. The days of go-stop policy—when interest rates were lowered to stimulate employment and increased only when unemployment had to rise to stabilize inflation—were over.[12]

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[12] See Goodfriend (2005), pp 314-5 and Hetzel (2008), pp. 280-310.

On February 2, 1995, without any explicit guarantee from Congress to protect its deliberations from immediate release, the FOMC announced its intention to produce lightly edited transcripts of its meetings and release them with a five-year lag. Congress and the Fed have yet to reach an explicit agreement on delayed release. Nevertheless, a number of factors work to sustain that equilibrium. Most important is the fact that the FOMC has announced its interest rate policy actions immediately and explicitly since February 1994, and that the Fed's preemptive actions against inflation then worked to extend the economic expansion. It is worth noting that this paper could not have been written if the FOMC had not decided to restart the disclosure of its deliberative process in February 1995.

3. Preemptive Interest Rate Policy in 1994

At its February 1994 meeting the FOMC initiated a campaign of interest rate actions to preempt rising inflation, only the second time in its history that the FOMC did so without a sustained prior increase of inflation. The Volcker Fed succeeded in holding the line on inflation at 4% without pushing unemployment higher in 1983-4. Modern monetary theory and prior Fed experience suggested that real short term interest rates had to fluctuate over the business cycle to keep inflation well anchored. But the Fed had allowed inflation to rise again in the late 1980s after the 1987 stock market correction. The question was: could the Fed preempt rising inflation again without pushing the unemployment rate higher? The Committee was largely supportive of the preemptive action. The problem was how to prepare markets for what would be the first preemptive interest rate policy actions of the Greenspan Fed.

In pursuing preemptive policy in 1994 the Committee wished to "hold the line" on inflation at 3% and anchor inflation expectations firmly. Given its new disclosure policy, the FOMC would take full responsibility for raising the federal funds rate sharply to 5% or 6% during the year from 3%. The magnitude, timing, and communication of interest rate policy would be particularly challenging for the FOMC in 1994.[13]

At issue in early February 1994 was whether to raise the federal funds rate by 25 or 50 basis points. Greenspan argued against doing 50 basis points

> …I am very sympathetic with the view that we've got to move and that we're going to have an extended period of moves, assuming the changes that are going on now continue in the direction of strength.
>
> I would be very concerned if this Committee went 50 basis points now because I don't think the markets expect it. You want to hit a market when it needs to be hit; there is no significant evidence at this stage of imbalances that require the type of action that a number of us have discussed. Were we to go 50 basis points with the announcement effect and the shock effect, I am telling you that these markets will not hold still…I think there will be a time; and if the staff's forecast is right, we can get to 150 basis points

[13] Greenspan prepared markets for higher short-term interest rates in testimony before the Joint Economic Committee a few days before the February 1994 FOMC meeting. Greenspan (1994a). He explained preemptive interest rate policy in the February 1994 Monetary Policy Report to Congress. Greenspan (1994b).

> pretty easily. We can do it with a couple of ½ point jumps later when the markets are in the position to know what we're doing and there's continuity.[14]

Greenspan's concerns about the market reaction to the FOMC's 25 basis point federal funds rate action were justified. The FOMC's 25 basis point action provoked an unusually large move in long bond rates. The 30 year US Treasury rate rose from a low of 5.8% in October 1993 to around 6.75% by the end of February.[15] At the February 28th FOMC conference call Greenspan pointed out that "[i]f you look at the pattern of long-term rates from December through the current period and you plot the German, French, American, and I suspect a couple of other rates, they fit remarkably closely. And it's hard to argue that inflation expectations are really beginning to pick up in Europe." He added that "My own guess at the moment is that this is more real than inflation expectations."[16]

At the March 22nd FOMC meeting Greenspan added

> Prior to our move on February 4th, the market had drifted into a state of somnambulance at low risk premiums, and there were steady upward price pressures. While we all recognized at the time that the stock market was a little dicey and we were worried about the mutual funds, I don't think we were aware of the apparent underlying speculative elements involved in the markets on a worldwide basis that I think our February move unearthed…We have seen some increase in yield spreads but they are still quite low by any historic standard, which suggests to me that the adjustment process in the capital markets, in the portfolios of pension funds, mutual funds, and individual households still has a long way to go. [17]

Interestingly, there was little mention of what had provoked the larger than expected international increase in long-term bond rates in the aftermath of the FOMC's February 25 basis point action.[18]

At the March 22nd FOMC meeting the author heard for the first time Greenspan observe that the economy was behaving differently than it had in the last few decades

> …we have an economy which doesn't look like anything that we have experienced in the last 30 years. In the last 30 years, when we saw a tightening of slack in the system, we also saw a pickup in credit demands and we had inflation. That, however, has not been the universal experience in this country. If we go back to the 1920s, there were several

[14] Transcripts, February 3-4, p. 55.
[15] Campbell (1995) constructs and reports a set of forward rate curves extracted from the corresponding U.S. spot yield curves at different dates in 1994. Interestingly, judging by the behavior of the forward rate curves, the bulk of the Fed's policy impulses were delivered in three major steps—the first percentage point increase by early January, an additional percentage point in early February, and a third by early May. An announcement in mid-May constituted an impulse for easier policy and so forth. Most of the seven federal funds rate actions in 1994-5 did not constitute impulses in longer-term rates at the time they were implemented.
[16] Transcripts, February 28, 1994, p.9.
[17] Transcripts, March 22, 1994, pp. 40-1.
[18] Mallaby (2010), pp. 172-92, tells the story of the transmission of the Fed's interest rate actions to the world bond markets from the point of view of hedge funds.

> periods of significant tightness in markets but no significant credit expansion and no inflation; that was also the experience even in the 1950s. I raise this issue because we are pretty far along in this business cycle. So why is inflation not showing its head a little more?[19]

The author wondered whether the Fed's commitment to price stability under Volcker and Greenspan was succeeding in anchoring inflation and inflation expectations firmly as under the "gold standard" of the 1920s and 1950s.

Greenspan moved on to tactical questions. He was "hard pressed, he said, to remember when the outlook itself looked as unequivocally expansionary as it does today."[20] He reiterated the need to restore [interest rate] policy neutrality, and acknowledged in effect that doing so meant to move in a way somewhat divorced from data, catching up so to speak, so that markets had trouble predicting the size and timing of the FOMC's interest rate policy actions.[21] Greenspan put the tactical problem this way: "…so the question is, having very consciously and purposely tried to break the bubble and upset the markets in order to sort of break the cocoon of capital gains speculation, we are now in a position…to try to restore some degree of confidence in the System.[22] Greenspan recommended that the Fed again move only 25 basis points at the March meeting; the Fed moved another 25 basis points at an April conference call, still sensitive to upsetting markets.

At the May 17th FOMC meeting Greenspan reached the conclusion that the FOMC's three successive 25 basis point federal funds rate actions—in February, March, and April—had recreated a healthy degree of uncertainty in markets and readjusted speculative security holdings from weak hands into firmer hands, as he put it. He concluded that "we have the capability I would say at this stage to move more strongly than we usually do without the risk of cracking the system."[23] Given that the Committee was in agreement on the need to take decisive action on rates, and disagreed only on how much the financial system could take before its "tensile strength" broke, the Committee raised the federal funds rate 50 basis points at its May meeting.

The FOMC moved the funds rate up another 50 basis points at its August 16th meeting saying that it expected the August action to be "sufficient at least for a time to meet the objective of sustained, noninflationary growth." When the Committee declined to raise rates again at its September meeting, Broaddus dissented, arguing that he saw no compelling reason to delay another move, in part because rising inflation expectations reflected in a rising long-term bond rate would put the Fed in a situation where all the choices were bad.[24]

At the November 15th FOMC meeting following the mid-term elections Greenspan acknowledged

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[19] Transcripts, March 22, 1994, p. 42.
[20] Transcripts, March 22, 1994, p. 41.
[21] Transcripts, March 22, 1994, p. 43-4.
[22] Transcripts, March 22, 1994, p. 44.
[23] Transcripts, May 17, 1994, p. 32.
[24] Transcripts, September 27, 1994, p. 42.

…we are behind the curve…I think that creating a mild surprise would be of significant value…I suspect that while the majority think we are going to do 50, the vast majority will think that that is not enough and they will immediately price an additional 50 or more basis points in the December forward contracts. In my judgment we would be risking –a low probability risk but a potentially very large outcome if it were to happen – a run on the dollar, a run on the bond market, and a significant decline in stock prices…So I think that we have to be very careful at this stage and be certain that we are ahead of general expectations. I think we can do that with 75 basis points.[25]

The 30 year Treasury bond rate peaked in early November 1994 at around 8.2%. Presumably the speculative factors that concerned Greenspan had been worked out. Yet the bond rate remained elevated. Apparently, much of the run up in bond rates during 1994 ultimately reflected fundamentals such as inflation expectations which were stabilized after the FOMC moved rates up aggressively by 75 basis points in November.

In December Greenspan observed again how the recovery appeared to behave differently from the historic norm

I think the interesting question is why wages are not responding to what is a very rapidly tightening labor market. After speaking to some labor leaders and others who talk to their members and have a sense of this, I get the impression that long-term job insecurities are quite pervasive especially with respect to the portability of health insurance and pensions that make workers more cautious about changing jobs…This is crucial because so long as that is the case and productivity is positive, unit costs are very well contained. Any endeavor to move final prices up in that environment induces competitors to come in and try to steal a firm's market share, which erodes the firm's pricing capability. So long as we have some evident flexibility in the system, then prices cannot readily move.

…we are having difficulty getting banks to notice that interest rates are up. The interest rates on automobile installment paper are really lagging. Everybody is trying to protect market share, and this whole thing just doesn't seem to be coming together. But it will. It always does. And the question is essentially pretty much when.[26]

Greenspan observed further

I think it is really worth recognizing that there is something quite different about the timing of this recovery. Ordinarily, a recovery has a much higher rate of growth in the early stages and slows in the later stages. Probably what is happening here is that we really didn't have the classic movement to a cyclical recovery until well into the cycle, and we are probably now at effectively the earlier stages in a geriatric sense as distinct form the calendar…I wonder to what extent we can attribute all of this to monetary policy and monetary policy lags…it may well be the fact that inflation is relatively low may—despite all the discussions we have had about the inadequacy of the evidence—be

[25] Transcripts, November 15, 1994, p. 36.
[26] Transcripts, December 20, 1994, pp. 31-2.

> contributing to improved productivity. If that is the case, we will get some greater growth in potential. [27]

The FOMC concluded its series of interest rate increases by raising the federal funds rate another 50 basis points to 6% at its January31-February1, 1995 meeting. In recommending this action Greenspan said that

> …an argument can be made to stay where we are at this particular time. That argument would have considerable force were it not for the fact that the markets expect a 50 basis point rise in the context of an exchange market for the dollar that has not been all that impressive. We know that to the extent that we choose to go against market expectations, we create a degree of volatility; indeed, that is the purpose of going against the market. But there are times when doing so is probably unwise. And were we to hold still at this point we would in my view be taking unnecessary and undue risks.[28]

In the end, Fed interest rate policy in 1994-5 preempted rising inflation without pushing up unemployment. Talk of the death of inflation soon followed. Inflation expectations were anchored and the recovery extended. From the perspective of modern monetary theory, one can understand that outcome as the result of a demonstrated commitment by the Greenspan Fed to achieve price stability in the aftermath of the 1990-1 recession. The Greenspan Fed worked the inflation rate down from around 6% in 1990 to 3% in 1994, even allowing the unemployment rate to peak temporarily at 7.8% in June 1992 during the so called "jobless recovery." In 1994 it raised interest rates preemptively against inflation in the open against great political and market skepticism. By demonstrating its commitment to price stability the Greenspan Fed credibly anchored expected and actual inflation. Interestingly, Greenspan did not then talk in terms of the Fed's own credibility for low inflation. Yet, his observations about the changing nature of the business cycle were what monetary theory would predict as the central bank acquires such credibility.

4. Lending to Mexico: 1994-5

At the March 1994 FOMC meeting the Committee considered a request by Mexico for a substantial, permanent increase in its swap lines with the Federal Reserve and the US Treasury, then $700 million and $300 million, respectively. The Fed and the Treasury ultimately decided to increase the combined swap lines to $3 billion dollars each. The increase in the swap line was linked to the recent passage of NAFTA and the planned shift in Mexico to an independent central bank. As initially contemplated, the Fed would rely on provisions of the US Treasury to establish conditions under which Mexico could activate the swap line to assure its repayment.

The request triggered a lively debate within the FOMC. Broaddus set the terms

> …The 1951 Treasury/Federal Reserve Accord established the principle that the Fed needs to be meaningfully independent within the government in order to conduct our monetary policy effectively…We also know that this independence is granted only

[27] Transcripts, December 20, 1994, p. 32.
[28] Transcripts, January 31-February 1, 1995, p. 107-8.

> grudgingly and it's under constant scrutiny in the Congress and elsewhere. Consequently, I think we ought to be very reluctant to take any action that might have even the appearance of abusing this independence lest we lose some or all of it.
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> …As I understand it, the [swap] line was initially established back in 1967 to help deal with balance of payments issues and specifically to help support the then-fixed exchange rate between the peso and the dollar. That rationale no longer exists; in fact, the materials…distributed make it explicit that this facility would not be used for this purpose. So, it seems clear to me that any loan to Mexico in the current circumstances in essence would be a fiscal action of the U.S. government. And fiscal actions—expenditures of the government—are supposed to be authorized by Congress and Congress is supposed to authorize the funds. So whatever the general merits may be of making loans to Mexico, I don't think we should be involved without explicit Congressional authorization.[29]

William McDonough, President of the Federal Reserve Bank of New York, disagreed

> …one of the functions of the Federal Reserve is to seek monetary stability in a broader framework than just the American economy itself because of the obvious inter-linkages of world markets…[Mexico] also is a country, being on our border, in which serious financial instability would have a very definite possibility of spreading across the border and creating problems in our own markets…So I don't share the view that it is something that is inconsistent with the role of the central bank and therefore would demand approved funding from Congress. I think it's just as much a part of the responsibilities of the Federal Reserve as the swap line with Germany is.[30]

After considerable debate Greenspan observed

> …this is a much more profound issue about the nature of the Federal Reserve System than I think we realize…I think one can make a very strong argument for the central bank as a narrow institution that basically maintains strictly central banking operations. In that narrow sense, it's not obvious to me that we would be involved in currency intervention. We would restrict ourselves strictly to domestic monetary policy.
>
> What this question is really all about is the stance of the central bank in a broader context, in other words a role in which we do get involved in issues which are in many aspects at the Treasury's lead.[31]

The peso collapsed against the dollar on the foreign exchange market in December 1994. In January 1995 the Administration asked Congress to authorize a package of $40 billion dollars of US government guarantees to back Mexican government securities. After Congress refused to authorize the package, the Administration asked the Fed to participate in a program with the Treasury's Exchange Stabilization Fund (ESF) to provide financial support for Mexico. The

[29] Transcripts, March 22, 1994, pp. 4-5.
[30] Transcripts, March 22, 1994, p. 5.
[31] Transcripts, March 22, 1994, p. 12.

Treasury asked the Fed's participation because liquid dollar assets on the ESF's balance sheet were then only about $5 billion. At its January 31-February 1, 1995 meeting, the FOMC agreed to raise from $3 billion to $20 billion its willingness to "warehouse," deutschmarks and yen holdings for the ESF.[32] The FOMC also agreed to show its support for the package by increasing its swap line from the $4.5 billion voted as of December 1994 to $6 billion in return for a "take-out" in the form of a commitment from the Treasury that the ESF would take over any Federal Reserve obligation that was outstanding for more than 12 months.

The Administration's request precipitated a spirited debate at the January 31st meeting that focused at first on the Treasury's promised "take out." Tom Melzer, President of the Federal Reserve Bank of St. Louis, asked "[w]hat ability do the Treasury or the ESF have to take us out of an obligation if funds are not appropriated by Congress? Greenspan later admitted "[t]here is a question here of whether or not the amount the United States Treasury gives us has to be appropriated funds, which I think is really where our examination of the issue has to be. In examining the take-out, we ought to make certain that we talk to them with respect to the question of what happens if they do not get the appropriated funds."[33] Ted Truman, Director of the Division of International Finance at the Federal Reserve Board, pointed out that the ESF does not have appropriated funds. Greenspan asked "[a]re we going to be getting a take-out form the Exchange Stabilization Fund? Truman replied "I think that is what is in the program."[34] Truman observed that in the 1960s the Treasury floated Roosa bonds to obtain foreign currencies and used some of those currencies to take the Fed out in similar circumstances. The Roosa bonds were issued under the Treasury's debt-management portfolio in a way that did not involve appropriated funds.

The debate resumed on the morning of February 1 with Governor Larry Lindsey pointing out that the IMF released a statement the day before that the Fed along with the IMF would monitor developments closely in Mexico. But the Fed had not yet agreed to the package or the conditions that Mexico would be expected to fulfill to get the financial support. Truman answered

> Our good friends at the Treasury apparently felt that the statement was needed for two reasons…The first was to add to the credibility, if that's the right word, of this revised proposal on Capitol Hill by continuing to assure certain members of Congress that we would be involved in the process. Secondly, they felt that the process would be somewhat less formal than would have been the case under the legislative approach, and therefore they apparently wanted to signal in the IMF's press release that we—we the United States and we the Federal Reserve in particular—would be involved in the normal monitoring, if I can put it that way, and that the IMF would do the managing.[35]

[32] The FOMC has an agreement to "warehouse" foreign currencies for the U.S. Treasury and the Exchange Stabilization Fund (ESF). This is an arrangement under which the FOMC agrees to exchange, at the request of the Treasury, U.S. dollars for foreign currencies held by the Treasury or ESF over a limited period of time. The purpose of the warehousing facility is to supplement the U.S. dollar resources of the Treasury and ESF for financing purchases of foreign currencies and related international operations.
[33] Transcripts, January 31-February 1, 1995, p. 63.
[34] Transcripts, January 31-February 1, 1995, p. 64.
[35] Transcripts, January 31-February 1, 1995, p. 118.

Later on, the debate returned to the Committee's concern with the promised take-out. Finally, Greenspan assured the Committee

> Yes, it is a take-out. Precisely how it will be constructed is something which our General Counsel and their General Counsel will work on…Basically, the agreement is that the Federal Reserve has zero credit risk and zero market risk; that is the principle…

Greenspan proceeded to outline what he saw as the real problem

> The real risks relate to the issue that Larry Lindsey is raising and implicitly what Ted is raising. The problem is the fact that we have managed to build up a high degree of credibility. The difficulty is that the Federal Reserve has now become the honest broker… as crucial players in the American government, I frankly don't know how to get around accepting this responsibility when we are being asked by the Congress and the Administration to somehow oversee this operation, which is a very fuzzy deal…[36]

McDonough put the problem succinctly saying

> …[e]ssentially, we are in a situation where our involvement has to be maintained and where we have to do the best we can to ensure that the terms for our involvement are done in the best possible way. This means some very tough conditionality…[37]

Melzer remained concerned that "…[i]n effect, one could argue that we would be participating in an effort to subvert the will of the public, if you will..."[38] Greenspan doubted that, arguing "…the Republicans up on the Hill look at the Federal Reserve as the good guy…they are willing to be supportive of the President and the Administration only if we are involved. That is where our problem lies." Greenspan later added "…from the point of view of the country as a whole, it would have been irresponsible on our part not to be involved. When your neighbor is lying in the street, screaming, you can just walk over him and keep walking and not get involved, I grant you that. I do not think we have that choice."[39]

Broaddus responded

> …I understand fully the very difficult position that you and the System have been put in. I take that in consideration. But I still just have to make a brief comment in general support of Tom Melzer's position and Larry Lindsey's position…as I see it, this action—the whole package—is by any reasonable definition in substance a fiscal action, not a monetary policy action. It is therefore the province of the Congress. The Congress did not have the will to take what I think we all agree was the appropriate action, so we are being left holding the bag. I guess I just see it as a raid on our independence, and I regret it. I

[36] Transcripts, January 31-February 1, 1995, p. 131.
[37] Transcripts, January 31-February 1, 1995, p. 133.
[38] Transcripts, January 31-February 1, 1995, p. 136.
[39] Transcripts, January 31-February 1, 1995, p. 136-7.

> agree with you that the risk to us, while I think it is substantial, is probably remote, although I'm not sure I think it is as remote as you do.[40]

Greenspan replied "I'm not sure I think it is as remote as I think it is either!" and the debate drew to a close shortly thereafter.[41] The ESF never warehoused foreign currencies with the Fed during the Mexican peso crisis. The warehousing authorization reverted to $5 billion in 1996 and has remained there ever since. The last time the ESF warehoused foreign exchange with the Fed was in 1992. Mexico drew around 1.5 billion dollars on its swap lines with the Fed during the peso crisis and paid it back in full by January 1996.[42]

5. Foreign Exchange Operations

The Fed recognizes the Treasury's preeminence in foreign exchange operations and works closely with the Treasury in conducting them. The Fed intervened in foreign exchange markets at the Treasury's request on a number of occasions between 1993 and 2002. The interventions precipitated lively debates within the FOMC that altered the way the Committee regarded exchange rate policy. The story is one of steadily diminished enthusiasm for foreign exchange intervention in the FOMC.[43]

Broaddus's participation in the debate on foreign exchange intervention began following the interventions of April 29th and May 4th, 1994 when the Fed and the Treasury's ESF purchased dollars against German marks and Japanese yen, with resources evenly split between the two institutions. The May 4th intervention in support of the dollar was coordinated internationally. The interventions were triggered after the dollar declined steadily from mid-April onward and foreign exchange markets were said to become "disturbed" on April 29th. According to Peter Fisher, Manager of the System Foreign Exchange Desk at the Federal Reserve Bank of New York,

> …on May 4th, market participants—quite skeptical as to whether any form of international cooperation existed—were impressed to see 19 central banks put an exclamation point behind Secretary Bentsen's statement that movements in exchange markets had gone beyond what is justified by economic fundamentals.[44]

The Committee questioned Fisher about the details of foreign exchange operation at its May meeting. But the intervention appeared to calm markets and not much more was discussed.

In mid-June 1994, the dollar's decline accelerated as foreign exchange markets wondered whether the Fed could preempt rising inflation without a recession, and economic prospects appeared to strengthen in Germany and Japan. At the Treasury's request the Fed and 16 other central banks intervened on June 24th, 1994 in a high profile effort to support the dollar.

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[40] Transcripts, January 31-February 1, 1995, p. 141.
[41] Transcripts, January 31-February 1, 1995, p. 142.
[42] Bordo, Humpage, and Schwartz (2010), p. 40.
[43] See Bordo, Humpage, and Schwartz (2010) for a discussion of the Fed's participation in foreign exchange operations with the Treasury in cooperation with financial authorities abroad in the 1980s.
[44] Transcripts, Presentation Materials, FOMC Notes—Peter Fisher, May 17, 1994, p 4.

According to Fisher, Treasury officials felt under pressure to stop the acceleration of negative views of the Administration's policies, increasingly identified with the dollar, and also to follow their words in support of the dollar with some kind of action. The operation did not generate any appreciation of the dollar, however, and was widely portrayed in the media as a failure.[45]

The failed foreign exchange intervention precipitated a lively questioning by the Committee at its July FOMC meeting. Governor Lindsey noted that "[r]eading the transcript from the last meeting…the reason given for the previous intervention in late April and early May was that it was to underline a change in policy." Lindsey asked Fisher, "Was there any change in policy that this intervention underlined?" Fisher replied "No, and I think that may have been one of its problems."[46] Lindsey later emphasized that the main reason for intervening in foreign exchange markets is to underline policy already in place. Greenspan responded

> …actually there is another that is important, and I think we have intervened for that reason on occasion. It is to break a psychology that is building up irrationally in the market. And if intervention can accomplish that, maybe it can have a constructive effect…The only way it can do something is to catch the market short and break the back of a cumulative psychological downtrend. We have accomplished that on occasion when we tried it and sometimes it has failed.

Lindsey asked Greenspan whether he viewed the June 24th intervention as a success or a failure? Greenspan replied that "for the last attempt we did not have the benefit of a net short position in the market. We knew that at the time, but we were at a point where there were no easy solutions."[47]

Broaddus framed the issue more broadly

> **…**I just have to say that this intervention…really bothered me a lot. It got a lot of attention even in the Richmond papers. The headline on the front page the next day was about the failure of this operation. What concerns me is that our involvement in such a conspicuously unsuccessful operation is bound to raise question in the public's mind about our general effectiveness as an institution, about our ability to do what we set out to do. In that sense, it could tend over time to undermine or at least weaken the credibility of our longer-term monetary policy objectives...I think this shows pretty conclusively that sterilized intervention operations only have lasting effects if the markets believe they are going to be backed up strongly by basic monetary policy actions. Clearly, on June 24th that expectation or that conviction was not there. Given this experience and others like it in the past, Mr. Chairman, I would respectfully recommend that to the best of our ability we avoid getting involved in these operations unless there is pretty general agreement within this Committee in a particular instance that we will back up the intervention with whatever monetary policy actions are necessary.[48]

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[45] Transcripts, Presentation Materials, FOMC Notes—Peter Fisher, July 5-6, 1994, pp. 1-10.
[46] Transcripts, July 5-6, 1994, p. 2.
[47] Transcripts, July 5-6, 1994, p. 4.
[48] Transcripts, June 5-6, 1994, p. 5.

Greenspan replied

> You know it depends really on whether we expect markets to be wholly efficient and not run periodically into some significant abnormalities that an intervention could rebalance. This is the key question…If we are put in a position where we opt out of coordinating with the Treasury, I think that would do the financial system more damage. In all these actions it has been we who have fended off recommended interventions which we thought were superfluous and potentially counterproductive. We have only gone forward when we thought there was at least a reasonable shot. Our choice is not, in my judgment, to withdraw from these discussions because the damage it could do to the financial system if we are perceived to be at loggerheads with the Treasury in this sort of arrangement, I think, would be very substantial. If you are asking me whether I personally disagree with the underlying philosophy that you were outlining, the answer is no, I do not; I do agree. The question is what to do about it.[49]

At the November 1994 FOMC meeting Broaddus dissented against renewal of existing swap lines because they were used primarily to facilitate exchange market intervention. [50] He pointed out that

> …Because sterilized intervention cannot have sustained effects in the absence of conforming monetary policy actions, Federal Reserve participation in foreign exchange markets risks one of two undesirable outcomes. First, the independence of monetary policy is jeopardized if the System adjusts its policy actions to support short-term foreign exchange objectives set by the Treasury. Alternatively, the credibility of monetary policy is damaged if the System does not follow interventions with compatible policy actions, the interventions consequently fail to achieve their objectives, and the System is associated in the mind of the public with the failed operations.[51]

The next major Fed intervention with the US Treasury occurred on June 17, 1998 to strengthen the yen against the dollar after the yen/dollar rate reached 146. The intervention precipitated a lively debate at the June 30-July 1 FOMC meeting. Again Broaddus registered his disapproval

> …I see a risk in resisting the depreciation of the yen, if that begins to occur again… Deflationary forces in Japan have now pushed that very important economy into recession…
>
> I hope that as we go forward we will keep in mind that any international effort to resist further yen depreciation carries some important risks of its own. The reason is that it has potential consequences for both Japanese and U.S. monetary policy. Fundamentally, to prevent further yen depreciation if underlying economic forces renew downward pressure on that currency, either the Bank of Japan must pursue a tighter monetary policy or we must pursue a more accommodative monetary policy or some combination of the two.

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[49] Transcripts, June 5-6, 1994, p. 6.

[50] Broaddus and Goodfriend (1996) is an extended critique of the Fed's involvement in foreign exchange operations along the lines of Broaddus's dissent.

[51] Board of Governors of the Federal Reserve System (1994).

> The former, of course, risks an even deeper recession in Japan. The latter risks creating stronger inflationary pressures in the U.S. economy at a time when, at least in my view, rising inflation is already a risk...Indeed, a case could be made that we really need just the opposite, a more expansionary monetary policy in Japan and a less expansionary one here.[52]

Broaddus drew the following response from Greenspan

> Let me just say that I do not think anyone at the Treasury would seriously disagree with the way you framed the issue. There was a great reluctance at the Treasury to intervene, and the decision was touch-and-go for a considerable period of time. I would say that the chances of repeating such intervention verge on the remote or even less than that. I believe there is a real understanding that Japan's…effort to stabilize the yen in April clearly demonstrated that intervention per se does not work…The only reason that intervention seemed to work in the latest episode had nothing to do with the size of the intervention. It was the result of what somehow was perceived as a signal that either we were going to ease monetary policy or the Japanese were going to tighten. Clearly, neither policy option is even remotely on the agenda at this stage.[53]

A few minutes later Fisher reported

> [t]he intervention in which we participated on June 17 certainly took the market by surprise. We had a much bigger price effect than I and, I think, a number of my colleagues anticipated. Some large speculative players seemed to have been extending their long-dollar/short-yen positions, and as the yen strengthened from 146, where we entered the market, down to 142, they had to close those positions. That's why we had such a "pop" in the market. The market is wary of further intervention. Obviously, when people sustain significant losses on a mark-to-market basis and some of them close their positions that gets the market's attention.[54]

The Fed decided to eliminate all of its standing swap lines when the euro came into existence in December 1999, except for lines with its NAFTA partners, Canada and Mexico. Foreign exchange intervention had come to be seen in the US as ineffective at best and counterproductive at worst given the paramount importance that domestic price stability had assumed as a priority for monetary policy.

Nevertheless, the Fed intervened again on the foreign exchange market with the Treasury on September 22, 2000 in conjunction with the G-7 monetary authorities to weaken the dollar against the euro, then trading below 90 cents/euro. The intervention was generally regarded as a success in that it appeared to push the dollar/euro rate up somewhat. William Poole, President of the Federal Reserve Bank of St. Louis, expressed his disapproval of the operation at the October

[52] Transcripts, June 30-July1, 1998, p. 6.
[53] Transcripts, June 30-July1, 1998, p. 7.
[54] Transcripts, June 30-July1, 1998, p. 10.

FOMC meeting because sterilized interventions themselves are ineffective and because the Fed should not support interventions of questionable value with its prestige and resources.[55]

Greenspan followed

> Between June of 1998 and today—or I should say last week—we probably had 20 or so different requests, at various levels, for intervention. We turned them all down. And indeed, in this latest case we were not happy with the notion of intervening. What occurred essentially was that the Treasury, feeling under very considerable pressure from the rest of the G-7, concluded that in the spirit of international comity we had very little choice but to accommodate the Europeans. We, the Federal Reserve, did have the choice of saying we would not participate. The presumption that we could do that without it being known is not believable…Now that would create a schism within the United States government. And the question we have to evaluate is whether our concerns about the inefficacy and potentially counterproductive effects of sterilized intervention are far more significant than the schism that would be created with the Treasury. In my judgment the answer is no…We do have to maintain a relationship with them. We are independent, to be sure, but not from the Congress.
>
> …[W]hen we were talking about it in advance, that the thing we ha[d] to be concerned about is the probability that this intervention [might] fail. And a failure of the intervention as we go into a G-7 meeting would put extraordinary political pressure on everybody to say something…Would I have preferred that we didn't intervene? I certainly would. We did not shut the door completely…And I would say that this Treasury has been a lot less likely to cave in to foreign pressures than previous ones.[56]

At the January 29-30, 2002 FOMC meeting, Greenspan summed up the evolution in the thinking on foreign exchange intervention that had occurred since the early 1990s

> …let me note that I have recently had conversations with the Secretary of the Treasury in which he reiterated the Treasury's position with regard to foreign currency intervention. It is about as close to ours as you can get. The general view at Treasury is that the history of intervention shows clearly that it has not been effective. And except under extraordinary circumstances, which would be less economic and perhaps more political in an international sense, there is no inclination on their part to do any intervention. Consequently, I think the discussions we've had with pervious Treasury officials when we've had activist Treasury Departments are not relevant in this case.[57]

6. The Inflation Targeting Debates

After the Republicans took control of the House of Representatives in November 1994 and expressed interest in inflation targeting, Chairman Greenspan asked the Committee to consider the issue. Broaddus had earlier expressed support for inflation targeting and was invited to

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[55] Transcripts, October 3, 2000, pp. 11-14.
[56] Transcripts, October 3, 2000, p. 15.
[57] Transcripts, January 29-30, 2002, p. 6.

present the pro case. Governor Janet Yellen agreed to present the con case. The FOMC held its first formal debate on inflation targeting at the January 1995 meeting. Broaddus began

> …The basic argument…for implementing an operationally meaningful explicit inflation objective is that it would allow us over time to foster a better economic performance. This would occur…because we would be moving away from the almost purely discretionary approach to policy we have followed historically, with its focus on reacting to emerging short-term economic developments, toward an approach where the central focus would be on precommitment to a permanent low inflation objective that would be clear and feasible…I think it is fair to say that it is supported by much, if not most, of the important research done in monetary economics over the course of the last twenty years…[E]xperience over the years under our current approach to policy…suggests that periodic inflation scares in the financial markets and the damage inflation has done to the economy naturally make a lot of people think there has got to be a better way.
>
> The main objection to such an approach…is that a short-term trade-off is said to exist between real activity and inflation…[A]s I see it at least, there is nothing incompatible between a credible long-term inflation objective on the one hand and having the flexibility to cushion the economy against supply shocks as long as the public understands and is confident that the longer-term commitment remains in place while we are dealing with the short-term problem. Indeed, far from reducing our flexibility, it seems to me that a credible long-term objective arguably would increase our flexibility in dealing with such shocks because we would not be worried about losing credibility in that situation.
>
> …I would recommend that the Committee commit itself firmly and publicly to the objectives contained in the Neal amendment…in the way that it defines price stability and also importantly with respect to the 5-year horizon.[58]
>
> …There are some very strong advantages to proceeding in the way that I just suggested. For one thing, we are already on record in favor of the Neal amendment…[D]oing what I have suggested would not prevent the Fed from taking the kinds of policy actions that we take today to stabilize employment and output. What it would do, and this probably is the most important thing I am saying today, is to discipline us to justify our short-term actions designed to stabilize output and employment against our commitment to protect the purchasing power of our currency.[59]

Yellen followed

> I am strongly opposed to the adoption of formal multi-year inflation targets…I am taking this proposal to be…that the inflation rate should be the sole objective of policy for current and future years with no weight being placed on achieving competing ultimate

[58] The Neal Amendment defines price stability as a situation where expectations of future inflation do not play a significant role in economic decision-making. See Greenspan (1989).
[59] Transcripts, January 31-February 1, 1995, pp. 39-41.

> goals for real variables. I am going to speak against that proposal, and I note that it is a somewhat stronger proposal than I heard Al just support...
>
> I began by asking myself the question, what is it that the public cares about? The answer seems straightforward to me. It is not just high and variable inflation…[t]he public also cares about fluctuations in output and employment...
>
> Then I ask myself, what is it that the Fed can accomplish? I conclude that the actions of this Committee affect not just the level and variability of inflation but also at a minimum the variability of output and employment...
>
> The moral I draw is that the Fed should pursue multiple goals…
>
> Fortunately, the goals of price stability and output stability are often in harmony, but when the goals conflict and it comes to calling for tough trade-offs, to me, a wise and humane policy is occasionally to let inflation rise even when inflation is running above target…
>
> Let me turn to the issue of credibility. A key argument in favor of inflation targeting—Al made this point—is that it would raise the FOMC's credibility and result in a lower sacrifice ratio. Clearly, if we could achieve this, it would be a very worthwhile benefit. The problem in my view is that it is not achievable. I look at countries that have adopted and carried through inflation targeting programs, I consider the results discouraging… The second point concerning credibility is that I do not think inflation targets would raise credibility for the simple reason that they would not be credible.
>
> …We could talk a little about dynamic inconsistency, but for the sake of time I think I will pass that up…
>
> If we testify, it seems to me that we should point out that the benefits of price stability are elusive and that the costs of additional output instability with such a plan could easily outweigh the benefits of greater inflation stability.[60]

After a subsequent airing of the various points of view, Greenspan observed

> Let me say what I think the purpose of this discussion is. To go to inflation targeting without a Congressional statute is probably unwise. We do not have a Neal bill, but there clearly is going to be a Connie Mack bill that will be very close to the Neal bill, and we are going to be asked to comment on it. The basic purpose of this discussion is to get our first cut as to where this Committee stands for purposes of testifying on that legislation. My own judgment is that if we do not announce any specific inflation targets, our policy can actually be similar to what Al Broaddus was suggesting. If we do announce explicit inflation targets, they become an effect a statutory obligation for this Committee to adhere to; and I am not sure by any reading of the Humphrey-Hawkins statute that inflation targeting is consistent with it.

[60] Transcripts, January 31-February 1, 1995, pp. 42-45.

Immediately following Greenspan, Tom Melzer, President of the Federal Reserve Bank of St. Louis, reiterated a key point

> …My view is that monetary policy only affects prices in the long run. I have a hard time justifying setting objectives with respect to things that we can't influence in the long run. So, I would very much like to set objectives that are consistent and that we can influence in the long run...
>
> …The other thing I would say is that it is not clear to me, and this again is not the time to discuss it, that the present legislation under which we operate would absolutely preclude some sort of inflation targeting regime. I think there would be some advantage to go along the course that Al described where as soon as we can reach some sort of consensus, assuming that there is some consensus in this direction, we could move ahead to take some actions on our own…[61]

After a while, Greenspan summarized the proceedings saying

> …Now we understand why this Committee has had difficulty confronting this issue. It is because we are as split down the middle as we could possibly get…
>
> This really raises some very interesting questions as to where we are. My own impression is that even if we now locked into law a fixed inflation rate—say 2 percent or 1 percent—and the Congress voted for it with a large majority, in the first recession everyone would be arguing to go in a different direction...[62]

The Committee resumed its discussion of inflation targeting at the July 2-3, 1996 meeting. Yellen made the opening statement, emphasizing the costs of bringing inflation down from the then current rate of around 3 percent to zero. Yellen concluded her opening presentation

> …As I total things up, it appears to me that a reduction of inflation from 3 percent, which I take as roughly our current level, to 2 percent, very likely, but not surely, yields net benefits…To my mind, to go below 2 percent measured inflation as currently calculated requires highly optimistic assumptions about tax benefits and the sacrifice ratio…[63]

Broaddus followed with his opening statement

> …[L]istening to Janet Yellen has served to convince me that if we are really going to make progress, we need to prioritize some of these issues…
>
> This may involve some risks, but I would assert that there are, or at least there may be, some points of agreement. I think most of us would accept the view that at a minimum we want to hold the line on inflation—that is, to preserve the gains we have made over the last 15 years or so in bringing the trend inflation rate down and then to bring the rate

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[61] Transcripts, January 31-February 1, 1995, pp. 47-48.
[62] Transcripts, January 31-February 1, 1995, p. 58.
[63] Transcripts, July 2-3, 1996, p. 45.

> down at least somewhat further over a period of time. Moreover, I think many of us would regard the line to be held as an underlying rate of something like 3 percent on the core CPI, although we can debate which measure it should be.[64]

Robert Parry, President of the Federal Reserve Bank of San Francisco, followed soon after

> Mr. Chairman, is there a way to focus on what was agreed to between them as an interim step? It looked as though both had the same view about the desirability of not allowing inflation to go higher. There also was a very explicit agreement that inflation should begin to move lower, and I think I heard Janet say something like a full percentage point lower. [65]

Yellen immediately replied "I agree, yes." Parry then asked "Why not set that out as an objective, and then we can have another meeting when we reach it. Broaddus replied, "I would second that. I think that is a great idea." Parry observed, "That would mean more progress than we have made in 11 years." Cathy Minehan, President of the Federal Reserve Bank of Boston, said soon after "…I am in complete agreement with the two things on which I think they agreed. That is, we should at a minimum hold the line on inflation where it is and go somewhat further if we can do so." [66]

Tom Hoenig, President of the Federal Reserve Bank of Kansas City, added "…In my view that requires that we take the legislation that is in place now and pursue stable prices seriously, I think the mandate is there. In implementing that mandate, I would agree with Bob Parry and Al Broaddus that we ought to start somewhere. I would accept 2 percent inflation as the interim goal if we can agree on a reasonable timeframe in which we would move systematically toward that goal." Governor Larry Meyer noted

> …But without deciding on exactly what the path is, we have an agreement that we want to hold the line at about 3 percent on core CPI and that provisionally we want to set a very explicit target for ourselves. We seem to be headed for agreement on 2 percent inflation. We still have to debate how to get there, but this is a lot of progress...[67]

A few minutes later Greenspan asked "Can I switch the subject? Since we have now all agreed on 2 percent, my question is, what 2 percent?"And then Greenspan proceeded to wonder which measure of inflation would be best.[68]

But Parry interjected

> It seems to me that when Janet and Al were talking, they had implicit in their minds something like a CPI or core CPI. They were able to generate some consensus or

[64] Transcripts, July 2-3, 1996, p. 47.
[65] Transcripts, July 2-3, 1996, p. 50.
[66] Transcripts, July 2-3, 1996, pp. 50-51.
[67] Transcripts, July 2-3, 1996, p. 58.
[68] Transcripts, July 2-3, 1996, p. 63.

> agreement about the desirability of reducing the rate of CPI inflation from its current level of about 3 percent down to 2 percent. That is the critical point.[69]

Minehan immediately added "Hold the line where we are." Meyer asked "What do you think the PCE deflator is now? Greenspan answered "It is 2 percent." And Meyer answered "So we are there." Parry then said "That's fine. Then we will start with 2 percent inflation and go to 1 percent. But Meyer asked "…Maybe 2 percent inflation as measured by the PCE is where you want to be?"[70]

This was a dramatic moment for those in the room like the author that favored an explicit inflation objective. The Committee implicitly had reached a working consensus for holding the line on current inflation measured with either the core CPI or PCE. But just as suddenly the Committee veered away from that consensus.

Instead of prioritizing the issues in order to make progress as Broaddus had suggested, and focusing on the consensus that had been achieved to "hold the line where we are," as Minehan put it, the discussion dissolved again into a debate on how low the Committee would ultimately want to go on inflation. Greenspan adjourned the debate shortly thereafter without any formal acknowledgment of the progress that had been made. The author was disheartened by the turn of events.

Another small but important step toward announcing an explicit inflation objective was taken a couple of years later at the February 2-4, 1998 FOMC meeting. The Committee was setting M2 money growth ranges required for the Humphrey-Hawkins hearings before Congress. Broaddus proposed an inflation target once more

> …A couple of recent developments make me want to put that issue back on the table…First, we are very close to price stability now…with measured CPI at around 2 percent with an upward bias of around 1 percent. That has a couple of implications. One is that we no longer need to get hung up on the topic of the transition costs of moving back to price stability. We are already there essentially. I think that is a powerful argument for trying to lock in price stability by announcing a somewhat more specific inflation objective. Also, with inflation as low as it is currently, the public has become more aware of and more concerned about deflation. For obvious and understandable reasons, there has been much more public comment about deflation recently than in the past. In effect, one might say we recently have gone through a mini-deflation scare. In the current low inflation environment, it seems to me that our longer-term policy strategy now needs to address deflation concerns as well as inflation concerns.
>
> For that reason, I believe we should consider stating explicitly a lower bound for our longer-term inflation objective. It could be zero on an accurate price index or maybe 1 percent or so on the actual measured CPI…If we did that, I think it would help to clarify our strategy for situations that have begun to receive some attention very recently but that, understandably, had not previously received a lot of attention for four or five decades. In

[69] Transcripts, July 2-3, 1996, p. 64.
[70] Transcripts, July 2-3, 1996, p. 64.

> my view, that could help us avoid getting into the kind of situation the Japanese have found themselves in from time to time in recent years. Of course, if we announce a lower bound on inflation, then it would make sense for us to announce simultaneously an explicit upper bound as well. It might be in the neighborhood of 3 percent on the measured CPI…[71]

Later in the meeting Broaddus again urged the adoption of an explicit lower bound on the Committee's tolerance range for inflation and drew this response from Meyer

> Could I add a point? It is not just our ability to communicate to the public it is our own internal deliberations that are at stake here. We might ask where we are heading. Do we think we are where we want to be or do we think we want inflation to move down ½ percentage point, 1 percentage point, 1 ½ percentage points? The vague definition [of price stability] was perfectly adequate when inflation was 10 percent, and it worked when inflation was 5 percent, but now I think there is a real question—maybe among us and certainly among the public at large. There is an issue here.[72]

Greenspan replied "that is a nice problem to have" but immediately asked for a vote on policy and nothing more was said on the matter. Yet, the issue that Meyer raised was important: if the FOMC needed a precise explicit working definition of its inflation objective for internal purposes, which it surely did, then shouldn't the Congress and the public be informed of that working definition? In effect, the approach to price stability revived the issue of Fed secrecy—this time not about policy deliberations, or interest rate policy actions, but about the long-run objective of monetary policy.

7. Asset Acquisition Policy

The emergence of large federal budget surpluses in 2000 and 2001 led to a substantial paying down of federal government debt, and the possibility that the stock of Treasury debt could be reduced substantially in subsequent years. Fed assets at the time accumulated in providing currency and bank reserves to the economy consisted almost entirely of roughly $500 billion of Treasury securities. At its March 2000 meeting the FOMC authorized a subcommittee led by Peter Fisher, Manager of the System Open Market Account at the Federal Reserve Bank of New York, and Don Kohn, Director of the Division of Monetary Affairs at the Federal Reserve Board and Secretary of the FOMC, to consider a variety of options to study what assets it should acquire in place of Treasuries should they be retired. The subcommittee presented its findings at the January 2001 FOMC meeting. Don Kohn introduced the report highlighting a number of points

> I think the first important point to highlight…is that the issue cannot be put off for much longer. Under a wide variety of assumptions about the growth of the economy and the political process, Treasury debt will be repaid over coming years…Meanwhile, the Treasury market will become increasingly illiquid, ultimately for RP as well as outright

[71] Transcripts, February 2-3, 1998, pp. 87-88.
[72] Transcripts, February 2-3, 1998, pp. 97-98.

transactions, especially considering that many of these securities are held by investors who will be loathe to give them up even at elevated price premiums.

A second point apparent in all the papers is that there are no easy, obvious solutions to the problem of what assets to hold under this circumstance. All options seemed to have significant drawbacks. Some people have proposed continuing to rely on Treasury securities, even as the debt is paid down, by acquiring them through special arrangements with the Treasury or the Social Security Trust Fund. While the System would be able to continue to hold risk-free government assets, such plans themselves do raise a number of questions. They would transfer the problem of possibly accumulating private assets to another part of the government that may not be as well equipped to deal with it. They would leave the Federal Reserve with a portfolio of illiquid assets as the Treasury market disappears, and they would make the central bank dependent on agreements with the rest of the government for its assets.

Of course, the alternative of taking on private obligations raises other issues, including those involved with potential effects on private credit allocation and the management of risk and liquidity in the System's portfolio…A key tradeoff would be between minimizing the effects of System portfolio choices on relative asset prices on the one hand, and minimizing risk and maximizing liquidity on the other. A broadly diversified portfolio, which included credit to financial intermediaries holding nonmarketable assets, would have the greatest chance of exerting as little influence as possible on private credit decisions. With such a portfolio, the System would have a low profile in each market and it would not be favoring one type of asset over another. But the System would be acquiring riskier and less liquid assets…At the other end of the spectrum, if the Committee chose to concentrate operations in a small subset of markets that promised the least credit risk and the greatest liquidity—for example those for GSE securities or A1/P1 commercial paper—it would increase the odds on eventually affecting relative asset prices.[73]

Broaddus believed that the subcommittee report gave insufficient attention to staying with Treasuries, and he opened the Committee discussion of the report by making the case for a "Treasuries only" asset acquisition policy. Given the extensive holdings of non-Treasury securities on the Fed's balance sheet in 2010 and the potential for the Fed to acquire more in the future, Broaddus's case for "Treasuries only" is particularly relevant today. Hence, Broaddus's lengthy statement from the January 2001 FOMC meeting is presented in its entirety followed by the exchange with Greenspan and other FOMC participants that helped to clarify Broaddus's recommendation.[74] Broaddus began

Mr. Chairman. I want to make a pitch for trying to arrange with the Treasury a way for us to stay with investing in Treasury securities only. In my view this is a really important issue that goes to the heart of our institutional position in the government and also to our ability to conduct monetary policy effectively over the longer run.

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[73] Transcripts, January 30-31, 2001, pp. 3-4.
[74] Broaddus and Goodfriend (2001) contains an extended defense of "Treasuries only" along the lines of Broaddus's FOMC statement.

I would begin my remarks by suggesting that we think about how fortunate we have been over the years to be able to pursue a “Treasuries only” policy--or at least approximately Treasuries only--for so long. As the Beebe/Cumming study recognizes, a Treasuries only policy alone among the alternatives that are being considered and suggested on this issue satisfies all four principles that are laid out in that paper with respect to how we should guide our portfolio selection. Such a policy would allow us to maintain instrument independence, minimize credit allocation and distortions to relative prices, maintain essential liquidity and credit quality, and provide appropriate transparency and accountability.

I would underscore the benefits of Treasuries only as follows: Monetary policy basically determines the quantity of the monetary base and as a byproduct the aggregate volume of Federal Reserve credit that we will extend. The beauty of Treasuries only, as I see it, is that it has allowed the government as a whole to implement monetary policy by essentially buying back interest-bearing government debt and replacing it with the liability of the central bank. Consequently, and this is the key point, neither the Fed nor the government as a whole for that matter has had to invest in any private assets to conduct monetary policy or to make the potentially very difficult choices among private assets that might have to be made if we consider these other alternatives.

Now, of course, we face a situation where the outstanding stock of Treasury debt may disappear. I think this presents the Fed with a huge problem because all of the alternative approaches available to us--that is, the other assets that are being considered--will involve us to one degree or another in decisions about allocating credit across particular sectors of the private economy. Some of you may recall that at the March [2000] meeting last year I argued that credit allocation would inevitably embroil us over time in politically charged decisions that could undermine our independence and the effectiveness of monetary policy. And I urge that before we go down the path of these other alternatives we at least consider the possibility of persuading the fiscal authorities to continue to issue sufficient government debt to allow us to stay with the Treasuries only approach. I believe we still ought to do that and I ask you just to consider it.

A Treasuries only option is sketched out briefly on page 16 of Chris Cumming’s and Jack Beebe’s study. Let me briefly summarize it. The idea is that even if continued surpluses were to permit the Treasury to stop issuing debt, the Treasury would continue to issue debt for the Fed to buy in order to replace maturing debt already on our balance sheet and to provide for secular growth in the monetary base. Note here, and I think this is an important point, that this debt would be costless to the Treasury since we would be remitting to the Treasury the interest on the debt we would buy. The question of short-term cyclical needs for increases in the monetary base would still remain, and it might be that we would need to satisfy those needs by purchasing liquid, low-risk private assets in the form, say, of RPs. But since the acquisition of private assets in that case would be self-reversing and relatively limited in size, it would involve the Fed only minimally in credit allocation. I don't think it would raise the kinds of issues and concerns that a more fundamental change would.

Now, I know that when you first hear this proposal it seems eminently dismissible. [Laughter] A lot of questions come up and a lot of objections can be raised, and Don has already cited some of those. But let me address a couple of them. The first question is: Isn't this proposal just a way for the Fed to shift the burden of investing in private assets, if we have to do that in this new world, from itself to the Treasury? Well, this proposal would respect the integrity of the fiscal policymaking process by leaving all fiscal decisions to the fiscal authorities, Congress and the Treasury, which would protect the Fed's independence. The key point here, though, is that the government wouldn't have to accumulate assets with the revenue it would get from selling securities to the Fed. It would simply be the revenue that the government gets from the seigniorage tax--that is, from the act of creating money--and I think that's an important point. The government could use this revenue to permanently reduce other taxes or to increase expenditures. That covers one question.

A second question, closely related to the first, is whether the government as a whole shouldn't take advantage of the at least relative political independence of the Federal Reserve to let us acquire the assets and make the choices among these private assets. Presumably, we would be subject to less potential political interference than other parts of the government. This question I think is more likely to be asked by people who feel our independence is secure rather than by people like me who think it is inherently fragile. In my view the answer to this question is the same as the answer to the first question. It is not necessary for the government to acquire private assets permanently in order to conduct monetary policy. I doubt that many people around this table would think it's a good idea, just on the face of it, for the government to buy and hold private assets. If not, then I believe we should be wary of letting the Fed be the instrument for doing that. And that's one of the reasons why I think we need to adopt the Treasuries only proposal seriously.

But what about some of the alternative approaches like expanded use of the discount window discussed by Craig Hakkio and Rick Lang in their paper, or the expanded use of RPs not only for short-term liquidity purposes but to meet the secular need for increases in the base? Let me make a few comments about each of those.

With respect to discount window loans, at first blush that appears to be an attractive alternative. We have the authority without seeking new legislation to expand our use of the window in implementing monetary policy. And in principle we could increase our discount window lending from the relatively small amount that's on our books now to several hundred billion dollars.[[75]] Presumably, as I think Craig's and Rick's paper recognizes, we would need to restrict our lending to banks with CAMEL ratings of 1 and 2. Also, we probably would want to limit our lending to any particular bank to a prudent fraction of that bank's capital and we would want to back our loans with good collateral. I think we could start out down this road successfully. But let's recognize that this would be a profound change in the way we do things. It would make the Fed a major, continuous creditor to hundreds of depository institutions instead of an infrequent lender to particular institutions. What worries me under this proposed regime

[75] The asset acquisition policy of the Eurosystem relies heavily on lending to banks.

is, what to do if a bank to which we have extended substantial credit gets into serious trouble? In my view that would put us in a very difficult situation.

Presumably, we would want our portfolio to be public knowledge. I think transparency is essential in establishing accountability for our portfolio. It is hard for me to see that we would not be forced to make our portfolio transparent if we went in this direction. But in that situation if we pulled a loan because of the deterioration in a bank's condition, that action would signal publicly that the bank has significant difficulties. Currently we don't publicize CAMEL ratings, so this would be a fairly radical change in our supervisory approach to safety and soundness. Hypothetically, even if we didn't make the composition of our loans public, it seems inevitable that if we pulled a loan to a sizable institution, the markets would quickly detect it. My real worry is that in such a situation we would be unwilling to pull the loan. Worse, troubled banks would tend to replace lost uninsured funding with discount window loans, which is what has happened historically. It has happened in today’s world. But since our loans would be backed by much of a bank's good collateral, this would greatly increase the exposure of the FDIC--and potentially taxpayers--to losses when a bank ultimately fails.

In sum, if we greatly expand our discount window lending, we will put ourselves even more in the middle of contentious issues surrounding the potential resolution of the problems of a troubled bank. We've had that happen historically. If we go to this kind of approach, I think we will have it in spades. The kinds of difficulties we could encounter in this regime would be bad enough in the case of an individual troubled bank, but they could be quite damaging if we faced any kind of general banking crisis. I think it could threaten our independence and our ability to conduct monetary policy independently. So I believe that dealing with our portfolio problem by expanding discount window lending would be a mistake.

Let me turn now to RPs and then I will be finished. I appreciate your patience. Expanding the use of RPs would not raise some of the issues that expanding discount window lending would raise. RPs are self liquidating, which would allow us to exit problem bank situations more quietly if they arise. And we could do RPs on a wide variety of assets with appropriate haircuts. So at first blush it looks as if RPs might be the way to go. But expanded use of RPs to support the secular growth in the monetary base is distinctly different from the use of RPs to deal with the short-run problems that I mentioned earlier. To use them in a long-term way would still be problematic, I think.

First, while RPs would raise fewer obvious credit allocation issues than some of the other alternatives that are being considered, over time there is a good chance that political pressures on the System would adjust to this change. And we could find ourselves dealing with political problems in credit allocation issues with respect to RPs as well as with some of the other alternatives that are on the table here. Beyond this, though, there is one other less obvious but I think very important problem with the RP alternative--namely, that precisely because of the desirable properties of RPs that I just listed, they pay a relatively low return. Remember that in this situation the return would be the government’s revenue for money creation. So if we went to RPs because of their nice properties from the Fed’s standpoint, essentially we would be limiting the government’s revenue from money creation. In essence, we would be using a large part of this revenue to buy liquidity services and to protect ourselves--the Fed, that is--from credit and price risk, thereby denying the rest of the government the use of these funds for whatever other purposes it wanted to use them.

This last point, in my view, is the answer to one other objection mentioned in the study to the Treasuries only proposal. The concern was that because the Treasury would be doing us a favor in some sense by allowing us to continue with the Treasuries only approach, they would demand some sort of quid pro quo. Now, if it were understood that perhaps arguably the most feasible alternative to Treasuries only, namely the RP alternative, would be costly to the government, then it would be in the narrow budgetary interest of the fiscal authorities to prefer that we stay with the Treasuries only approach. So in that instance a quid pro quo wouldn’t be necessary. Having said that, I recognize that arguing this point and getting it across to others elsewhere in the government would be challenging. But in my mind it’s a valid point and I think we should try to make it.

Well, that is basically my argument and I appreciate your patience. Let me list quickly the four main points I've tried to make. First, there is no need for the Fed or the government to acquire private assets, except maybe temporarily, to implement monetary policy. Second, I believe it is feasible for the Fed to follow a Treasuries only policy with the cooperation of the Treasury even if the Treasury has no other reason to issue debt. Third, it wouldn’t cost the government anything to provide debt for the Fed to buy. Finally, with respect to the RP alternative, the government would forgo revenue if the Fed held a portfolio of very safe and liquid but low-yielding private RPs. So from that perspective it would be in the interest of the fiscal authorities to cooperate with the Fed in a Treasuries only approach. I know that pushing this proposal is a hard idea to get used to. But looking at the disadvantages and problems associated with the other alternatives, I find the argument for at least trying to do that compelling. And I hope we will consider doing it. Thank you.

Broaddus’s remarks immediately prompted a series of comments and questions from Greenspan that helped to clarify the key part of the Broaddus’s proposal. The exchange proceeded as follows:

CHAIRMAN GREENSPAN. In your scheme, what does the Treasury do with our payments to them for their debt?

MR. BROADDUS. They, of course, would be paying interest to us and we simply would be turning around and paying it back to them.

CHAIRMAN GREENSPAN. The issue basically is that they have to invest the proceeds from our purchases in something else.

MR. BROADDUS. As I see it, they first sell their securities in the market.

We buy them in the market; they are not selling directly to us. So that would be the form in which they would take the funds.

CHAIRMAN GREENSPAN. It doesn't matter how it's done.

MR. BROADDUS. They take in revenue and it could be used for whatever purposes they want.

CHAIRMAN GREENSPAN. But the issue, in the context we're talking about, is that if the debt to the public is down to zero, they have to accumulate private assets.

MR. GOODFRIEND. May I answer that please?

MR. BROADDUS. Sure!

MR. GOODFRIEND. I'm sorry to interrupt; I know this is unusual. The revenue for money creation could be regarded as basically the result, on a secular basis, of the growing demand for real currency balances that the public wants to hold. If one regards the revenue from money creation, which is sometimes called seigniorage, as a tax flow just like any other tax that the government receives on a yearly basis--

CHAIRMAN GREENSPAN. Money is fungible; I understand that. It's not that I object to what President Broaddus is saying, I'm just asking a question. There are two regimes, one in which we accumulate private sector assets and one in which we don't. In the regime that you're suggesting there is double entry bookkeeping. My question is: What appears on the asset side of the U.S. government's balance sheet? Since by hypothesis we are stipulating that there is zero debt to the public, it means the Treasury can't pay off debt. Therefore, if they hold a liability, they must hold an asset. What is the asset?

MR. BROADDUS. Well, the asset in the short run is probably some private asset. But over time adjustments could be made that would take that off the books.

CHAIRMAN GREENSPAN. The only way to do that is to run a government deficit.

MR. MEYER. They can basically rebate it as a tax refund immediately or spend it.

MR. GOODFRIEND. That's right.

MR. BROADDUS. Those are the two alternatives.

MR. MEYER. The government would not accumulate private assets; the funds would just flow right through.

MR. BROADDUS. That's right.

MR. MEYER. The government never acquires debt. It just rebates it right back to the public instantaneously.

CHAIRMAN GREENSPAN. Yes, but then that alters the view that we're in surplus.

SEVERAL. Right.

MR. MEYER. That’s right; there is no surplus.

CHAIRMAN GREENSPAN. One could argue that it is better from our point of view to have the credit allocation process be in the hands of the Federal government than in the hands of the Federal Reserve. But it is difficult to get around the fact that there is an allocation process going on in the consolidated monetary authority system, given the accounting process. What is it about that statement that’s not true?

MR. GOODFRIEND. The main issue is that we can provide the public--

CHAIRMAN GREENSPAN. Let me stipulate something very important, which is that the government balance in terms of deficit/surplus is the same in the two regimes. The only difference is who is holding which assets. If you consolidate the Federal Reserve into the system, then there is a unique solution. The only issue occurs when you disassociate the Federal Reserve from the authorities. If you’re assuming a unified budget, obviously, that does create a change in the balance sheet. I’m only saying that in this context if we don’t purchase, or through RPs acquire, private instruments, somebody else has to. There’s no way of getting around that.

MR. GOODFRIEND. That’s certainly true given your assumptions about the rest of the government’s fiscal position. President Broaddus’s point is that no one in the government needs to acquire private assets to implement monetary policy.

CHAIRMAN GREENSPAN. Nobody disagrees with you on that.

MR. GOODFRIEND. Okay. Then if one of our goals is to minimize private assets acquired by the government, we could make that understood by the rest of the government, in which case they would do with the money what Governor Meyer is saying--

CHAIRMAN GREENSPAN. Meaning, lower their surpluses and refund taxes.

MR. MEYER. Think of it as a “money rain” every day!

8. Monetary Policy at the Zero Interest Bound

At its January 2002 meeting, in the wake of the 9/11 attack on the World Trade Center, the FOMC invited three Fed economists who had presented papers at a 1999 Federal Reserve System conference on monetary policy in a low inflation environment to lead a discussion of monetary policy at or near the zero interest bound.[76] Dave Reifschnieder and John Williams focused on interest rate policy *near* the zero bound. The author was asked to present his work on monetary policy *at* the zero bound. Because monetary policy at the zero bound is an important policy question in 2010, much of the author's January 2002 FOMC briefing is reproduced below together with the Committee's comments and questions. Greenspan introduced the session saying "We now move on to what hopefully is going to be a rather interesting conversation and I trust an academic one, but we never know about these things." The author began his presentation

> I will spend most of my time explaining how what I think is the best option—*expanding the monetary base*—could work to stimulate the economy at the zero bound...
>
> Usually, open market operations are constrained to accommodate the demand for the monetary base at the opportunity cost spread between the intended federal funds rate and zero.[[77]] There is a need to defend an interest rate spread when the federal funds rate is positive, and as a result, the monetary base is not an independent instrument available for policy in those normal circumstances. But once the federal funds rate is zero, there is no need to defend an interest rate spread, and policymakers are free to expand the monetary base further to stimulate the economy.
>
> Central banks can pursue what I call quantitative monetary policy—as distinguished from interest rate policy—at the zero bound. To appreciate the power of quantitative policy at the zero bound, we need to distinguish between narrow and broad liquidity services. In models of the demand for money, narrow liquidity services are provided by the medium of exchange, which allows banks and the public to economize on transactions costs or so-called shopping time costs. For example, people hold currency to minimize trips to the ATM; they hold checkable deposits to avoid sales of nonmonetary assets in order to replenish money balances and make payments; and banks hold reserves to save on transactions costs in the federal funds market. When short-term nominal interest rates are at zero, narrow liquidity services of the kind I just described are no longer scarce because there is no opportunity cost of holding currency or bank reserves, and the channel of monetary policy transmission that we ordinarily use is exhausted.
>
> Broad liquidity services are not exhausted, however, and they provide what I will argue is the leverage for quantitative monetary policy to stimulate the economy further at the zero bound. Let me first define what I mean by broad liquidity. Broad liquidity is a service yield provided by assets according to how easily they can be turned into cash, either by their sale or by serving as collateral for external financing. Broad liquidity services are valued because they minimize the exposure of households and firms to what I call the external finance premium. That premium is a consequence of imperfect information,

[76] "Monetary Policy in a Low Inflation Environment," *Journal of Money, Credit, and Banking*, November 2000.
[77] The Fed did not have authority to pay interest on reserves until 2008.

costly enforcement, and costly monitoring of loan contracts that create a wedge between the cost of funds raised externally and those generated internally. The existence of an external finance premium gives rise to a demand for broadly liquid assets that over time has been referred to in the profession as "precautionary savings," "a liquid buffer stock," or "self-insurance." Broad monetary instruments include bank deposits, money market mutual fund shares, and short-term government securities. These could be used to meet spending needs in excess of current income—in other words, to protect households and firms from having to go to banks or credit markets to borrow and thus pay the external finance premium.

Quantitative monetary policy at the zero bound must expand broad liquidity in order to be stimulative because stimulus from narrow liquidity is no longer available. Open market purchases of short-term government securities, the usual vehicle for an expansive monetary policy, would create monetary base by withdrawing from the system an equal value of short-term government securities. At zero interest, the liquidity services provided by base money and short-term securities would be roughly equivalent. So, if the central bank operates in a "business as usual" mode that would not increase broad liquidity in the economy. Other methods of operations must be employed.

There are three avenues that could be pursued to increase broad liquidity by expanding the Federal Reserve's balance sheet. One would be to buy from the public relatively illiquid assets such as long-term government bonds, which would provide the public with base money that would then be deposited in banks.[[78]] The banking system would expand, deposits would grow, and the banks would hold reserves against these additional deposits. It's important to understand that even if banks do not use these reserves to expand lending—and thus there is no secondary expansion of bank deposits—the Fed has increased broad monetary liquidity in the economy as a result of its purchase of relatively illiquid long-term bonds on the open market. Alternatively, the Fed could buy assets other than long-term government bonds— anything one can imagine that is relatively illiquid—and in that way also increase broad liquidity. The third way would be to monetize a government budget deficit. That would involve the government's issuing new short-term securities, say, which the Fed would buy. We would thereby be providing the government with monetary base, which in turn it would transfer to the public through a tax cut or in some other way. The funds placed in the hands of the public would be deposited in the banking system and deposits would increase, as would broad liquidity.

I now discuss the channels of monetary transmission by which quantitative policy might be expected to work. The two components of the transmission mechanism are the portfolio rebalancing channel and the credit channel. I will discuss those two channels sequentially, though you will see in a minute that to a large extent they are intertwined. By expanding broad liquidity in the economy the Federal Reserve reduces what I'm going to call the "marginal implicit broad liquidity services yield on monetary assets." The implicit marginal liquidity yield falls because a greater abundance of broad liquidity reduces the exposure of households and firms to the external finance premium. The

[78] Alternatively, the funds could be used to repay bank loans—offsetting a tightening of bank credit, reducing the finance premium on bank loans, or shifting bank credit to borrowers more in need.

portfolio rebalancing channel operates this way: After an injection of broad liquidity that drives down its implicit yield, people will feel compelled to hold assets that are less liquid but have a higher explicit rate of return. Portfolio balance would require a similar fall in the explicit yield on nonmonetary assets. Equilibrium prices of nonmonetary assets would be bid up to restore the required return differential.

Higher asset prices raise desired consumption out of current income. And higher asset prices relative to their cost of production would revive investment. The increased investment would raise employment, and higher utilization rates and profits would raise asset prices further. That is the essence of the portfolio rebalancing channel.

Let me talk for a minute about the credit channel. Because asset prices are higher, collateral values would be higher, net worth would be higher, and bank capital would be higher. As a result of the higher valuations available to back loans, the external finance premium would come down. Credit spreads would narrow, bank lending would revive, and spending would rise as the cost of borrowing against future income prospects falls. Those developments would occur along with the portfolio rebalancing channel, but I call them the credit channel because they are distinct in that they operate in the credit markets.

I want to note two implementation problems that I think would be hard to overcome. Even if the transmission mechanism outlined above works well otherwise, these two problems would hinder making the broad liquidity channels operative. Injections of monetary base can provide an impulse to get the recovery going, but for the recovery to be self-sustaining the public must be confident that base money will be expanded by as much and for as long as needed. That is, monetary policy must be supportive until the economy expands enough to support asset prices on its own. To acquire such credibility, the central bank must overcome the perception that it is excessively concerned about the inflationary risk of potentially very high growth in the monetary base. The monetary authority must be prepared to overshoot—perhaps by a wide margin—base money that will be demanded at stable prices after the economy recovers.

There is a second related, but distinct, implementation problem that would make gaining credibility for quantitative policy difficult. Ordinarily, relatively small changes in bank reserves suffice to support interest rate policy. We hardly have to move the System's balance sheet at all to support even large changes in the intended federal funds rate. At the zero bound, however, policy will have to exert its effect through broad liquidity rather than very narrow reserves liquidity. What we're talking about is operating on a monetary aggregate like M3—which is roughly around 8 trillion dollars—plus the stock of short-term Treasury securities, which involves another $1 to $2 trillion. The order of magnitude of that aggregate is about that of GDP. That will require large-scale injections of monetary base, substantially increasing the size of the Federal Reserve's balance sheet, I believe, in order to have the desired effect through the two broad liquidity channels of monetary transmission.

> If all this is true, the Federal Reserve will need more fiscal support for quantitative policy at the zero bound than we usually are granted by the fiscal authorities. For one, there might not be enough long-term bonds to buy in order to expand the monetary base. Of course, we could buy other assets. But either way the Federal Reserve would be exposed to capital losses that might leave it with insufficient assets to reverse the huge expansion of its balance sheet that is being contemplated. In other words, to be willing to use quantitative monetary policy at the zero bound, the central bank must be able to inject large quantities of base money into the economy and be confident that it will have the assets to drain this money after the economy has recovered. In particular, we'd need to be able to drain money that threatens to become inflationary, or we would be reluctant to embark on this process in the first place.[[79]]
>
> The fiscal authorities could come into the process in a number of ways. They could promise to transfer to us enough assets—in effect to recapitalize the central bank if necessary—to allow us to drain the amount of base money that needs to be withdrawn from the economy. Alternatively, the fiscal authorities could agree to run a budget deficit at the central bank's request to help us inject broad liquidity into the economy. The central bank could monetize short-term debt issued to finance the deficit and then withdraw excess base money later by selling that debt to the public. Quantitative monetary policy actions at the zero bound could result in a significant increase in government debt in the hands of the public when this process is over. The fiscal authorities might be unwilling to allow the public debt to expand at the discretion of the central bank. Yet the central bank might be unwilling to pursue an aggressive expansion of its balance sheet without a commitment from the fiscal authorities to support monetary policy fully. A prearranged agreement could enable quantitative policy to work credibly, flexibly, and effectively—at least the way this story goes…[[80]]

The author's presentation on monetary policy at the zero interest bound provoked a number of comments and questions. Greenspan made the initial comments and asked the first question

> I'm a little curious to get from the three of you a sense of how robust you believe the results of your conclusions are. For one, you're operating generally outside the scope for which the data are fitted in your models, and of necessity there's a linearity that is implicit in the structure of your models. Very serious questions arise as to whether in fact, as you approach some of these bounds, linearity is the appropriate presumption regarding how economies function. Very specifically, one issue that Marvin raises is that…[t]here may in fact be a discontinuity at some point, in which case we may build up a significant amount of inflationary tinder in a deflationary environment, nothing happens for a time, but then the tinder ignites in a way that induces a very dramatic reversal from deflation to inflation. That creates all sorts of instabilities…To a certain extent, Marvin's results are almost an accounting system. I believe you're merely describing the

[79] Since authorized to pay interest on reserves in 2008, the Fed can raise interest rates against inflation by paying interest on reserves without first selling assets or draining reserves. Goodfriend (2011).

[80] In order to be fully flexible against either inflation or deflation at the zero interest bound, the Fed should enlarge its surplus capital with the help of the fiscal authorities to guarantee its financial independence to raise interest rates against inflation by paying interest on reserves, whatever the size of its balance sheet. Goodfriend (2011).

mechanisms by which we can change the monetary base, Marvin, and those are essentially the result of our institutional structure. We could go ahead as a central bank and just print money and buy assets—we could buy baseball teams for all we need—and we can generate as much currency as we want. I'm curious to get your impression not of what the standard deviation of your simulations off the existing structure is but what the standard deviation of your models is from reality.[81][Laughter]

Goodfriend replied "In a way, my discussion had an advantage in that I didn't have a model." [Laughter] Greenspan replied "You have double-entry bookkeeping, which is better than some of the accounting practices we've heard about recently! [Laughter] Goodfriend continued

> I will say that the discontinuity—though I didn't use that word—worried me. There were a number of possible discontinuities that worried me, such as banking system distress or fiscal interventions—things that don't usually happen but that occur at the zero bound. That's why I was focusing on mechanisms that could get money into and out of the system. I was thinking about how we would position ourselves against this kind of unleashing of inflation—that's the term I used—rather than "punting" on where that glass ceiling would be. I wanted to think about designing a system that would be robust against it. That is more or less what I was doing."[82]

Parry asked Goodfriend to relate this to Japan. Goodfriend answered

> Yes, Japan has gone so far down the road that, you're right, it's very hard to imagine that it could dig itself out with quantitative policy. But I'll say this…[I]f the Bank of Japan were going to engage in quantitative policy—if it were willing to expand the size of its balance sheet by as much as I believe would be necessary to be effective—I believe it would need to get some prior commitment from the fiscal authorities that it would be able to pull the money out later. As you know, the Bank of Japan was made independent from the Ministry of Finance just two or three years ago. I think it's hard for them to get back together and cooperate when they've spent a good deal of the last fifteen years trying to get a divorce. So that's one problem. As a central banker, I have some sympathy with the BOJ situation on that score.
>
> The next issue is the banking situation. Much of the problem in Japan is not a central banking problem; it's a fiscal bank regulation problem. If I were a central banker in Japan, I would be willing to pursue quantitative policy aggressively if I could get two commitments from the Ministry of Finance: one, for the fiscal authorities to support monetary policy along the lines of my earlier discussion and, two, for the fiscal authorities to deal with the problems in the banking system.
>
> To get to your last point, it's true that as the deflation gathers speed, it's harder to get out of this jam. But the mechanism I was talking about—the margin upon which quantitative policy would operate—would still be there. The implicit shadow broad liquidity services yield would be still there. In fact, it may be bigger in Japan than it has been for a long

[81] Transcripts, January 29-30, 2002, pp. 22-24.
[82] Transcripts, January 29-30, 2002, p. 26.

> time because the value of having liquidity is much higher now than previously. This is the case, in turn, because the external finance premium is elevated as a consequence of the fact that asset valuations are depressed and loans are more costly to monitor and enforce. Therefore, I believe that there would be a substantial shadow margin for Japanese monetary policy to exploit if the BOJ were to do quantitative policy in the way I was suggesting.[83]

A few minutes later, Poole observed

> I want to note first of all, without going into any detail about the lessons we may or may not have learned from Japan that the relevance of the Japanese experience for so-called quantitative policy is clear because it hasn't been tried. Japanese money growth, as I understand it, never exceeded 4 percent in the decade, and for most of the 1990s it was a good bit less than 4 percent. And in the 1980s it was more like 8 percent or close to it. So what Japan did was to allow money growth to sag as the country went into a period of ongoing recession and the Bank of Japan never attempted to use quantitative policy to get out. So we don't know from the Japanese experience whether that is going to work or not. In fact, the Japanese experience would be consistent with the traditional Chicago view, which says that the economy can fall into a depression if money growth is allowed to be too low for too long.[84]

Jerry Jordan, President of the Federal Reserve Bank of Cleveland, observed that quantitative policy on the scale contemplated would depreciate a nation's foreign exchange rate very significantly. He suggested, in effect, that Japan's unwillingness to allow the yen to depreciate sufficiently would have blocked the pursuit of quantitative policy of the scale necessary to be truly effective against deflation.

Broaddus made the last comment and asked the last question

> The key element that works in Marvin's mechanism is the broad liquidity premium and yield and the ability to move that. So my question is this: Is it necessarily the case that the mechanism can't work incrementally at the zero bound? In other words, because of the nature of the mechanism that is at work, it seems to me that we can't rule out the possibility that we wouldn't have to pump in a lot of money and then run the risk of a big resurgence in inflation. Is that right?[85]

Goodfriend answered

> Yes, I think that's true. If this policy were known to be effective and all the pieces were in place to make it work, it's probably true that you could get by with a much smaller increase in the monetary base. That's because once people saw that it was going to work, they would be more optimistic about the future. As with all these models, credibility is

[83] Transcripts, January 29-30, 2002, pp. 27-28.
[84] Transcripts, January 29-30, 2002, pp. 32-3.
[85] Transcript, January 29-30, 2002, p. 42.

everything. If the policy is really credible, asset prices would begin to rise, and then the economy would start to recover. I think that would be true.[86]

9. Conclusion

The foregoing account of FOMC deliberations makes clear that the Committee depends heavily on the Chairman to maximize its potential. The Chairman must encourage a diversity of views and then forge a consensus course of action from that diversity. Pressed by events the Committee must act decisively; yet it must explore uncharted contingencies and new ideas in an unhurried way.

Under pressure from Congress, Greenspan led the Committee decisively in 1994 to improve its transparency and communication policies and Greenspan steered preemptive interest rate policy successfully. Greenspan encouraged unhurried consideration of problems less pressing. Treasuries did not disappear, but in the process of studying alternative assets to buy, the Committee conceived of credit programs that proved useful during the recent turmoil, and revived its appreciation for “Treasuries only.” Greenspan allowed ample time for the consideration of inflation targeting, although he chose not to expedite its adoption. He invited the Committee to consider monetary policy at the zero interest bound, though most then thought it was a purely academic exercise. Greenspan’s ambivalence on relations with the Treasury enriched the debates on lending to Mexico and intervening in foreign exchange markets. Ultimately, Greenspan worked to end the Fed’s foreign exchange interventions.

Above all, Greenspan created a culture of equality in the Committee based upon a respect for economic analysis. Economic reasoning is a great equalizer. By encouraging debate in terms of economic reasoning, Greenspan enabled the Richmond Fed to maximize its contribution to the FOMC.

[86] Transcript, January 29-30, 2002, p. 42.

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