# Federal Reserve Board Oral History Project

Interview with

## Stephen H. Axilrod

Former Staff Director for Monetary and Financial Policy

Date: October 22, 2008

Location: New York, New York

Interviewers: David H. Small and Cynthia Rotruck Carter

## Federal Reserve Board Oral History Project

In connection with the centennial anniversary of the Federal Reserve in 2013, the Board undertook an oral history project to collect personal recollections of a range of former Governors and senior staff members, including their background and education before working at the Board; important economic, monetary policy, and regulatory developments during their careers; and impressions of the institution's culture.

Following the interview, each participant was given the opportunity to edit and revise the transcript. In some cases, the Board staff also removed confidential FOMC and Board material in accordance with records retention and disposition schedules covering FOMC and Board records that were approved by the National Archives and Records Administration.

Note that the views of the participants and interviewers are their own and are not in any way approved or endorsed by the Board of Governors of the Federal Reserve System. Because the conversations are based on personal recollections, they may include misstatements and errors.

## Contents

Educational Background .......... 1

Early Years at the Board: The Division of International Finance and the Flow of Funds Section 5

The Banking Section, Writing *Purposes and Functions* and the Board's Role in Bank Regulation, and the Creation of the Bluebook .......... 7

Monetary Policy and Economic Forecasts .......... 13

The Great Inflation .......... 16

Chairman Martin: Advisers and Political Pressure .......... 19

The Burns Chairmanship and Inflation during the Burns/Miller Era .......... 21

Fed Chairman Volcker: Early Acquaintance .......... 30

1979 New Operating Procedures .......... 32

Financial Fragility and Crises .......... 43

MR. SMALL. Today is October 22, 2008. I'm David H. Small from the FOMC (Federal Open Market Committee) Secretariat in the Board's Division of Monetary Affairs. I am joined by Cynthia Rotruck Carter from the Board's Division of Bank Supervision and Regulation. We are interviewing Stephen H. Axilrod, who was the Staff Director for Monetary and Financial Policy at the Board for many years, culminating a career of 34 years at the Board from 1952 to 1986.[1] Let's begin with your educational background.

**Educational Background**

MR. AXILROD. My education began at PS 99 in Kew Gardens, New York. With the stock market crash of 1929, my father lost all his money by 1932, but he was never unemployed, and he was proud of that. Early in the Great Depression, he quickly got a job with a securities firm taking orders from their few surviving customers. In 1937, we all shoved off to Texas where my father initially went to work as sales manager for a small manufacturing concern in Dallas and later, with partners, established his own.

I spent my junior high and high school years in Highland Park Junior High and Highland Park Senior High. My first year and a half at college was at Southern Methodist University (SMU), which was across the street from us. We lived on Daniels Avenue. The year and a half at SMU included a summer session. I made good grades at SMU, but I didn't like to study. One day my Shakespeare professor came to me in the hall and said, "Mr. Axilrod, go east to college." [Laughter]

Later, I went into the service. My overseas duty, of all places, was in Bermuda. I was in the Seabees. After the war, on the way back to be discharged at the Naval Air Station in

[1] Stephen H. Axilrod (2011) is the author of *Inside the Fed: Monetary Policy and Its Management, Martin through Greenspan to Bernanke*, revised ed. (Cambridge, Mass.: MIT Press).

Norman, Oklahoma, I stopped off at Harvard and took an admissions exam just to take it. Why not? I joke with people by saying it was a spelling test. I don't remember what else was included. When I got home, I reenrolled at SMU. Then, a few days before I was supposed to start at SMU, I got a letter from Harvard that said, "Come up here." I spent two years at Harvard from 1946 to 1948. I got all sorts of extra credit for service school, boot camp, and things like that.

MR. SMALL. In what subject did you major?

MR. AXILROD. I majored in economics. Then I wanted to combine economics and politics, so I applied to the London School of Economics for graduate work. I was accepted to be a student of the famous British economist Lionel C. Robbins; he was my adviser. Also, I would have taken courses from Harold J. Laski, a well-known British political theorist in those days, but my father had a heart attack, so I decided to stay in the United States. I didn't want to go into his business, so instead I went to the University of Chicago. It had a planning program that combined economics, physical planning, and sociology. That appealed to me. The program was then headed by Rexford G. "Rex" Tugwell. He had served in Franklin Delano Roosevelt's Administration and was one of the chief contributors to FDR's New Deal. After two years at the University of Chicago, I received my master's degree. Then, with my new wife, I went to Puerto Rico for a year to work at its planning board.

After that experience, I said to myself, "I don't know enough economics." Planning didn't teach you substantive skills as much as I wanted. So I went back to Chicago and did a year's worth of economics to finish, because I had already taken some economics while in planning. Then I took the three exams required to obtain a Ph.D. if you passed them at that level. One of the exams was on planning, and the others were on money and banking and on economic theory. I had no problem, in part because I studied my wife's undergraduate notes from a class that she took from Milton Friedman. My graduate money and banking class was not so good; it was taught then by an older professor named [Lloyd] Mints. I passed the money exam easily at the Ph.D. level with my wife's notes. I took the exam on theory after I went to work at the Fed. They sent it to me. I studied actively over one weekend and passed that exam too. But I never bothered with writing a dissertation, because the Board was such a nice place to work and I was promoted every year. That seemed like a good thing to keep going.

MS. CARTER. Did you go to the Board directly?

MR. AXILROD. Yes—after I came back from Puerto Rico and then finished all the work at the University of Chicago, except this last little thing on the theory prelim, I went job hunting. It wasn't easy at the University of Chicago to find people who knew people working at places in the government where you would want to apply for a job.

Milton Friedman was becoming well known at that point. The best professor the University of Chicago had in economics at the time, in my opinion, was an older man named Frank H. Knight. He seemed old to me then, but I think he was 10 to 15 years younger than I am now. He taught an interesting theory course and was absolutely brilliant. I took it in the summer. The guy I liked best was Lloyd Metzler, who taught international trade. Unfortunately, he got a brain tumor, and I had him toward the end of his career. He was young, and he knew people in Washington.

I went to the New York Federal Reserve Bank and talked to someone whose name I can't remember right now. Then I went to the Board of Governors of the Federal Reserve System in Washington, the Department of Agriculture, and the Department of Interior because of my planning background. Interior had a planning office that was interesting, but I thought the election was going to go the wrong way for planning.

MR. SMALL. This was 1952?

MR. AXILROD. Yes, just before Dwight D. Eisenhower's election. And it did go the wrong way for planning. They threw this little office out.

Anyhow, the Board was the first place to offer me a job. And I said to myself that you don't look a gift horse in the mouth when you're that young and newly married. We had been married two years or so. So off I went to the Board, and I started in the Division of International Finance, where I spent four or five years. The director of the International Division was Arthur W. Marget. He was famous mainly because he wrote two volumes against John M. Keynes, which was not the way to become famous in a positive way in the 1950s. [Laughter]

At Harvard, I had written my undergraduate thesis under Alvin H. Hansen, who was then the most well-known American Keynesian. In the last half of my senior year, I was taking a thesis course. Hansen had been my academic adviser for two years. He was the person who supervised the course. About halfway through, I got a call from his secretary. She said, "Professor Hansen would like to see the thesis or the draft." I said, "Oh, I didn't know he was interested." I trotted off and gave him the paper. He gave me a very good grade on what I had written. I finished it, and it helped me get pretty good honors at graduation.

In any event, I had absorbed Keynesianism, but when you went to Chicago, you had to absorb something else in economics to pass your prelim. One of the things I used to say in speeches is that, for the honors exams at Harvard, the answer to the particular question was: If there were economic troubles, you tried creating money by lowering interest rates, but there's a limit to how much you can lower the interest rates, because there's a liquidity trap. At some level of low interest rates, no one wants more money, and you can't lower interest rates anymore. But, for the Ph.D. exam for money at the University of Chicago, it was obvious that was not a satisfactory answer. You had to say that there's no liquidity trap, because there's a "Pigou Effect," which meant that more money represents more wealth, and that itself will affect spending. People didn't think about excess reserves so much in those days. Anyhow, that was the answer you had to give then.

This training at both Harvard and the University of Chicago helped me to see different sides of things. The real question is, which is right? It gets to be empirical. Nowadays, in answering such questions, you get to say something about Alan Greenspan and the Japanese and about the liquidity traps. Greenspan thought the United States could get into a liquidity trap, but we didn't in his tenure; however, the Japanese truly were in one in the 1990s and couldn't get out of it mainly because banks held on to excess reserves at near-zero overnight money market rates.

**Early Years at the Board: The Division of International Finance and the Flow of Funds Section**

MR. SMALL. When you arrived at the Board in 1952, the accord between the Federal Reserve and the Treasury had just been reached. What was your sense of the role of the Fed?

MR. AXILROD. I was in the international area for around four or five years. The Division of International Finance had absolutely no importance at the Board then. I don't believe the director of the International Division was even on the staff of the FOMC. He might have attended the meetings. The only person in the International Division who had close contact with Chairman William McChesney "Bill" Martin was me. That was because I had a carpool mate who played tennis with the Chairman and got me involved. [Laughter] After about a year, I was playing tennis maybe three or four times a week with Bill Martin and the then Vice Chair, J. Louis Robertson. Those games were highly pleasurable. After four years or so, I was in the

Board members corridor wearing a suit and tie and Martin happened to walk out of his office as I went by. He looked and looked again. This was the first time he saw me in mufti (ordinary clothes) and didn't quickly recognize me. He'd only seen me in tennis shorts.

MS. CARTER. Where were the tennis courts back then?

MR. AXILROD. In the middle of where the new Fed building is—new to me. There was a huge parking lot, and in the middle of that parking lot were two tennis courts.

MS. CARTER. Presumably not where they are now.

MR. AXILROD. No, no. When the Martin building was built, those two courts becameone, in back of the new building. But that new court turned out to be on public parkland, so playing on that court got complicated. You couldn't just reserve it for the Board employees only.

Anyway, I saw the Board from a very different perspective in those first four or five years. I didn't really give any genuine thought to the Board's principal role, which was monetary policy. In the Division of International Finance, you were supposed to write articles and get them published. My specialty was on the capital account and the U.S. balance of payments. I got the first four articles I wrote published by the *Review of Economics and Statistics* at Harvard.

MR. SMALL. We were still under the Bretton Woods system. The dollar was still fairly stable then, and the real crisis over the dollar hadn't hit yet.

MR. AXILROD. Well, I came in with the preconception that the Fed had botched things in the 1930s. That was clear, coming from the University of Chicago. My wife had written her master's thesis on the 1937–38 recession caused by the Fed. We got married nonetheless, but we had big arguments over her thesis draft, because I came at it from a different perspective. I thought the absence of an expansionary fiscal policy was mucking things up. I knew the Fed had done wrong during the recession. Part of that was because of the legal requirements behind currency that existed at the time. Those requirements were outdated and, in my mind, limited any expansion. But I thought the basic problem was fiscal policy. The academic profession in those days didn't believe in budget deficits, so no one believed you could spend your way out. That's crazy.

Those were some of my priors as I came in, but I had no way of thinking about them in the international division, so I made efforts to get out of there. In the end, I did get out by getting a job in the Flow of Funds Section of the domestic research division. Again, I wasn't really involved in monetary policy or thinking about it. My job was to make something analytic out of the flow of funds, which was a big compilation of data. The truth being told, it ended up not being useful for anything in particular. But I made an analysis of savings flowing among sectors and how they flowed to investment. It kind of worked, and I used it for something.

Anyhow, it got me better known. So when an opening came in the Banking Section, I said, "I'd better go ahead and apply to this one." So I got out of flow of funds and into banking.

**The Banking Section, Writing *Purposes and Functions* and the Board's Role in Bank Regulation, and the Creation of the Bluebook**

MR. SMALL. Was this around 1960?

MR. AXILROD. It might have been somewhere around 1958. I don't know whether I was going to FOMC meetings yet. I think somewhere in the early 1960s I started going. I got into the Banking Section. I was maybe a grade 13 or 14. I had been promoted. I started at the lowest professional grade, the GS-7. So if I got a promotion every year—7, 9, 11, 12, 13—then I would have been a grade 14 in 1956, something like that. That might have been four or five years.

At one point, Ralph A. Young, who was then head of the Division of International Finance, came and asked me to help him write *Purposes and Functions.*[2] I learned how the Board people thought. The first edition of *Purposes and Functions* published after the war was, I think, written by C. Richard "Dick" Youngdahl. He went to Wall Street and became head of a very good dealer firm, then Aubrey G. Langston and Company. Dick was genuinely smart, and he was a great Ping-Pong player. He and I played for the Board Ping-Pong championship in my second year, and I won because I was younger. I don't know why, but Dick swore off of Ping-Pong. [Laughter] He said, "I'm never going to play Ping-Pong again," and he didn't. Instead, he became a very rich man. He left and went to run Aubrey G. Langston and Company.

The edition of *Purposes and Functions* that I helped transform—the first after the war, I believe—stressed something called the "lock-in effect." That was the chief method by which monetary policy was seen to work. It meant that if you are holding a government security and the Board tightens and the price of the government security drops, then you're locked in, you don't want to sell it. Now, if you believe that, you believe a lot of things, but that was the theory. That made no sense to me. The person who does the writing gets some input, so we got rid of that and inserted a much more ordinary sense of how monetary policy works. I don't remember any theory in there. I don't think that money supply was in then, or not very much. There was probably more emphasis on bank credit, which was big in those days because of the New York Fed people. I worked with Ralph on that. Thereafter, I was stuck with *Purposes and Functions* yea unto the end of my career. [Laughter]

MR. SMALL. You were stuck?

[2] *The Federal Reserve System: Purposes and Functions* provides an overview of the structure, responsibilities, and operations of the Federal Reserve System. It is published periodically by the Board of Governors of the Federal Reserve System.

MR. AXILROD. Well, finally I was supervising it. I wrote the introduction and read the crucial parts. Over time, *Purposes and Functions* changed in important ways. Somewhere along the way of producing the various editions, someone said, “Now, you’ve got to put in there why bank regulation is so important for monetary policy.” And now that fat is in the fire.

I pondered this, and I could not really think of why it was so important that the Board have a handle on bank regulation. I remember thinking back to my undergraduate thesis on the economic problems of the Missouri Valley. I wanted to make a Missouri Valley Authority, like a TVA (Tennessee Valley Authority). I asked a postdoctoral student who was a resident tutor at Winthrop House, the house I lived in. I knew him way back. He was much older, but he had been from SMU. I went to him and I said, “How do I say it’s good to have a Missouri Valley Authority instead of lots of different things and all this?” He said, “The only way you do it is, you pound on the table and assert it.” [Laughter] I thought that was the answer to writing in *Purposes and Functions* why the Federal Reserve had to be in banking regulation. I thought that, if you’re into regulation, you’ll learn and know about all those issues and conditions, and it’ll make conducting monetary policy easier. It was not extremely convincing to me then, but it’s in there, and it sounds right. I don’t know how they’ve written it now, when it has obviously become very importantly connected to monetary policy.

Subsequently, after I retired as vice chairman at Nikko Securities International, I did a lot of foreign consulting under various auspices with emerging central banks. I used to suggest that bank regulation be part of the central bank, for several reasons. First, many of these central banks couldn’t really have an independent monetary policy. The best thing they could do was keep a banking system generally safe and sound so people would give them capital at reasonable rates and financial conditions would be sound enough to help, not retard, the economy. Second, I had the feeling that their staff consisted of the better and least politicized people in the country. All central banks in emerging countries are quite politicized, but the central banks are often the least politicized of all the parts of government. So central banks may be a safer place to put regulation. It's hard to argue, but it's arguable, that the Board of Governors of the Fed will have better people for regulation than the Comptroller of the Currency. Would staff at the state authorities be better? Who knows? I wouldn't think so, but you can't say that. So the argument that the Fed should be involved in bank regulation is not a simple argument to make. On the plus side, the Board is independent, not so much under direct political influence from the Administration or members of the Congress (possibly with the exception of members of the House and Senate banking committees). And as recent experience has shown, the Board should be cognizant of and, in my view, actively use regulatory policy as a stabilizing tool to supplement monetary policy. In various countries that are developed, like some in Europe, it's handled differently, not necessarily all in one institution.

You could not argue now, I think, that the Board has distinguished itself in bank regulation, looking at what's happened recently. I tend to think that isn't because of the nature of the supervisory staff, or the fact that bad supervisors were brought in, or that the Board didn't pay enough to attract good staff. I think it has more to do with the nature of the leadership. People who supervise work in these areas—or any other areas, for that matter—are very sensitive to what the leadership is going to think of them. If the leadership is interpreted as wanting to give more leeway to banks and other institutions rather than less leeway within a particular regulation, they'll give more if they want to get promotions. I think it's a leadership issue. And I don't think the Board as a group is any less sensitive to the atmosphere of the country than is any other group—though it remains my perhaps biased opinion that the Fed System performs as, or more, effectively than other agencies in the regulatory area.

There are specific instances where it may be useful to have an operational insight into bank policies. If the Fed is in a period during which it is debating how much to tighten or ease policy, there is value in knowing how the banking system will respond. It's not just all in the total reserves you put in or take out of the market. You can control that.

But once the reserves are in the market—this is the obvious situation—are the banks going to use them, or are they going to hold them as excess [reserves]? Are they just simply going to refuse to lend them [out]? In that case, there might be some use for a regulator in the Board knowing very directly and clearly what the situation is in major banks or in the sum of smaller banks or something like that. It might also have some influence on thinking about capital requirements at banks. Should they be lowered if banks are holding back on lending, or should they be raised if banks are lending too easily and, say, abetting the creation of financial bubbles? Now, the Board can get that information from whatever independent regulator there is even if they don't have any authority. But the channels of communication may not be quick, and there's a lot to be said for hands-on, in some sense of the word. That's how I wrote it up in *Purposes and Functions.* Now, in light of the current crisis and its genesis, I see a lot to be said for the Board having authority to consider coordinate action between regulatory and monetary policy.

MR. SMALL. What kind of work did you do in the Banking Section?

MR. AXILROD. I don't know exactly what I did. I was number two in the section. All I dimly remember is trying to get the chief of the section, James B. "Jim" Eckert, to put out a seasonally adjusted business loan series, which I thought was easy to construct. I could do it myself out of a book on statistics. In those days, there were no computers.

Another thing that happened was that one day—I guess that was about the time when I was working with Ralph—Dan Brill came into the office and said, "Take over for Edward R. 'Ed' Fry." Ed used to prepare charts on reserves and required reserves, aggregate reserves. I don't remember the money supply numbers being in them, but perhaps they were. "Take over for Ed on his charts. Make something analytic for policy out of them." These were charts Ed would prepare for every FOMC meeting. Woodlief "Woody" Thomas, who was then the main person on the monetary side, would distribute them. I have no idea whether he'd talk about them, since I didn't attend FOMC meetings at the time. There was nothing analytic in there.

That was the start of the Bluebook. One of the principal originating purposes of the Bluebook was to fence in the manager of the Trading Desk at the New York Federal Reserve Bank, because the FOMC made a vague decision such as: Let's make things "a little tighter" or "easier" or keep them the same. "Tighter" or "easier" encompassed various money market conditions (including such things as dealer loan rates, the amount of borrowing by big banks from the country banks) that influenced the direction of rates in the money market. But such a vaguely specified decision left a lot of leeway to the manager.

The federal funds rate wasn't important at that point. I think, though, it was close to the time when the federal funds rate broke through the discount rate. For many years, the discount rate was a cap on the funds rate. Ralph Leach, who used to be at the Board as chief of the Government Finance Section and—I think—went to Morgan as treasurer, said to himself one day while at that bank, "Why?" So he bid the funds rate above the discount rate, and that was the end of the discount rate being the cap on the fed funds rate. I suppose he checked with his boss.

A couple of other things are in the Bluebook—for instance, the Treasury bill rate, if I haven't mentioned it. The manager of the open market account would come into the FOMC meeting and, for example, would say that things looked a little tighter in the markets. Then he might add, "But I couldn't do anything about it, because big banks are borrowing from smaller banks." And so that borrowing rate—the federal funds rate in today's parlance—went up, which influenced the rates on other instruments financed in that market, such as the Treasury bill.

So the Bluebook was an idea to put specifics in and define what the Committee specifically means by "money market conditions." I think the first Bluebook didn't have any policy in it, because this was an "even keel" period. There would be a big quarterly Treasury financing, so there were no policy alternatives because, under "even keel," policy would hold steady during such a period. Then there came to be more discussion of the money supply. And the Bluebook evolved from giving the money supply a more primary role into what it is now, which probably minimizes money supply, I assume. I haven't really looked at one recently.

I would guess the Bluebook now would give a more primary role to real GDP (gross domestic product), inflation, and inflation expectations. And policy is made off projections of the economy, which gives an enormous amount of power to the staff, rather more than I ever had. It's enormous.

**Monetary Policy and Economic Forecasts**

MR. SMALL. At that time, was there formal forecasting?

MR. AXILROD. Yes, there was. Dan Brill made the first formal forecast. It was a revolutionary development—I can't give you the exact year. When Woody gave briefings to the FOMC, he did not forecast. He was telling the Committee how the economy looked. The economy was weakening, strengthening, or changing little, but no forecast was given except what was implicit. I guess he could use adjectives or adverbs: "strengthening a lot," "a little," and all this kind of stuff. Dan had been chief of the Flow of Funds Section at one point, followed by Stan Sigel. Then Dan became head of the Division of Research and Statistics (R&S). The Board was now in the process of making models, originally in concert with the University of Pennsylvania and some other groups; later, we had it to ourselves.

Chairman Martin gave permission to present forecasts. This was big excitement. I was not involved in that. I was always on the policy end. Chuck Partee was the director of R&S. Lyle Gramley and I were associate directors. At that point, we both had the opportunity to brief the FOMC. Lyle's main brief was to work on the chart shows that embodied the forecasts. At that early time, my main brief was to discuss current economic developments, which I tried to put in a policy context. As time went on, that fell by the wayside for me. I got more directly involved in policy and briefed the Committee on the policy alternatives before them. But before then, Dan Brill was presenting chart shows twice a year. I don't remember when the Greenbook had formal projections in it, but the first formal projections would have probably been around then.

MR. SMALL. My guess is, around 1967.

MR. AXILROD. That sounds about right for annual forecasts; there might have been forecasts a quarter or two ahead a bit earlier. Then there came a time when the Congress was going to vote on a tax increase. The Board staff was part of a Quadriad. Arthur "Art" Okun, I think, was on the Council of Economic Advisers at the time. The Quadriad was composed of the Board, the Treasury, the Council of Economic Advisers, and the Budget Bureau, I think. Dan was the representative from the Board staff. Chairman Martin was the member of the Quadriad from the Board. The idea was there would be a tax increase, and there seemed to be something like an agreement that the Fed would vote to ease policy if that occurred.

The Fed staff projection was made independently but, in my memory, at the time was not too different from the Quadriad projection. Then the [1968] tax increase came, which it was feared would weaken a none-too-vigorous economy a bit too much unless the Fed lowered the discount rate. No one at the Reserve Banks wanted the lower discount rate. So Dan Brill went out and persuaded the Minneapolis Federal Reserve Bank—Hugh D. Galusha was the president then—to propose a lower discount rate. The Board has the power to "review and determine" discount rates, but it is obviously better from the viewpoint of market perceptions and Fed solidarity if the Board did not determine them. So there was some urgency to find at least one Reserve Bank board of directors to propose one, and the other boards would then come along. Anyhow, six or eight months later, it all had to be reversed. Rates went back up for a while, because the economy didn't slow down as much as projected. Shortly thereafter, Dan found a job in the private sector, and I think projections weren't thought too well of at that point.

MR. SMALL. I've heard that, early on, when Bill Martin was the Fed Chairman, projections were not allowed.

MR. AXILROD. They weren't permitted early in his tenure. I do remember Dan being excited that the staff could now present projections to the FOMC, but I don't remember specifically when. I was not intimately involved in that at all. I think he might have even tried to put flow of funds material along with the gross national product (now GDP) and related nonfinancial information, but that never worked out well in practice. That was just too complex, unneeded.

As I noted in my book, Martin did modernize the economic work at the Board in the sense that the macroeconometric model was developed and projections began. As a sidelight, I might add that at one of the FOMC meetings in this period, Martin described his adventures with LBJ on the ranch when LBJ took him for a ride on his Jeep in the roughest part of the ranch at some rapid rate of speed. Obviously, it was a bit of intimidation, but the Fed continued its very slow tightening, when inflation was picking up from the 1 to 2 percent per year range to 4 percent. I think, in the last year of Martin's tenure, the rate was 6 percent or something like that. So Martin may have regretted modernizing the Fed economics more than his ride in this Jeep at the LBJ ranch. But forecasting then became the way things were approached.

I have tried to come to a judgment on what forecasting did to monetary policy. It was very hard to conclude anything. The only time I can think of where the forecast of the economy didn't have very much importance was the years 1979 to 1982 under Volcker. We focused on nonborrowed reserves, because we had one objective: Get inflation down. When I was doing the Bluebook in that period, I cared very little about what the forecast was. Well, that's a bit of an overstatement, since the projected state of the economy would affect my interest [rate] forecasts, given the money supply. And I don't think the FOMC cared quite so much about the forecast as it usually did at that point in time.

**The Great Inflation**

MR. SMALL. What are your views of why inflation took off during the 1960s? Did the Fed have the wrong model?

MR. AXILROD. It was the last four years of Martin's regime, and it was the Vietnam War, so defense spending went up. I was chief of the Government Finance Section early in that period. I know for sure that we could not get good defense spending estimates from the Budget

Bureau or the Defense Department that probably had them. You can't just, on your hunch that the figures on spending were being repressed, raise your government deficit forecast and its effect on interest rates. They had this model, and what do they do?

MR. SMALL. Add factors?

MR. AXILROD. Add factors. They are used to raise or lower the curve implicit in the model's forecast. Well, that wasn't so quickly done in those days, and you do need some objective evidence, like a sustained record of consistent misses in forecasts. I don't think you can easily argue it on qualitative hunches. So I think their GDP forecast—I don't have the evidence—was probably weaker than if we had had good defense data. But no one could get good defense spending estimates.

If we had had the proper forecast, would the Fed's policy have been more aggressive? I can't quite answer that question, but then the real funds rate was positive, which was a plus. It was in the area of 2 to 3 percent, which is not as it was under Arthur Burns when it was negative or under Alan Greenspan when he was starting into this business of enhancing moral hazard of markets by saying publicly that interest rates were going to stay low for a long period, when the real interest rate was also negative.

So, yes, they did fight inflation under Martin, but I don't think they had an adequate forecast from the staff to show them how bad the situation really was. I'm not sure of that, because I don't have it in my head or any evidence on what the actual forecast was relative to the outcome, which is what one would need. But I know for sure we didn't have adequate defense spending figures. They were revised all the time. Maybe we should have just done it, but it's hard to do. So that, I think, is the fundamental reason.

But also, all through the 1970s, there were Regulation Q ceilings on interest rates offered by depository institutions. The slowest boat among the institutions was the S&Ls, because of fixed-rate, long-term mortgages. They weren't variable-rate mortgage loans. So you couldn't raise Regulation Q rates readily along with inflation to high levels: That would have driven the S&Ls into bankruptcy in that period.

Back then, many policymakers believed that Regulation Q was a policy instrument. So when you hold it down, you're forcing banks to ration credit. You would thereby put less upward pressure on market interest rates, and you would still get policy restraint. That was a firmly held belief.

MR. SMALL. Disintermediation was a big issue then?

MR. AXILROD. Well, it wasn't occurring much yet, though it was certainly on its way. Interest rates would go up, but you'd get more restraint allegedly at a given level of market rates because banks would ration credit, and nonbank sources of borrowing, especially for smaller borrowers, had not yet developed to the extent they now have. But, of course, the market changed, and that wasn't very useful after a while.

Two former Board employees, then on Wall Street, came to Washington to have lunch with me at the Board. They said, "You are probably the only person down here who will understand this. You can't give up on Regulation Q because the banks can make better judgments about adequacy of borrowers than the market." So that was among the factors that were thought at the time to make bank credit a powerful instrument. Many people at the Board thought that; the New York Fed was the hotbed of such thinking. The emphasis on bank credit was important in Win Riefler's early book on money markets.

The Fed did a half-good job. At least it kept the real interest rates from dropping. Rates were about where they were in the early part of the decade. But demands were stronger, so the real interest rate ought to have been higher, but it wasn't. So the Fed did a half-good job—a much better job than in the 1970s. The only thing I could really operationally think of as a cause is that we did not have adequate defense spending estimates, and our projections of the economy did not show enough strength. But that's just thinking. I don't know for sure.

MR. SMALL. Did you have a sense that the economy was close to potential or full employment?

MR. AXILROD. I don't remember anyone ever thinking of the word "potential," nor do I remember anyone using the term "real interest rate."

MR. SMALL. "Natural rate of unemployment?"

MR. AXILROD. I don't remember exactly when that came in, but I think a real problem was that we didn't think about the real interest rates in the way we should have. It was bad, in my opinion.

**Chairman Martin: Advisers and Political Pressure**

MR. SMALL. Did you know Win Riefler?

MR. AXILROD. Yes, but not well. He was the number one guy when I arrived as a GS-7. I was flattered because, after a few years, some person who was important in R&S then said, "You start, in thinking about policy operations, just where Win Riefler starts in his thinking," which was free reserves. That's because that's all you could affect through open market operations. You can affect either nonborrowed reserves or free reserves. You can't, through market operations, affect anything else insofar as bank reserves are concerned. So I started with what was going on. In any event, it was something like that. I then got from free reserves to the money market conditions.

But, yes, Win was there. I vividly remember meeting him in Ralph Young's office about some subject that Win was there to discuss. Ralph was saying that he didn't want to do what Win was suggesting, and I remember Win saying, "Well, the best defense is to be offensive." [Laughter] But Win was a really nice man.

Win was an adviser to the Chairman. He must have influenced Martin. At one point, Martin brought in a man named Jim something or other from North Carolina—I think Riefler was gone. This guy sent shudders along the spines of people like Ralph Young and whoever was really in power then, because Martin would pay attention to him. He was not a very good economist, but Martin's bringing him in indicated some discontent on the part of the Chairman with what the staff was delivering him. That's all I remember.

Win was thought to be a power, and his book was a guiding light of the modern free-reserves idea, which Win interpreted as influencing bank credit availability mainly through changes in member bank borrowing at the discount window.[3] The New York Fed people were big on that. We at the Board weren't, or at least some of us weren't, and when people said to me, "Bank credit is doing this now," I said, "Yes, but look at the money supply. That's what's causing interest rates to go up." Well, it just depends on your theoretical thinking and your intellectual background, that kind of thing.

MR. SMALL. Do you remember hearing stories of the political pressure on Martin in the late 1960s?

[3] Winfield W. Riefler (1931), *Money Rates and Money Markets in the United States* (New York: Harper & Brothers).

MR. AXILROD. No, all I remember is that story told at the FOMC that I mentioned. I had no real knowledge of how Martin reacted to political pressures. None of it seeped through other than that one story. It was in the later part of his chairmanship that I started going to FOMC meetings.

Once he asked me to go with him to a congressional hearing. That was really unique, because he never took staff. I was just a kid in my early 30s. I can't remember the exact year. It would have been maybe a year or two before he left. On the way over, he said, "You know, if this money supply comes up, you're going to have to answer the question. It's going to become important at some point." But it didn't come up, and I wasn't asked a question. I suppose I would have stumbled through an answer.

Martin was a good Chairman. He convinced the FOMC to keep tightening despite Lyndon Johnson's attempt to scare him to death driving through all these rocks in his ranch in south Texas. Martin was a straightforward guy. And he ran a very good Committee. He was a good tennis player. I learned tennis playing with him and watching him. I didn't play much before that. But, as to political pressures, I know not how they came or to whom he talked.

**The Burns Chairmanship and Inflation during the Burns/Miller Era**

MR. SMALL. In FOMC meetings, did you witness a change from Martin to Burns?

MR. AXILROD. Oh, yes. By then I was number two on the R&S staff. I don't know how you'd count Lyle or me, but I had the office next to Chuck Partee. So we were both number two in different areas.

Yes, that was a distinct change, and that was a distinct change in atmosphere at the Fed. It was another world. Arthur Burns was a gruff academic. He wasn't smooth except when he wanted to be with his bosses or whoever was above him. When Burns came, Chuck Partee went down to his office to talk to him. [Laughter] After, Chuck reported—in my memory, I was there; I suppose Lyle was there, but I can't remember who else—that he had resisted something Burns wanted to do, and Burns said, "I have lots of people in New York I can get up here to do this sort of thing." [Laughter] Anyhow, the atmosphere changed. It may be that I never noticed it before, but by then I was among the top two or three in the policy area. You're closer to the Chairman and the pressure is on and all that, which you really don't notice otherwise.

MR. SMALL. Did Burns drive the staff hard, as far as wanting input?

MR. AXILROD. Oh! Well, yes. Burns was perfectly capable of his questioning being quite tart with some poor guy at a staff briefing of the Board and making clear that the young man didn't know what Burns wanted him to know. In fact, when I was a section chief, I took it as part of my task to be sure that no one—no matter how good he was—got up there if I felt that it was going to hurt him. Burns was a good economist, and he wanted good staff work. Martin wanted good staff work, but he had to rely on the economists to know who was a good economist. He could judge who was a good person and who seemed to know what he was talking about. Burns was a good economist, and he knew bad work when he saw it, so you had to be very careful.

I remember I had one bad experience that was my own fault. I sent something to him. It didn't go well, and Burns was infuriated. I think it was Bob Holland who brought it back and said, "You know, the Chairman doesn't like this." I looked at it and thought that instead of writing a B minus paper, I'd better sit down and get it at least up to A minus. [Laughter] I revised the paper, and it became a very good paper. Burns taught me a lot. In school, I made very good grades, but I didn't work hard. I was sloppy. I didn't like to study hard and work hard. Burns taught me, in many ways, how to think and forced me to think harder. Don't be happy with the first or second draft. B plus, A minus wasn't good enough. In those days, those were still rare grades, certainly at Harvard. Burns did a lot for me in that sense. So I had more tolerance and admiration for him than a lot of people did. He had a big-time temper that partly was natural to him and partly was used for getting his way. I faced it, though quite rarely. Other people who faced it were less up to facing it. I knew I was valuable to him and they didn't, so it was tougher for them. I thought Burns improved the economic analysis presented for policy. That was a positive.

Burns also made FOMC discussions much better, because the first thing he did was stop Reserve Bank presidents from reading a dreary paper on conditions in their District that was prepared beforehand and circulated as what's now the Beige Book—in those days, it was the Red Book. Secondly, Bill Martin had an order for the FOMC meeting. He'd go around the Board table calling on people this way one time, and then he'd go around the opposite way the other time. Burns stopped that. He had the members just speak up in general about the national economy in whatever order he saw their hands raised. That made it a little more informal.

MR. SMALL. I've heard of other changes. Martin used to always speak last, and Burns spoke first, correct?

MR. AXILROD. Burns did speak first. And, yes, Martin did speak last.

MS. CARTER. Martin was the Fed Chairman from 1951 to 1970, during most of the 34 years you had been at the Board.

MR. AXILROD. Yes, 18 years. He became Chairman the year before I came.

MS. CARTER. This had been a period of institutional stability, and then the chairmanship changed.

MR. AXILROD. I was high enough by then to see the change. Chuck Partee was the director of R&S. Lyle Gramley and I were associate directors at the time of the transition from Chairman Martin to Chairman Burns. How was Burns going to treat us economists? He made it clear quickly that we better pay attention to him, and that was that.

In my experience, the staff pretty much ran itself. It was essentially a merit-driven staff. It wasn't determined on a political basis by the Board but was based on the talents and experience of the staff members. When we had Chuck's office, it was called the Office of the Managing Director for Research and Economic Policy. He was supposed to manage international as well as research, but that never quite happened because of various turf issues within the Board staff. When Chuck Partee became a Board member, they changed that to Office of the Staff Director for Monetary and Financial Policy. That was me. I didn't have anyone in there except a deputy, the secretary of the FOMC, and perhaps three or four others. I had access to the whole staff, the Legal Division and all that. I was also head of a discount policy group and a reserve requirement policy group. Eventually, Chairman Volcker wanted me to be secretary of the FOMC as well as staff director. I tried to argue against that, but he remembered when Riefler was FOMC secretary. He thought he'd want a person with some economic stature there, and by that time, I had some kind of reputation. So I had, except for Paul, all the power in my hands. That's a joke, of course. Don Kohn was my last deputy. In any event, the office disappeared after I left the Board in mid-1986.

My initial title was Staff Director for Monetary Policy because it was only domestic. That included Regulation Q and all that jazz that people thought of as monetary policy. At that point, I got Ed Ettin as deputy, because he was good on Regulation Q.

Then, under Chairman Miller, I was given responsibility—the Board voted for it—for the operations in the foreign exchange market, and that eventually came to include Eurocurrency issues. But it was technically broader than that also, including something that could be interpreted as working with the IMF (International Monetary Fund) for international exchange payments policy-type questions—not just operations. I ignored that, and all I did, practically, was the foreign exchange market operations, for which I had a phone call every morning with the people at the New York Reserve Bank, and also worked on certain Eurocurrency issues. I reported to the Chairman on day-to-day conditions in the foreign exchange market. Once in a while, after checking with the Chairman, I would call the Treasury and say, "We'd like to do this in the exchange market." They'd say, "No," and I'd go back to Volcker and say, "Of course, they said, 'No.' " But we had at least made a point. In any event, the manager for foreign exchange operations at the New York Fed, before he could do anything, had to call the Board—mainly the Chairman, of course, but also me. Then he had to call the Treasury, who pulled the trigger and usually initiated the policy. It was complex.

I believe I was the only person who ever had that joint domestic and international market responsibility at the Board. In New York, they combined the foreign exchange and domestic market operations under Alan Holmes, then Bill McDonough also had it.

In order not to give the impression that monetary policy was closely connected with international exchange market policy, which it really wasn't, the office was named "Monetary and Financial Policy." That designation made it sound a lot broader in some ways than it actually was. After Alan Greenspan took over, the new Division of Monetary Affairs took over all the functions of my old office, except the international ones, plus it also came to include the relevant financial sections of R&S. And the dreaded word "policy" was removed from a staff office.

MR. SMALL. Burns came in with a reputation of being an inflation hawk, kind of like Martin did, but he left with inflation even higher.

MR. AXILROD. Well, Martin wasn't that much of a hawk. I think inflation was 4 percent to 6 percent at the end of his term. So there was already some inflation and expectations in there when Arthur Burns came in.

My conclusion on all this is that you can't tell a Chairman's policy tendencies in advance. You knew his qualities as a person, and you're close enough to him. I played tennis with Martin almost every day and got to know him quite well. But the Chairmen were in different environments. Greenspan was in some ways in the easiest environment, until it exploded late in his term, and Ben Bernanke ended up with the toughest economic and financial environment. To some degree, parts of these environments were self-inflicted. That being said, Martin was in a fairly easy environment. Burns was in a very difficult environment in the sense that he had a country that was divided politically and in which there was apparently little support for tough measures to reduce inflation. The 1960s social revolutions were still very important in the 1970s, and pressures on savings and loan associations were beginning to emerge.

We still had this darn Regulation Q. So if Burns tightened a lot, he was going to drive the S&Ls out of business quickly. We didn't have variable-rate mortgage loans in there. Somewhere along the line—I don't remember if it was under Martin or Burns—the Penn Central crisis occurred, and large CD rates were permitted to go up. I think they were the first ones. So gradually things were occurring. The loosening of regulations on financial institutions was taking its first baby steps. It was when I was still in the Banking Section, I think.

MR. SMALL. The Penn Central crisis occurred in 1970.

MR. AXILROD. When did Burns arrive?

MS. CARTER. Burns became Chairman on February 1, 1970.

MR. AXILROD. Yes, so Burns had Penn Central. The CD rate ceiling was increased because Penn Central was under pretty severe liquidity pressure. It was thought that would improve the ability of banks to raise money through large CDs and lend to Penn Central, which would provide some relief for the company.

Apart from threats to the stability of financial markets if inflation was fought aggressively, the country as a whole didn't seem as if it would tolerate the very serious recession it probably would have taken to get inflation noticeably down. In those days, labor-cost pressures were tracking the inflation rate, and a sustained rise in unemployment would probably have occurred as market forces brought them in line with a significantly lower rate of inflation.

The next burst of inflation was under Chairman Miller. There were two oil price spikes. One was under Burns around 1974. The other was under Miller in 1978 or 1979. In some sense, if you compared the United States with other countries, other than Japan, I don't think Burns was all that bad. There were three, four, or five years, in my memory, of 6 percent inflation or more. Then there was that spike of 10 or something. It doesn't look good in retrospect, and it was bad enough. But what he was really bad at, I'll note that later. Do you have the inflation rates of those years?

MR. SMALL. I have the Greensheets from the Greenbooks—gross business product fixed weight price index from 1974 through 1978. From the April 1978 Greenbook: In 1974 it was 10.4 percent, then 9.5, 5.4, 6.0, and then forecasted to be 6.6 percent for 1978.

MR. AXILROD. Yes, that's right, and then it goes up again. Those are the 5s and 6s that I remember, 6s, and then early on you'd have found some very low ones in 1971, 1972, and 1973. Maybe they started going up in 1973.

MR. SMALL. From the February 1975 Greenbook: In 1971, it was 4.3 percent, and in 1972, it was 3.3 percent. Then in 1973, it was at 6.3 percent, and in 1974, it was at 11.4 percent.

MR. AXILROD. Yes, that's it. So, in a sense, it wasn't quite as horrible as people remember, except for that spike. I think there was a minor recession at the spike. The Open Market Committee simply chose not to fight inflation strongly and cause enormous unemployment. That's how I look at it. It just wasn't nearly as horrible as people think except for those three years.

What Burns did that got the Fed in real trouble was to say, "I'm going to control inflation by controlling the money supply." But then it became obvious that we were not controlling the money supply. In fact, we were, in effect, lying. Well, we were not exactly telling the truth, because we had what was called "base drift." We would say, "Here's our target for the money supply, based on the first quarter, for a year ahead." Then money growth in the first quarter might turn out to be above target. We would then forgive that and base our target for the year ahead on the next quarter—the second quarter, in this example. That approach began to be called "base drift" because it permitted the money supply to continuously rise. It would continuously drop if it ever fell. This was considered a bad thing, and the Fed's monetary reputation lost credibility. And since inflation came back up in 1978 with the next oil crisis, that credibility was twice lost, in a sense. So the fact that Burns alleged and gave the feeling that he was controlling the money stock, and we, in fact, weren't, by the way we were operating—

coupled with inflation staying too high—there was no more credibility for the Fed. So that kept inflation expectations—and, to a degree, interest rates—up.

MS. CARTER. Is that something you were all aware of at the time?

MR. AXILROD. Of course we were. But we were not quite aware of the extent of cumulative negative impact. We didn't pay enough attention to real interest rates. In fact, I remember someone in a key position saying, "We've got to worry about the real money supply," presumably fearing there might not be enough money to support real economic activity. Now, that caught even my ear as something not to worry much about in the circumstances. But the real interest rates, we didn't pay enough attention to them, even though they were very negative at that point. I used to talk about the real return on capital every once in a while: We've got to get interest rates above that. I remember doing that, but I haven't read through anything where I might have said that. Anyhow, I think that not paying enough attention to real interest rates in judging whether policy was appropriate for containing inflation was both a staff and an FOMC mistake.

But I don't think it would have mattered, because fundamentally I didn't detect a will to face up to the strong recessions that would have been inevitable in controlling inflation more strongly under the conditions of that period when unit labor costs were running so high. You had to get them down. That's basically how I explain the failure to fight inflation harder.

Then there were all sorts of technicalities about misinterpreting the money supply because of ongoing shifts in the country's demand for money. The staff didn't catch onto that fast enough, and by the time we caught onto it, you had to convince the Board. That takes another year. And by that time, the demand for money seemed to be back on track. But the money stock had already risen to levels that accommodated inflation, because the Fed had not adjusted targets to the fact that it had already gone off track. Then, as I remember, it went off track again.

There's a lot of stuff that goes into the loss of the Fed's anti-inflation credibility, but, fundamentally, we didn't get inflation down far enough. Then, unfortunately, we had that last burst from the second oil price crisis. That was under Miller, not Burns. That was during the big foreign exchange market crisis that went along with it, all of which was followed by Volcker's arrival. So that's my explanation of attitudes toward inflation and related monetary operations during the Burns/Miller era.

But I do have this problem that it's hard for me to think of people outside the context of their times. And it's wrong to think of them outside their context. If Arthur Burns was in when Alan Greenspan was in, Burns might have had a very easy time, for all I know.

MS. CARTER. What would he have done during the 1987 stock market crash?

MR. AXILROD. Alan did right. He eased off like crazy.

MS. CARTER. Right, but how much of this is the personalities versus the times?

**Fed Chairman Volcker: Early Acquaintance**

MR. AXILROD. Well, the only person who was unique was Paul Volcker. I think that what we did during his chairmanship was unique to Paul having that position. I don't know whether earlier in the 1970s he would or wouldn't have done what he did.

But when he became the Fed Chairman in August 1979, there was political support for an aggressive approach to reducing inflation in the sense that, importantly, things had changed. First, consumers were getting high interest rates in money market funds, which they couldn't get in the 1970s except gradually. Second, that defused the pressure from the House banking committee, which traditionally is sympathetic to interests of small businesses, small borrowers, and agriculture and wants to keep rates down. The higher rates consumers could get by investing their savings in money market funds were a countervailing political influence. It was a more evenly balanced set of circumstances. The social and economic costs were balanced, so that was much better when Paul came in. Third, it became evident that inflation wasn't getting you economic growth. Things were pretty bad in the eyes of the public as a whole, and the Congress was more sympathetic, so Paul had all that.

Also, Paul had a kind of courage that you don't often see in people. He is a very cautious man. And he doesn't make decisions until the last minute. People used to say that Paul would never make up his mind. I never understood why you should make a decision before you had to. It didn't seem obvious to me. Anyway, what he did was courageous, because there was a lot of risk, something of a leap into the unknown, with opposition waiting to pounce.

He was sort of giving in to the monetarists, but they didn't like how he was doing what he was doing, and he had to work hard to persuade the FOMC. I don't know what he said individually to each of the members of the Committee. Of course, they were ready for something, because they were on a committee that was losing public stature like crazy because of the policies under Arthur Burns and Bill Miller, whether or not it was their fault. So they were ready to accept something radical, which this was. And I think Paul had stature and the intellectual capacity to understand and oversee it, so they could have confidence in him that he'd do it as effectively as possible.

I'm largely eliminating Bill Miller from this conversation. He was Chairman between Burns and Volcker. That was an interesting 18 months, but I don't know what I can particularly say about that of any general interest.

At some point when Paul first arrived, I went to his office and recall saying that any time he decided to implement his “practical monetarist” position he had been taking in earlier speeches, let me know, because I believe I know how the staff can do it. I had known him for some time off and on. We were not quite good friends, but we were friends. When he became undersecretary of [the] Treasury, he used to call me during his first days in office and ask what I thought about debt management until he got used to it himself.

MS. CARTER. So you knew him at Treasury too?

MR. AXILROD. We had known each other, but he had better positions than I had. He’s smarter, he should have. I had known him as undersecretary. I used to write memos on debt management for the Fed Chairman when he went over to discuss such issues with the Treasury at the times of the large quarterly financings. I used to always argue in the memos, “Don’t issue so many long-term bonds in a weak economy. Issue short-term debt and leave the long-term market open for the private sector.” I would argue that even now.

**1979 New Operating Procedures**

MR. AXILROD. Going back to Volcker as Chairman and his new policy procedures, Paul must have convinced all these people when he took on this procedure, which was untried. A long way back under Arthur Burns, I was chairman of a staff subcommittee for a Committee on the Directive. I guess Sherman Maisel was chairman of the principals’ committee. The staff voted for nonborrowed reserves and M1 as the way you should run monetary policy at the time merely because that was sensible and seemed like a more direct way of restraining inflation through closer control over the money supply. Well, I really don’t know the underlying reasons why any one individual voted. There was one dissent, as I remember. That’s what impelled my comments to Paul when he arrived, that we knew how to achieve better control over money.

Then one day, I've forgotten exactly when, Paul came into my office and said, "I want to go ahead with this, and I need a memo for the Committee to do it." Then I said, jokingly, "I presume you mean I've got to stay here and write a memo for this thing?" [Laughter]

Paul was going to Yugoslavia for an annual IMF meeting. I had gotten myself on the U.S. delegations for a few years mainly just to go to circulate and understand how officials at other central banks were thinking. I wouldn't have minded going to Yugoslavia, but I was in reality at best a fifth wheel on the delegation. There was no strong or pressing need for me to go. That was not an issue. I stayed back and wrote a paper along with Peter Sternlight from the New York Fed. Recently, Paul asked me, "Who'd you work with?" I said, "Geez, Paul, I don't remember." I know Peter and I did the paper. I know I got something from Peter. I think he wrote the back part. I think it was an attachment. He wrote the operations part and I wrote the introductory part that explained the policy reasons and general approach. But I have forgotten who—given the secrecy of the project—if anyone, I worked with on the document as a whole.

MR. SMALL. Tom Simpson recalls, as a young economist here, functioning as an assistant, gathering statistics and the like on that project.

MR. AXILROD. I don't know with whom I wrote that. I think I wrote it myself. The only person I used to write with, and who I liked for doing that, was Dave Lindsey. When I got Don Kohn as a deputy, I thought of Dave and him as a team. Don did markets, and Dave did the analytic-type thinking. But I don't know with whom, besides Peter, I wrote this paper.

MR. SMALL. Tom Simpson remembers being in your office when Volcker called from the plane.

MR. AXILROD. That phone call was funny, because I could barely understand a word that Paul was saying. He was on Air Force Two. He wanted to know that I was getting the thing done. I would say "yes" to any number of things, but I wasn't quite sure what I was saying "yes" to, because there was so much static on the line.

MR. SMALL. What about this idea that Volcker got chastised at the Yugoslavia conference and then thought of this new approach when he came back?

MR. AXILROD. That's absolutely wrong. He knew he was doing it when he left here to go to Yugoslavia. He had done the groundwork with the FOMC members, I believe. We didn't bring it up formally to them until the day before the vote. I think we sent papers out. I remember the Saturday and going to the FOMC meeting, but I had forgotten the Friday conference call of the Governors and Reserve Bank presidents. At the regular FOMC meeting three or four weeks before, we didn't bring it up with them, or so I remember. Then this paper explaining the proposal got sent out to them for the conference call, if I'm remembering correctly. As I think back on it, it's wild, because it was for them a leap into the great unknown. That Paul had the courage and nerve to do this was wonderful. And he was relying on me. What it amounted to is that he was taking my word that it would work. In a way, I was so naïve. I didn't really internalize the pressure that was there. It just did not occur to me that this was a major big deal.

MR. SMALL. But when interest rates shot way up, you must have known.

MR. AXILROD. Yes, but it's a job. You do your job. [Laughter] But seriously, I didn't fully realize the enormity of what we were doing. We were putting in place something that had never been done before. It had enormous impacts on the economy. There was a Board meeting shortly after they did it. The funds rate was at 8 percent. It was an executive session, so there were only a few Board members and me, and maybe Jim Kichline. Some Governor asked me what I thought interest rates were going to do. I thought I was very brave. I said, "15 percent" for the funds rate, and the Governor gasped. As I think back, that answer was stupid, though it seemed to be brave. What was I thinking? I must have been thinking inflation 12 percent and real growth 3 percent, so a nominal interest rate of 15 percent. But you also had to get rid of high inflation expectations and have a real rate high enough to show determination. I should have added some more to my estimate of the nominal funds rate so that the real funds rate would be noticeably above 3 percent. The nominal funds rate actually peaked in the neighborhood of 20 percent, I think. Anyhow, I had not thought until that moment what interest rates would be. I was quite confident that we could do this, but it has lots of little technical things in there, all of which are discussed in my book in one way or another. Many of them are interesting.

Among the broader problems we had during the Reagan Administration was with an undersecretary of the Treasury named Beryl Sprinkel. He was a nice person personally, a pleasant man, but he was an ideologue about monetary policy. The last thing I am is an ideologue. My view is that you use everything you've got to solve a problem. It's not one thing that will solve your problem. Beryl was going out and saying we were doing policy wrong. That doesn't help. It's like saying now you don't know how to control the credit crisis. The crisis gets worse when people think you don't know how to control it, which is what can be happening now as we are talking, actually.

It was important for people to have confidence that we knew what we were doing in controlling inflation. Someone at the New York Fed went out and gave a talk and said we were going to experiment with this new policy operation. Paul had a fit. He said to me, "You've got to get up to New York and give a talk to those dealers. Tell them we know what we're doing and we're going to stick to this thing." So I went to New York and gave a talk. "We know what we're doing." I explained why we knew what we were doing. "This is not temporary." Although when it was first adopted it was subject to review, everyone knew that it would continue unless it blew up in our face. That was what we were going to do.

Then Paul went around the country saying we were going to stick to it. Because he would continuously say those or similar words, I thought that it was getting to be a bit silly, but he was absolutely right. It was important to convince the market that we were going to stick to it. It was even more important to convince labor unions and businesses that we were going to stick to it, so that they would do whatever was necessary to keep down labor-cost pressures in order to minimize the recession that was bound to occur as we tried to get inflation down from 12 percent to what I thought would in practice be about 6 percent. That was in my head. I don't know if it was in anyone else's head. We eventually got to around 4 percent or some such value at around the bottom of the recession.

Eventually, the Administration seemed to stop Beryl from speaking so much about our policy. But the monetarists didn't really believe we knew what we were doing. A little working group was formed in the government. I don't know what they called it, but the group met for breakfast once a month, maybe. The group was unofficial. It included, among a few others, the undersecretary of the Treasury, someone from the Budget Bureau, and a couple of Governors from the Board—both Republicans—and me. This was in the early days of the new Administration—a Republican Administration. The purpose of the meetings was not to discuss policy. It was to discuss how the Fed was doing its operations. Though the Governors were there, I did practically all the talking from the Fed side, because we were supposed to be discussing operations—which was my field—not policy. I remember many conversations with Beryl Sprinkel. I would say something like, "This—this—see—and then that!" And he would not accept "and then that." [Laughter] What can you do? We can only control nonborrowed reserves. We can't control borrowing. We can't tell the FOMC and the guy at the New York Trading Desk how to control borrowing—all he can do is control open market operations.

The paper distributed to the Committee discussing the new operating procedures gave total reserves its due. It indicated that the nonborrowed reserves path could be changed if total reserves were growing too much to keep money supply on target, that kind of stuff.

We made the effort I just mentioned to communicate at the operational level, with two Governors there just to give Republican solidity to it, and me. Everyone was everyone's minder, because everyone knew I had to go immediately back to Paul and report what was said. So that was another effort to communicate. By the way, I also did a lot of communicating with academics and other central bankers.

MR. SMALL. What would you say are the main selling points of using the monetary aggregates in that way? People have mentioned internal Fed decisionmaking, having deniability on interest rates.

MR. AXILROD. No, not the latter.

MR. SMALL. That was a popular belief.

MR. AXILROD. I know it was. Well, you can't tell what was in any one voter's mind. One of them, not from the Board, did publicly say something like that. But you have to be extremely innocent to believe that the Fed is not responsible for the federal funds rate. You have to believe something like the janitor telling you, "I am not responsible for the lack of heat because I only go by the thermostat." The Fed balance sheet—the monetary base, the total balance sheet—is what gives the Fed the ability to raise and lower the funds rate, at least until recently. [Laughter] So if you're going to operate with nonborrowed reserves as your lever, eventually it's the monetary base that you control, presumably better than otherwise. The Fed can control that one way or the other, and, therefore, it affects the funds rate.

If deniability on interest rates was important in any one voter's mind—or two—I don't know. I know one, but I don't think that's important. And given the fact that I was asked by a Governor what I thought the interest rate would be, he must've known we had some effect on interest rates here. [Laughter] But you're talking about public deniability, and I don't think that was important.

What was important in my mind—I can't speak for Paul—was that we needed to do something to overcome the great amount of policy credibility that was lost in the previous regime. Part of it was because earlier we claimed we were controlling the money supply and weren't. We needed what I would call a "paradigm shift" to make it clear to the public that it's a new slate. We needed someone with real authority, which Paul could evoke, because he knew what he was doing. He wasn't just giving a speech about what he was doing that someone else wrote. I used to go to him and say, "For goodness sake, Paul, write the draft so I can get it checked." If someone else wrote a first draft, he usually didn't like it, especially if it was closely related to policy. So I think it was that combination of a paradigm shift and a man who could give the feeling to the public that it wasn't a stab in the dark. We were doing it, we had a reason, and this reason was going to work.

At the beginning, it was a little bit messed up with the credit control program. That's a detail we don't have to get into, but it did mess things up at the beginning. But the new operating procedures seemed to be working. Interest rates went up a lot. We weren't any longer just controlling the funds rate by ¼ percentage point; we gave it a lot more breathing room. For a while, the money supply actually calmed down as we wanted. Then the recession came, and it jumped like mad, and we got off of it.

So I think emphasizing the monetary aggregates was for the reason—I guess I'm trying to express it—that we wanted to regain our credibility. Without that credibility, it would've been very hard to control inflation as quickly as it turned out we did.

What was instrumental as well, in the control of inflation, was the air controllers' strike and Reagan breaking that union. I grew up in my youth singing "Sticking to the Union" and all that stuff, so I didn't meet that with great joy. But by that time, anything that would work was welcome.

I think that's what motivated the shift to the monetary aggregates—the need to get it done, to get inflation under control, and by no means to duck responsibility for what would happen to interest rates in the interim. And the political environment was acceptable. I guess that was the time Volcker got all those wooden planks—but that was minor.[4] That was nothing compared with the possibility that a chairman of the House banking committee might say, "I'm going to take your budget over and make it subject to the appropriations process." You can survive a few pieces of lumber. The main thing was, we'd just run out of believable weapons to control inflation and we needed another one.

MR. SMALL. Did you think regaining credibility was more difficult and took longer than you thought at the outset?

MR. AXILROD. No, I think it took a lot shorter [time] than I would've thought. Let me put it the easy way: With what we did, we got the credibility faster than we otherwise would have. When you play the game of how long would it have taken, under the earlier operating

[4] During the period of high interest rates, homebuilders sent 2x4s to Volcker's office with messages that they would not be needing them.

procedures, to get the funds rate up to 20 percent, as we eventually did, that would have taken quite a while longer without the new procedures. While I would've said we might need a funds rate of 15 percent, I don't think I would've had enough nerve to recommend it so quickly. And if I'd have told the Chairman, "I'm going to put in the Bluebook an option that says, 'Option A, 15 percent for the funds rate; Option B, 8 percent; Option C, 7½ percent,'' I don't think he or any other member of the Committee would have liked that or even thought I was in my right mind. I just don't think we could've raised the funds rate at the speed we did without the shift towards the monetary aggregates.

Now, that's going to the argument, which is a reasonable argument, that policymakers change their instrument very slowly. Let's call the funds rate the instrument. So they change it slowly—a quarter point, a half point—and that's not unreasonable, because unexpected things happen. The odds are that, if you change slowly, you're more likely to be in the right position when something unexpected happens than if you change it rapidly. If you make the money supply (M1) the policy instrument, which is what we did as reduced to a nonborrowed reserves target so you have an M1 target—it's a nonborrowed reserves representation of it. You don't have to change your target very much in an instrumental operating sense. That solves the psychological problem of moving your instrument too slowly, which means, in effect, you get the interest rate moving more rapidly.

I think we adopted a plus-or-minus 2 percentage point range, so there was an overall 4 point range for the federal funds rate. Consultation with the FOMC would be required if it were necessary to breach that range in order to hit the nonborrowed target. Then I think it was a 6 point range for a while, and then it went back to a 4 point range. So you have a fail-safe device in there, but the range was not supposed to be a stopping point—it was a checkpoint between

FOMC meetings. If the funds rate needed to move outside the range, the Committee would vote and say, "Okay, let's go ahead." Only once do I remember it being a stopping point, which was on the downside during the credit controls program.

So, in a sense, if someone says the new operating procedures were to avoid responsibility for interest rates, you could say, rather, it was a procedure to let interest rates go, to set the conditions where they would move more rapidly. That's how I think of it. It certainly did not mean the Fed had no responsibility for interest rates.

If I were weighting all the things that went into the reasons, I would give the least weight to a pure monetarist argument, which implies to my mind something like a black box out there—like if you control the money supply, policy will, through some market process or other, work well. I would give more weight to the argument that it would permit us more rapidly to move the interest rates up and down as needed. I'd give some weight to the monetarist argument but most to the flexibility of interest rates it implies. I would give no weight at all to it being a way to avoid the Fed's responsibility for interest rates.

MR. SMALL. What about a commitment effect that once the FOMC selected these new procedures and put out a money supply number, there's almost no turning back?

MR. AXILROD. Yes, that's what made it so good. One question I had when we did this was, how do we get off it? And it turned out to be an accident. In the recession, a very large quantity of, as I remember, nonrenewable instruments termed Small Saver Certificates—or something like that name—matured. We didn't know how much of the funds would go into demand deposits and how much would not and, therefore, how much the M1 measure of the money supply would be affected. So we declared a moratorium on focusing on the money supply. The moratorium never quite went away. [Laughter] Then it also began to look like the interest elasticity of money demand was wildly high. That made money less good as a stabilizing instrument. We gradually got off it, and then any sense of uniqueness of particular money measures as predictably presaging inflation or nominal economic activity pretty much disappeared to where M1 is now M-anything—the trees, the stock market, the housing. [Laughter]

MR. SMALL. You were pretty close to Chairman Volcker throughout. You mentioned his courage and the leap into the unknown. Someone can easily understand the analytics of what was going on, but what about the personal stress?

MR. AXILROD. I should have felt stress, but I didn't. It's weird. I feel stress very easily. Normally, as a kid, you get a stomach ache, you feel stressed. Or your wife gets slightly mad at you, and you are thinking she's madder than she is. That gives you real stress. [Laughter] But I didn't feel any. Paul must have, but I couldn't tell. And we were very close. Everything I did I told him about. There was a lot of statistical finagling. I don't mean finagling in a bad sense, but changes and adaptations as new deposit and bank reserves data became available on virtually a daily basis. The multipliers change, or the demand for reserves was changing because more money was demanded by the public, all affecting total reserves. I had to raise the original nonborrowed reserves path, lower it, or leave it alone depending on the reasons for and the extent of change. That was a big thing.

If Paul had felt pressures, which I would not doubt, I didn't notice it. I would go into his office at the end of the day, but at the early end, because I didn't want to be stuck there. His wife was in New York a lot of that time. Many people liked to be stuck, but I didn't. I would check in at the end of the day to brief him on occasion or simply to check if he had anything more on his mind. In the morning after I talked to the manager of the Open Market Account at the New

York Reserve Bank, I'd talk to Paul, and we'd talk through what the manager was intending to do. The manager couldn't do anything unless I called back and said, "Yes, it's all right." So we were in very close contact on these things. Even if Paul was in China, I would get in touch with him before the manager could do anything. The manager often wondered how much was coming from me and how much from Volcker. I would always be clear when I was giving an opinion of mine alone, when I was interpreting how Paul felt, and when I was relaying specific preferences of the Chairman. I would talk to the manager in advance of his operations. We'd have some understanding, and he could make a decision in light of how things were evolving. Then I would tell Paul what the manager was thinking, which might have been something in between what all of us were thinking. Then if it was okay, it was okay. It was a very closely run system. Paul was highly involved in it, and his judgment was very good.

**Financial Fragility and Crises**

MR. SMALL. What about the role of financial fragility and crises?

MR. AXILROD. I was not so involved much with Paul on that. Other people were much more involved with him on that than I. Ted Truman did a lot, though I forgot exactly what, in connection with international-related issues.

I remember two things about crises in those early days. One—which makes me angry at what is going on today—was under Burns. Burns has this bad rap. But he had the foresight to ask me to organize and figure out what one would do if S&Ls went into a liquidity- or bankruptcy-threatening crisis. How we would lend, collateral issues, the communication routes for coordinating decisions, and et cetera. I tried to figure it all out, got memos, got the New York Fed involved, and worked out who would send the memo to whom to get it done, who would call whom at what time, how the Board would be kept informed, and when it would need to vote. It was a detailed plan for coping with an S&L crisis that might involve lending by the Fed. It was not a regulatory plan, not one involving actions by regulators that might modify a crisis; others would have had to work on that if anyone did.

My impression is that detailed contingency planning was not carried out by the U.S. Treasury, and I am not so sure about the Fed either, even as the potential of a really bad crisis became increasingly obvious in the spring and summer of 2008. I think that contributed to making the events in the latter part of 2008 so close to an unmitigated disaster. The Congress was not presented with a well thought-through plan to consider after the Lehman Brothers debacle. That contributed to the political difficulties in reaching agreement in the Congress and to the resulting devastating further drop in the stock market and in public confidence in the government's ability to deal with the crisis, all of which, in my opinion, intensified the recession beyond what need have been. Under Arthur Burns, at least we did do a lot of preplanning for the prospective savings and loan crisis of that day. I don't think that crisis really hit, however, until Paul was Chairman.

There was a threatening crisis at the time of an IMF meeting in Toronto in September 1982, a Mexican debt crisis, I believe, but I forget its particulars. I was going to Toronto. Upon arrival at the hotel, I was watching a Canadian Football League game. I couldn't figure why they had these 12 players to a side. All they did was run around and catch passes. I got a call from Paul, who was at the U.S. headquarters of the IMF in Toronto. He said, "Get up here right away." Mike Bradfield and I were sent back to Washington, D.C., that very day. I think Jerry Corrigan was in that, too.

My job in the preplanning was to check everything about the discount window that had to be done and draft a reassuring statement that the Chairman could issue, saying, in effect, "Don't worry. We'll lend against everything." There was real preplanning on that.

At another point, there were also some issues related to mutual savings banks in the Northeast, which Paul was very involved in. There was a mutual savings bank in Cleveland in some trouble. Also, at that time, the mutual savings banks in New England, I think, had a practically self-defeating insurance system.

MS. CARTER. There were private insurance systems that were still sticking around.

MR. AXILROD. Yes, that's right. If you were a good bank and some bad bank had to be insured, then you came under real strain, because the private insurance systems could call on you. That was the problem. It risked toppling a whole system. It was a difficult kind of insurance system that existed in many places. And then, in Cleveland, there was something else, and I guess because of the discount window, I was involved in all that.

MS. CARTER. There were the Ohio and Maryland thrift problems.

MR. AXILROD. Yes. There was something there, too. Reserve Bank presidents really couldn't do anything unless they would check with the Board. That meant, initially, Paul. [Laughter] So he was very closely involved in all that. I'm not sure about Greenspan. I had the distinct impression, in LTCM (Long-Term Capital Management), that Greenspan was a reluctant dragon, but I don't know how much he knew in advance. But under Paul, the Reserve Banks had very limited room for any kind of maneuver. I remember we controlled carefully the Continental Illinois debacle. The Chairman was good at that. Early on, before the Continental Illinois debacle, was when the loans in the Southwest were going bad because of oil or something down there.

MS. CARTER. Is this Penn Square? Is this pre-Penn?

MR. AXILROD. No—well, after, I think. It was under Volcker. I got a call from Mike Bradfield on a Saturday morning. I'm never called on a weekend. He said, "We're going to make loans to some bank in the Southwest."

MS. CARTER. Penn Square in Oklahoma. That led to Continental.

MR. AXILROD. Yes. In a way, the call had to do with loans to be made to some relatively small bank. I went, "Huh?" I was totally surprised. My thought was, "Why engage in moral hazard for a small bank?" I hung up, and the next second Paul was on the phone explaining the background, I guess. I thought he was explaining something other than background. But I just interpreted that as a degree of ambivalence, because it was a small bank. I guess the problem was, loans were being upstreamed to larger banks, and you didn't want that to widen the risk. The whole thing could come unraveled too quickly if it was, and overall market soundness could be threatened. That's all I had to do with regulation-related issues. It seems like a lot, now that I think about it. It wasn't primary in my mind.

MS. CARTER. Do you remember much about Continental Illinois?

MR. AXILROD. I remember quite a bit, because it entailed huge borrowing at the discount window. At the time, if they were short of funds, many banks would borrow overnight money in the funds market. It was easy to do and to gauge the cost because the Fed's target for the federal funds rate, though not publicly announced in those days, was quickly known throughout the banking system. Therefore, if there was increased demand for federal funds, the Fed would go in and do repurchase agreements to provide the reserves needed. So, presumably, there was no real problem for a large individual bank to borrow sufficient federal funds from the market to cover an overnight need. This was a very prevalent attitude.

Banks didn't think—as nowadays, obviously, everyone thinks—that people wouldn't want to lend them money. Continental was a very active borrower in the funds market. That was how it was making its money. Continental was leveraging.

Then there came to be a run on the bank initiated by a large CD withdrawal [redemption] of $1 million, I think. And, lo and behold, there being a run, no one wanted to lend to them. Well, the Fed can provide federal funds through open market operations, but that provides funds to the market as a whole, not to any individual bank. So Continental Illinois had to come to the discount window. I don't remember the precise amount that was built up—something like $8 billion or so is in my head. Soon the FDIC was involved. After a few years, the bank was sold to, I believe, a Canadian bank.

The Fed, which was the first lender, took the better assets as collateral, held them for some years, and gradually collected on them as the debt was paid down. The FDIC was, I believe, stuck with more of the bad assets and definitely was not pleased. "The Fed gets the good assets, we get the bad assets"—their thought must have been something like that. Then came some change in law that is quite complicated and was designed to assure a more balanced distribution of good and bad collateral in such circumstances.[5]

MS. CARTER. About the discount window?

MR. AXILROD. Yes. That was a result of the Continental Illinois situation. The Fed organized a bunch of big city banks as a group to lend. I think the government also guaranteed large CDs issued by banks at that time. There was much worry that that would make it too easy for banks to raise money, but it didn't. No one wanted to give CDs to Continental anyhow, because if you're a treasurer of a company, you want to be sure you can get your money out. If

[5] The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA).

you're a treasurer of a corporation, you don't want to go to the CFO and president and say, "We have money in this bank. The government guaranteed it, I'm getting X percent above the market for it, but there's a little glitch. I can't get it for you tomorrow." This is not good. So, at the time, other large banks might have had to pay some premium to attract CDs; for sure, none wanted to be seen anywhere near the discount window.

MR. SMALL. A lot of the current innovation in Federal Reserve lending is done under the emergency powers. During your tenure, do you remember cases where the Board thought about using its emergency powers even if it was turned down?

MR. AXILROD. I don't remember any of that. I think lending to a Federal Home Loan Bank might have been broached at one point but never came up formally. And I'm not sure whether it would require emergency power. Nothing came up about commercial paper and all such stuff, or individuals, partnerships, and corporations. [Laughter]

A funny thing once came up because the FOMC has limited authority to buy state municipal debt, short term. When some states and local governments got in trouble, which they did in one of these crises, they wanted us to buy some of their securities. But we said, "No, we don't do backdoor financing." Now the Fed has opened the side doors, the backdoors, and the front windows [laughter], but we didn't have that big a crisis to deal with.

MR. SMALL. Reflecting on Mexico and Latin America, do you have any views on the use of forbearance or mark-to-market accounting—how that exacerbates problems or how forbearance was useful?

MR. AXILROD. I have a personal opinion on mark-to-market, but that doesn't bear too much on the Fed. Forcing mark-to-market on banks and others at a time of chaos, high uncertainty, and virtual panic in the market surely exacerbates the situation. There should be some leeway until a market calms down and prices are not obviously determined more by panic than by supply-and-demand fundamentals. I don't know quite what you would call such pricing. What is the buzz word today?

MR. SMALL. Fair market value?

MR. AXILROD. Perhaps fair market value, whatever that is. It's essentially an insoluble problem. Maybe equations can be used to help determine when price movements on assets are so far out of line with history, cyclical and trend, as to permit more of a judgment about fair value. The Federal Reserve itself solves this problem by marking to market only the foreign exchange holdings but not its government security holdings. Now, that's not very fair. [Laughter]

So I don't have any good, tested answer to that one on mark-to-market. It's obvious that financial institutions have to do it, and it's especially obvious now that also you have to mark-to-market instruments that are off your balance sheet but are really protected by the name of the bank or the name of the institution. You have to get the capital of the institution into that. That's obvious. I have some negative feelings about what's going on in mark-to-market now, but I don't know how to correct it without a much more intrusive—which maybe there ought to be—regulatory apparatus. The only way to correct it is for the regulatory apparatus to bless some less volatile mark-to-market system. That gets pretty intrusive, and I don't know that they can do it constructively, given past regulatory history.

MR. SMALL. Didn't forbearance play a big role in the Mexico and the Latin America crisis?

MR. AXILROD. Yes, forbearance played a really big role, if I'm correctly interpreting what you mean, in the Japan crisis for them, because their banks were broke. The Japanese regulators didn't insist that if some guy didn't pay you interest for an extended time, the bank had to mark that loan down and make itself even worse off. So the regulators forbore for a long, long time. The weak Japanese economy of the 1990s wasn't a recession. It was just plain weak for a long time. It was not because they didn't clean out the Augean stables of the banks. It was because they had built so much plant and equipment by the beginning of the 1990s on zero cost financing, partly because of easy financing from stocks and convertible bonds that were at essentially zero costs for corporations. This capacity to produce eventually became unusable and a costly drag on business, because no one was buying enough of that particular product. That was the cause of their long economic weakness, not the Augean stables. That's just my opinion, of course.

There are other examples of forbearance—not something the United States would want to indulge in. I've done a lot of consulting abroad. In China, where the national banking system is essentially broke because it makes bad loans to bad industries, they're walled off. They have got an ongoing system of encompassing essentially nationalized banks and industries which may or may not stay stable, so that's just walled off. No problem—the national budget funds it. And in Algeria, where there are national banks that are broke, that's just put on the nation's budget, and the banks are subsidized. I forgot what they technically call it, but they just pay it out like we're doing, in a sense. Here we're putting capital in on a one-time basis, but instead you could have bought the assets if you'd acted soon enough and confidently enough. I have some sympathy with forbearance, particularly in an overly leveraged situation, because otherwise the collapse can be so sharp and extreme as to threaten extreme losses of confidence in society and the political system.

But forbearance has to have some penalty, somewhere somehow affecting the people and institutions that are being forborne, if that's the right word. I don't know exactly how to do it—it depends on circumstances—but I would use everything, every weapon you've got. But you can't use it in a confused, messed up way. I didn't learn a lot practically from what I went through about all that, because our crises at the time were much simpler and less existentially threatening.

I remember a funny related story early on in the S&L crisis under Reagan. A young but quite high Treasury official came to me to discuss how to solve it. He said, "It's only a paper problem." I said, "What?" He said, "Well, if people don't withdraw their money, there's no problem." I said, "Oh?" I didn't say, "Do you want to be the last one out?" [Laughter]

So there's a certain lack of understanding that goes on here and wishful thinking in certain political quarters. You really have to be ruthless in your thinking.

All I've gotten out of all of this is to preplan for the worst. That really ought to be done. We did that at one point under Arthur Burns in the S&L crisis. Luckily, the crisis didn't really arise at the time, partly, as I earlier noted, because we didn't choose to fight inflation as hard as perhaps we should have. If you preplan for the worst, the worst thing that could happen is if it leaks. Then, unfortunately, there will be a run on banks or others involved.

MR. SMALL. Thank you very much for your time.