Federal Reserve Behavior
During the Great Depression

by

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(Abstract)

This thesis will examine possible determinants of Federal Reserve behavior during the Great Depression. It starts with the assumption that economic variables alone are unsatisfactory in determining Federal Reserve policy choices. Various explanations are then offered and examined. The role of elections, partisanship, and regional variation are examined. After these possibilities are tested, the conclusions will be analyzed and suggestions for further research will be considered.
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Chapter One: Introduction

Most observers agree that the Federal Reserve System\(^1\) failed the test of the Great Depression badly. I am interested in more fully understanding this failure. Why, for example, did the Federal Reserve System wait until December 1929 to start pumping more liquidity into the economy? Was it simply technological and administrative time lags? Or were there other factors that affected the way the Federal Reserve system responded to the crash of 1929? Donald Kettl has stated the problem very clearly in his history of Fed leadership:

The Fed’s uncertain purpose, disorganized structure, and vague territory thus seriously threatened the young agency’s very existence. The Depression crystallized serious problems with which the Fed had struggled for its first twenty years. What should it do? How could it win support and deflect the inevitable criticisms of its decisions? (Kettl 1986, 44).

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\(^1\) When I refer to the Federal Reserve System, I am referring to all twelve Federal Reserve banks, the Board of Governors of the Federal Reserve System (known as the Federal Reserve Board until the Banking Act of 1935), and the Federal Open Market Committee. I may also refer to the Federal Reserve System simply as the Federal Reserve or the Fed. Prior to the Banking Act of 1935, which among other things created the Federal Open Market Committee, the Federal Advisory Council was roughly analogous to the Federal Open Market Committee. The Federal Advisory Council did not, however, have the power to direct open market operations as the Federal Open Market Committee does. If I am referring to a specific part of the Federal Reserve System, I will refer to that part by its proper name (for example, the Board of Governors or the Federal Reserve Bank of Richmond).
In this thesis I will examine the behavior of the Federal Reserve System during the Great Depression. I will look at the role of various economic and non-economic variables in the determination of monetary policy during the Depression.

This thesis will be done at a "macro" level. I will be examining the behavior of the Federal Reserve as opposed to looking at the behavior of various individuals in the Fed. Much work has been done on the individuals who either have served in the Federal Reserve System or were involved in the legislation that has shaped the current Federal Reserve System. While I will draw on this work to build my own arguments, my goal is to focus on the behavior of the Federal Reserve System as an actor.

This chapter uses the existing literature to construct the arguments that will serve as the foundation of the study. I will also examine the gaps in this literature and how this study might help fill those gaps. I will then develop testable hypotheses in Chapter 2. These will serve as operationalized versions of the questions suggested in Chapter 1. Chapter 3 will begin with tests of these hypotheses. An alternative explanation of the results will

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2 Some individuals, of course, will need to be discussed, but this will be in terms of how they fit into or influenced the Fed as an institution.
also be suggested in Chapter 3. Finally, Chapter 4 will summarize the findings of this study. It will also speculate about conclusions that can be drawn about the Federal Reserve System in the late twentieth century and offer suggestions for further research possibilities.

The Argument

Much of the previous research on Federal Reserve behavior during the Great Depression has been conducted by economists who have focused only on economic conditions and the appropriateness of the Federal Reserve's responses. These studies are extremely important; however, they only tell a part of the story. Political and societal factors need to be examined as well. What was the role, if any, of regional differences in the way the various Federal Reserve banks responded to the market crash? What about the role of Federal Reserve leadership? Were Federal Reserve decision-makers responding to a political monetary cycle? Were there flaws in the organization of the Federal Reserve System that made it difficult, if not impossible, for the Federal Reserve to respond adequately to the crash? It is these non-economic factors that the thesis examines.

First, I will briefly review some of the current literature on the Federal Reserve and how this study will fit into that literature. Second, by using the existing
literature, I will construct a theoretical foundation upon which to build this work.

*Studies of the Federal Reserve*

The literature on the Federal Reserve System can be divided into four groups: pre-World War II economics literature, post-World War II economics literature, pre-World War II political science literature, and post-World War II political science literature. I am most interested in the pre-World War II political science literature (which is practically non-existent) for two reasons. First, the simple fact that most social scientists other than economists have neglected a very important period is reason enough to explore the Great Depression from the perspective of a political scientist. This is a period of time that saw many widely held beliefs about classical economics and its corresponding societal and political norms called into question. The Great Depression has provided one of the strongest historical precedents for U.S. government intervention in the economy. Second, a study of the behavior of the Federal Reserve prior to World War II will provide a striking contrast to the behavior of the present day Federal Reserve System.

There are two possible explanations for the exclusion of non-economic variables in studies of the Great
Depression. First, studies of the Great Depression have largely been the focus of economists, and the economics literature tends to ignore the influence of political and societal factors in models of the economy. For example, in the "Keynesian cross," general equilibrium in the economy is a function of interest rates, the price level, the supply and demand for money, and the level of government spending and taxes. In this model, the Fed would only respond to these economic variables in trying to reach a target interest rate that Fed decision-makers believe would result in general equilibrium. I do not want to imply that this approach is wrong, only that it is incomplete. Second, the difficulty in measuring the influence of non-economic variables also may have played a role in economists avoiding concepts such as political pressure and regional economic and political cultures.

The best known work by economists on the Federal Reserve both prior to and after World War II is A Monetary History of the United States by Milton Friedman and Anna Schwartz (1963). From an economist's perspective, too,

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3 The "Keynesian cross" is a graphic representation of general equilibrium in the economy. The economy is in equilibrium when graphic representations of two functions, one representing equilibrium in the goods market and the other representing equilibrium in the money market, intersect. General equilibrium can also be understood by setting the two functions equal to each other and solving for equilibrium values of the variables.
Richard Timberlake (1993) has written a more current account of Federal Reserve activity since its creation. Similarly, economists Elmus Wicker (1966), Lester Chandler (1971), and Clay Anderson (1965) all provide excellent discussions of the behavior of the Federal Reserve during the market crash in 1929. Probably the most thorough work by a political scientist on the Federal Reserve in the post-World War II period has been conducted by Nathaniel Beck (1982, 1984, 1987, 1988, and 1990). This leaves the previously discussed gap in the literature: political science literature that focuses on the period before World War II.

Possible Responses to Economic Crisis

Peter Gourevitch (1986) provides a good place to start an examination of the pre-World War II period since he suggests a distinctive vocabulary that can be used to classify many of the economic policies experimented with during the Great Depression. Gourevitch’s terms allow political and societal factors to be considered in the analysis. If the language of economics is used exclusively to explore Federal Reserve behavior during the Great Depression, the focus would shift very quickly to the meaning and influence of various economic theories and away from the influence of political and societal factors.

Gourevitch defines five policy choices that economic
policy-makers could have adopted in response to the Great Depression: (1) classical liberalism, (2) socialization and planning, (3) protectionism, (4) demand stimulus, and (5) mercantilism (Gourevitch 1986, 37-54). Classical liberalism would have left all economic policy making to the free market. This would have meant no action by the government following the crash since the market would have responded to the Depression by adjustments in prices and wages until equilibrium were restored in the economy. The mere existence of the Great Depression, however, demonstrated the failure of classical liberalism as a policy option.

Socialization and planning involve the replacement of "private control of investment by public control and replacement of the market by planning" (Gourevitch 1986, 41). For example, instead of letting the market set the price of a staple such as wheat through the interaction of supply and demand, a central authority would decide on an optimal price. Gourevitch argues that this option was not considered seriously by any government during the Depression (Gourevitch 1986, 130).

"Protectionism" is the buffering of domestic markets from foreign competition, usually through tariffs and quotas on foreign goods. The Hawley-Smoot Act of 1930 "raised tariff rates on imports to the highest levels in the nation's history" and was intended to "keep home markets for
home producers, provide employment for our own people and not for foreigners, increase exports to increase jobs for our own workers" (Chandler 1970, 12). The problem with this strategy was that "the new tariff encouraged other nations to retaliate with protectionist measures of their own" (Parrish 1992, 247).

The fourth option, demand stimulus, is "deficit spending by the government to prime the pump of a stagnating economy" (Gouveitch 1986, 48). Demand stimulus, as discussed by Gouveitch, is essentially a Keynesian policy choice. This option involved attempts to restart the economy by cutting taxes and/or increasing government spending.

Finally, mercantilism "refers to state action in aid of specific industries or even specific firms" (Gouveitch 1986, 50). * While the National Industrial Recovery Act was eventually invalidated by the U.S. Supreme Court, it can be thought of as an attempt at mercantilism. The NIRA would have suspended "antitrust laws for two years and called for the creation of codes of fair competition" (Parrish 1992, 309). ^

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* This is different from the traditional usage of the term. Mercantilism is usually defined as the belief that a country could increase its power by increasing its holdings of gold and silver.

^ This could be viewed as a classical option; however, the existence of government intervention in formulating and implementing the legislation makes classification of the
It is a variant of the fourth option, demand stimulus, that I am most interested in, since it most closely mirrors the logic of United States government policy during the Great Depression. Marriner Eccles (Franklin Roosevelt's choice to chair the Board of Governors of the Federal Reserve System) played a substantial role in implementing demand stimulus policies during the Great Depression. Donald Kettl described Eccles as "a Keynesian who had never heard of Keynes and who, in fact, publicly argued the virtues of compensatory fiscal policy before Keynes published his famous General Theory" (Kettl 1986, 47).

Gourevitch observes that during the Great Depression those "who were willing to buy goods had no money" (Gourevitch 1986, 48). Gourevitch does not develop this idea in the direction of what the Federal Reserve System could have done to increase the availability of money for those who would be willing to purchase goods. Instead, he focuses on the possible role of the federal government in setting fiscal policy and ignores monetary policy. I would contend that the Federal Reserve System could have played a substantial role in priming the economy by increasing the money supply during the Great Depression and that Gourevitch overlooks an important tool of economic policy-making when _______ National Industrial Recovery Act as a classical option inappropriate.
he neglects monetary policy.

The Federal Reserve could have coordinated monetary policy with demand stimulus policies to make the latter more effective. This could have taken the form of creating favorable credit situations for demand stimulus policies. It could also have helped by sparking the economy when demand stimulus policies were ineffective. For example, the Federal Reserve could have lowered interest rates and made credit more easily available for people willing but unable to invest or consume.

In addition to enhancing the implementation of demand stimulus policies, the Federal Reserve can also hamper the implementation of fiscal policy. Peter Hall, for example, has argued that a powerful central bank can inhibit demand stimulus policies enacted by the national government (Hall 1989, 379). Even a central bank that does not have the power to block demand stimulus legislation could in fact block the implementation of such policies by making the cost of credit prohibitively high. Fed decision-makers might block these demand stimulus policies either for ideological reasons or because they believe that the policies being pursued by Congress are detrimental to the economy.

Relying only on the executive and legislative branches of the federal government to get the economy going during a contraction, then, arguably is (and in the 1930s was)
shortsighted. There needs to be a focus on a third actor: the Fed.  

The Assessment of Depression Era Monetary Policy

Although the Federal Reserve System did not play the same role in terms of financial leadership in 1929 that it does today, it did have certain roles that President Herbert Hoover and the Congress expected it to fulfill. Serving as the "lender of last resort" was the most prominent of the roles the Federal Reserve System was expected to take. At this, the Federal Reserve System failed.

I am not alone in this assessment. I have suggested that the Federal Reserve System could have increased money and credit in an effort to prime the economy after the Crash, but it did not. Richard Timberlake also maintains that the Federal Reserve System failed:

The most obvious and conventional of credit sources had been the twelve Federal Reserve banks. They were the touted lenders of last resort, the legalized descendants from the "extra-legal" and illegal clearinghouse associations. However, during the Great Contraction of 1929-1933, the Fed

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6 With the Fed, the role of inflation tends to be emphasized since it is a very real side effect of monetary policy designed to increase employment or output. While the Fed could try to accelerate economic performance by cutting interest rates or purchasing U.S. government securities, it must also be careful to avoid policies that would be inflationary since these would be harmful to the U.S. economy.
banks had turned out to be lenders of no resort (Timberlake 1993, 275).

Timberlake suggests that the creation of the Reconstruction Finance Corporation was intended as a response to the failure of the Federal Reserve System during the Great Depression. He contends that the Reconstruction Finance Corporation was "the first substitute institution—one that was an obvious surrogate for the floundering Federal Reserve System" (Timberlake 1993, 275).

Martin Fausold has made a similar argument about the failure of the Federal Reserve System. In his study of the Hoover presidency, Fausold states that the role of the Reconstruction Finance Corporation was "to infuse $2 billion of credit into the economy" (Fausold 1985, 145). Fausold also suggests that Hoover turned to the Reconstruction Finance Corporation due to "the cautiousness of the Federal Reserve System" (Fausold 1985, 163). This cautiousness denied credit that might have been used to "prime the pump."

If these charges are accurate, at least two questions remain. First, why did the Federal Reserve System act as it did during the Great Depression? Second, why were there differences in what the district banks did from region to region? In the next chapter, I will develop propositions and testable hypotheses that will be used to examine these questions.
Chapter Two: Propositions and Hypotheses

I will now move from the arguments of the last chapter to more specific propositions and testable hypotheses. This chapter serves as a bridge between the previous chapter's arguments and the empirical analysis of the following chapter.

Before drawing any conclusions about the behavior of the Federal Reserve System during the Great Depression, it is necessary to get an idea of Fed activities prior to the Great Depression. I will begin my study in January 1924 and examine the period through December 1941. Starting the study in 1924 gives five years prior to the Great Depression that can be used as a benchmark against which to compare Fed behavior after October 1929. Without this comparison, it may not be possible to distinguish the actions of the Fed after the stock market crash from its actions before the crash. For example, if only the Depression era is examined, one would be less sure that an expansionary policy in October 1929 was a response to the economic downturn rather than a response to seasonal factors or a longer term trend.

I end the study in December of 1941 due to the entrance of the U.S. into World War II. At this point it becomes much more difficult to isolate any Fed policy responses to the Depression because of the mobilization of the U.S. economy
for war. Mobilization required using all available labor resources, not only white males but also women and African-Americans. This in turn alleviated one of the greatest concerns of the Depression--an extreme labor surplus with very little demand for labor--and eliminated any need for Fed action to prime the economy.

Dependent Variables

In this study the dependent variables are Federal Reserve policy choices during the Great Depression. The independent variables seek to tap the influence that other actors in the policy making process (Congress or the president, for example) may have had on those policy choices. The focus will be on policy makers and policy choices instead of economic theory because prevailing economic theory arguably was not the only factor influencing the choices made by the Federal Reserve. Factors emphasized by economic theory will still need to be considered to avoid any potential problems with specification error, however.

To tap the dependent variables, Fed policy choices, I have chosen five different measures: total Federal Reserve holdings of U.S. government securities, and the discount rates at the New York, Minneapolis, Richmond, and San

\* The discount rate is the interest rate that is charged to banks when they borrow money from the Federal Reserve
Francisco Federal Reserve Banks (BONDS, NYDR, MINNDR, RICHDR, and SFDR respectively). The discount rates and holdings of U.S. government securities are useful choices for dependent variables since changes in Federal Reserve policy are directly reflected in changes in the values of these variables. These data were collected from the monthly Federal Reserve Bulletin, Banking and Monetary Statistics, the Annual Report of the Board of Governors, and the Annual Report of the Federal Reserve Board.

Propositions and Hypotheses: The Role of Partisan Control

I will suggest several theoretical propositions about why discount rates and holdings of U.S. government securities changed as they did between 1924 and 1941. I will first discuss the theoretical proposition, and then move from the proposition to testable hypotheses.

The first two propositions are based upon assumptions about the role of U.S. political parties in responding to the demands of the disadvantaged in society. First, if a majority of the members of the Board of Governors are appointed by a Republican president, the Federal Reserve System will engage in tight money (contractionary) policies such as the sale of government securities by the Federal System.
Reserve System.* In this view, Republicans tend to be economic conservatives who support business interests. This support could take the form of stable interest rates that were set at such a level as to keep inflation to a minimum. Interest rates that minimize inflation tend to be relatively high. The effect of this action would be to take money out of circulation by contracting checkable deposits; this would slow or restrain economic activity. Although this type of response would benefit banking and financial interests specifically, it could also benefit manufacturers and others by maintaining price stability. A stable price level makes long-term planning easier since, ideally, volatility in various economic other variables would be reduced.

Tight money policies also benefit banking and financial institutions by increasing interest rates and controlling the price level, thus increasing the value of dollars used to pay back loans. The value of the dollars is increased due to their increased scarcity. As the money in circulation declines, prices decrease and each dollar can purchase more goods. If the value of each dollar has increased (since each

* I am assuming that party affiliation can work as a proxy for monetary policy views and that these views are shared by party members. In the first proposition, for example, Republicans are assumed to be monetary conservatives who favor tight money policies. A Republican president would support tight money policies and would then appoint like-minded people to the Board of Governors.
dollar can purchase more goods), the people who lend money (banking/financial interests) will be paid more in real terms when loans are paid back.  

Second, if a majority of the members of the Board of Governors are appointed by a Democratic president, the Federal Reserve System will adopt easy money (expansionary) policies. Democrats are assumed to support policies that benefitted people who were less well off economically. This would involve the purchase of government securities by the Federal Reserve System. This purchase of government securities by the Fed would increase the money supply. An increase in the money supply would increase the price level, thus reducing the value of each dollar. This action would benefit borrowers since loans would be paid back with a fixed number of dollars that would now be worth less. The borrower benefits since the lender is paid back less in real terms.

This second proposition is based on the argument that the Democrats were more responsive to the needs of people who were suffering because of the Great Depression. Ball and Cooper suggest that "FDR was a classic conservative in the British tradition, who saw duty associated with power. It

* Real money \((M/P)\) is defined as nominal money \((M)\) divided by the price level \((P)\). If the price level decreases while nominal money is held constant, real money increases.
was the duty of the powerful, including the leaders of government, to respond to the needs of the poor." They also point out that Hugo Black, a Democrat, while still a member of the U.S. Senate, "blasted President Hoover's claims that the ills of the nation could be solved by the private sector without the federal government" (Ball and Cooper 1992, 56-58).

Even though FDR promised during the 1932 campaign to balance the federal budget, he acknowledged the possibility of running a budget deficit to help people hurt by the Depression. FDR elaborated on this in a 1932 campaign speech:

> If starvation and dire need on the part of any of our citizens make necessary the appropriation of additional funds which would keep the budget out of balance, I shall not hesitate to tell the American people the full truth and ask them to authorize the expenditure of that additional amount (Parrish 1992, 286).

Lower interest rates and expansionary policy by the Fed would support both of FDR's seemingly contradictory positions. If the President or Congress want a balanced budget, lower interest rates would increase economic activity and therefore boost tax revenues. If the President or Congress decide to run a deficit, lower interest rates would decrease the cost of borrowing. A potential drawback of this second strategy is that a lower interest rate might discourage potential lenders from lending, thus defeating
the goals of the expansionary policies.

These two propositions about the economic beliefs of Republicans and Democrats suggest the first two hypotheses:

H1: If a majority of the members of the Board of Governors are appointees of a Republican president, holdings of U.S. government securities by the Federal Reserve System will decrease.

H2: If a majority of the members of the Board of Governors are appointees of a Democratic president, holdings of U.S. government securities by the Federal Reserve System will increase.

Testing these two hypotheses requires one independent variable with three values: -1 = majority Democrat appointees on the Board of Governors, 0 = an even number of Republican and Democrat appointees, and 1 = majority Republican appointees. I decided to use one variable with three categories instead of a raw count of members due to the changing total number of members of the Board of Governors during the period under study.¹⁰

¹⁰ The Banking Act of 1935 set the number of appointed members of the Board of Governors at seven. Prior to 1935, the number of appointed members of the Board of Governors was six (Moore 1990, 213). With an even number of members, it was possible to have an even number of Republicans and Democrats on the Board. Having a variable for partisan control with three categories allows these possibilities to be taken into account more readily than a raw count of membership.
Propositions and Hypotheses: The Role of Elections

The next proposition is that the Federal Reserve System will adopt easy money policies prior to either a congressional or presidential election. The logic behind this proposition is that easy money policies make the electorate happy by making credit easier. If the voters are happy, elected officials stand a better chance of being reelected. This gives elected officials incentive to pressure the Federal Reserve to pursue policies consistent with reelection goals.

With these propositions, I hope to examine the possible existence of a "political monetary cycle" during the Great Depression. Nathaniel Beck has done some of the best work on this subject for the post-1945 period. He starts with the assumption that "presidents wish to be reelected; if one is not eligible for reelection, one prefers that the White House remain with one's party" (Beck 1990, 115). If we start with this assumption, it would then be reasonable to conclude that candidates would support policies that would help them, or members of their party, get elected or reelected. This would include expansionary monetary policies favorable to their electoral efforts.

This argument for presidential candidates could then be extended to members of the U.S. House and Senate. Friedman and Schwartz have described the kind of influence that
Congress could have on the Fed:

That modest program [the open market purchases of 1932] would very likely never have been expanded into a major one, or perhaps even carried out, if it had not been for direct and indirect pressure from Congress. Harrison [George Harrison was the governor of the Federal Reserve Bank of New York] told the executive committee of his directors on April 4 that apparently "the only way to forestall some sort of radical financial legislation by Congress, is to go further and faster with our own program" (Friedman and Schwartz 1963, 384).

Finally, for this version of a political monetary cycle to work it needs to be assumed that even though the parties might have had different constituencies and beliefs about economics, the desire to get elected or reelected would be paramount.

The following two hypotheses could be examined to determine the possible existence of a political monetary cycle:

H3: In the three months prior to a presidential election, holdings of U.S. government securities by the Federal Reserve System will increase.

H4: In the three months prior to an off-year congressional election, holdings of U.S. government securities by the Federal Reserve System will increase.

If the third and fourth hypotheses are not falsified, this would lend support to the idea that the Federal Reserve was subject to external political influences. Two dummy
independent variables were used to test these hypotheses, one for a presidential election and the other for an off-year congressional election.

It is difficult to determine an appropriate time frame in which to test these hypotheses. How exactly should the approach of a presidential or congressional election be operationalized? Above, the hypotheses focus on the quarter immediately preceding a presidential or congressional election. This arguably would give the expansionary policies time to take effect (at least in the minds of the electorate), yet place the expansionary policies in a period of time close enough to the election that they would not be forgotten by voters.

A remaining difficulty is sorting out the different effects of congressional versus presidential elections in influencing the Fed. It will be difficult to determine whether it is the congressional or presidential election driving any observed political monetary cycle during a presidential election year.

Aside from the methodological difficulties in testing for a political monetary cycle, there are also problems with the underlying assumptions. The first of these is that the mechanism that would drive such a cycle is never explained. As will be discussed later, the contemporary Fed maintains a level of independence that would tend to make pressure from
elected officials ineffective. The second problem when examining a political monetary cycle prior to 1935 is that Fed policymaking was fairly decentralized, making concerted pressure difficult. The third problem is that the idea of a political monetary cycle assumes that the voters understand IS-LM analysis,\textsuperscript{11} or at least behave as if they do.\textsuperscript{12} This is problematic since it assumes that every voter understands IS-LM analysis and has the same goals when voting. Despite these problems, the political monetary cycle is still worth investigating due to the influence of the work in which it is cited. If evidence in support of a political monetary cycle is found, it would then be useful to search for the dynamics that are driving it since its existence would be inconsistent with the ideal of an independent Fed.

Finally, the first and second hypotheses need to be reconciled with the third and fourth hypotheses. The first and second hypotheses are based on the assumption that Democrats and Republicans have different beliefs about the role of the Fed, whereas the third and fourth hypotheses are

\textsuperscript{11} The IS-LM model is a representation of Keynesian economics in which cuts in the interest rate result in increases in economic activity and output. In the IS-LM model, cutting the interest rate would also result in increases in the general price level (inflation).

\textsuperscript{12} This assumption about behavior is sometimes compared to someone playing billiards who behaves as if they understand vectors even though they do not consciously calculate angles or magnitudes.
attempts to tap the idea of a political monetary cycle. The first and second hypotheses are intended to examine any differences between Democratic and Republican appointees to the Board of Governors. The third and fourth hypotheses attempt to see if there is a political monetary cycle to which members of both parties respond.

The distinction between these hypotheses is driven by assumptions about voters. The first and second hypotheses assume that voters will have divergent interests and would respond to different beliefs about monetary policy as offered by candidates from different parties. The third and fourth hypotheses assume that the electorate functions as a single unit with a single goal.

Propositions and Hypotheses: The Role of Regional Differences

Considerable differences in the discount rates of the various Federal Reserve Banks were observed during the period under study. Proposition five seeks to account for these observed differences. It is placed in the past tense because the creation of the Federal Open Market Committee in 1935 eventually brought unity to the policies of the Federal Reserve Banks. This regional variation is worthy of study since all of the regional banks should have been practicing an expansionary monetary policy with the initial
crash and the subsequent negative shocks to the economy. Such a response, however, did not occur. After October 1929, but prior to 1935, several of the regional banks pursued policies that were consistent neither with an expansionary monetary policy nor with each other.

Several possible explanations for these observed differences might be suggested. First, agricultural interests would very likely favor easy money policies due to the substantial amount of debt that farmers may acquire for the purchases of land, livestock and farm equipment. Agricultural interests should have had an influence on the policies of the Richmond and Minneapolis Federal Reserve Banks given their proximity to agricultural interests. Second, the influence of business and financial interests as discussed previously could have varied from region to region and account for some of the observed differences. These financial interests should have had the most impact on the New York and San Francisco Federal Reserve Banks given the role of these cities as financial centers.

These economic differences would be reflected in the policy choices of the regional Fed banks. The officials of these banks were "locals" who lived in the region at the time of their joining the regional bank and had an interest in the health of the regional economy. In addition, the leadership of these banks was extremely permeable and tended
to be representative of regional economic interests.\textsuperscript{13} Such expectations suggest the next hypothesis:

H5: The Richmond and Minneapolis Federal Reserve Banks will, in general, have lower mean discount rates than the New York and San Francisco Federal Reserve Banks between 1924 and 1941.

The dependent variables in this hypothesis are merely the discount rates of Federal Reserve banks located in these four areas. A comparison of these discount rates over time will serve as a test for the hypothesis. It will be a simple matter of observing plots of the discount rates to test the hypothesis; however, it will be more difficult to establish if it is in fact regional differences that are responsible for the variation in discount rates.

It should be stressed at this point that the regional discount rates are not intended as simple proxies for regional economic difference; rather, I am suggesting that the different discount rates are driven by regional economic differences. It will be possible to observe differences in the discount rates and to note variations in interest rates among the regions; however, it will not be possible to say with any certainty what was driving those differences. Such

\textsuperscript{13} The decentralization of policy formation that this hypothesis seeks to examine runs counter to the assumption of the first four hypotheses that there was a national economy.
a determination would require an analysis that is beyond the scope of this study.

Propositions and Hypotheses: The Role of Economic Variables

Finally, several economic variables need to be considered. The idea behind these is very straightforward: the response of the Federal Reserve System to movements in these variables would be expected to have been counter-cyclical. This is consistent with the Keynesian idea that discretionary monetary/fiscal policy should be used to "smooth out" the business cycle. The economic variables will include a stock market index, SMI; factory employment, FEMP; wholesale commodity prices, WCP; and industrial production, INDPROD. The following hypotheses need to be tested:

H6: As the stock market index decreases, holdings of U.S. government securities by the Federal Reserve System will increase.

H7: As factory employment decreases, holdings of U.S. government securities by the Federal Reserve System will increase.

H8: As industrial production decreases, holdings of U.S. government securities by the Federal Reserve System will increase.

H9: As wholesale commodity prices increase, holdings of U.S. government securities by the Federal Reserve System will increase.
System will decrease.

It is a simple matter to operationalize and test these hypotheses with the available economic data found in the Federal Reserve publications discussed earlier.

Other Factors Potentially Influencing Fed Behavior

One seemingly obvious proposition that I am not considering explicitly deals with partisan control of Congress and the presidency. If the White House, the House of Representatives, and the Senate are all controlled by the Democratic party, it would be expected that both fiscal and monetary policy would be expansionary. I am not examining this proposition because all three of these institutions changed parties only once during the time period I am considering, and these changes all occurred after the market crash in 1929. It will be interesting, however, to see if there are notable spikes\(^\text{14}\) in monetary policy at the time these shifts in partisan control took place since this would reveal a simple version of the political monetary cycle.

In the next chapter I will test the nine hypotheses presented here using graphs, descriptive statistics, and measures of association when appropriate. The results of

\(^{14}\) I am using the term "spike" to refer to any large movement in the dependent variables from one time period to another.
that examination will help to fill in a large part of the
story of the pre-1935 Fed and its subsequent behavior during
the period under study.
Chapter Three: Data Analysis

In this chapter, I will examine the data for any evidence in support of the five non-economic hypotheses suggested earlier. I will also look for the apparent impact on Fed behavior of the four economic variables discussed previously. Finally, I will consider alternative explanations for Fed behavior during the Depression.

Partisan Control

Can knowing which political party had a majority of the appointees on the Board of Governors help to explain the character of monetary policy during the Great Depression? The previous chapter specified two hypotheses:

H1: If a majority of the members of the Board of Governors are appointees of a Republican president, holdings of U.S. government securities by the Federal Reserve System will decrease.

H2: If a majority of the members of the Board of Governors are appointees of a Democratic president, holdings of U.S. government securities by the Federal Reserve System will increase.

The period under study can be broken into three shorter time periods based on which political party had a majority of the appointees on the Board of Governors. During the
first period, January 1924 to August 1930, neither party controlled the Board of Governors. This situation existed again briefly in May of 1933. The second period, September 1930 to April 1933, was marked by Republican control of the Board of Governors. The final period, June 1933 to December 1941, was, not surprisingly, a period of control by the Democrats.

The first period was marked by considerable volatility in holdings of U.S. government securities. The plot in Figure 1\(^{15}\) shows that there did not seem to be a regular pattern in the purchases of U.S. government securities by the Fed. What is interesting to note, however, is the drop in holdings of securities before 1929 (the Fed was pursuing contractionary monetary policy) and then the increase after the market crash.\(^{16}\) In other words, the period preceding the market crash was marked by contractionary monetary policy that may have actually helped to bring on the crash.

In September 1930, with Herbert Hoover as president, Republican appointees became a majority on the Board of

\(^{15}\) U.S. government securities (labelled NBONDS) are measured in ten million dollar increments in order to examine their values on the same graphs as the values of the four economic variables (which are indexes that range from 0% to 100%).

\(^{16}\) After the crash, large scale purchases of U.S. government securities by the Fed did not start until December 1929. This is consistent with the suggestion in Chapter 2 that the delay was a symptom of Fed weakness.
Figure 1. Fed Holdings and Party Control, 1924-1941
Governors. This period, which ended in April 1933, saw an increase in the holdings of U.S. government securities by the Federal Reserve System. This would be consistent with a counter-cyclical response to the Depression.

The increased purchases during this period may not have been a function of the party of Board members, however, Rather, the policy change may in fact have been a result of pressure from Congress. As discussed in Chapter 2, Congress, in 1932, started to pressure the Fed to engage in more expansionary monetary policies; this may have driven the Fed’s increased level of purchases later that year.

During the final period, June 1933 to December 1941, the Board of Governors was controlled by Democratic appointees. Most of this time period was characterized by consistent holdings of U.S. government securities by the Federal Reserve System. There were, however, increases in holdings of U.S. government securities in 1933 and again in 1939.

The consistency in holdings of U.S. government securities during this third period may be a function of changes in the organization of the Federal Reserve System as opposed to anything relating to party politics. During this time period, as will be discussed in more detail later, Marriner Eccles became the chair of the Board of Governors and the Banking Act of 1935 was passed. This reorganization
and change in leadership was followed by decreased volatility in Fed holdings of U.S. government securities and regional discount rates.

The Role of Elections

The next two hypotheses examine the influence of elections on the formation of monetary policy:

H3: In the three months prior to a presidential election, holdings of U.S. government securities by the Federal Reserve System will increase.

H4: In the three months prior to an off-year congressional election, holdings of U.S. government securities by the Federal Reserve System will increase.

These hypotheses will be tested by examining two-year cycles. For the hypotheses to be supported, in the three months prior to November in even-numbered years, there would be a noticeable increase in holdings of U.S. government securities by the Federal Reserve System.¹⁷ Of course, every fourth year (beginning in 1924) there is a presidential as well as a congressional election.

Examining Figure 2 indicates that only three of the

¹⁷ Any given increase may not be as large as others in the period under study; however, I am only looking for an increase relative to the period preceding the election.
Figure 2. Fed Holdings and National Elections, 1924-1941
nine elections examined (1924, 1926, and 1930) show any change in monetary policy by the Federal Reserve System in the three months prior to the election. This would not seem to indicate a relationship between elections and monetary policy.

There were presidential elections in 1924, 1928, 1932, 1936, and 1940. Only one of the three elections with a change, 1924, was a presidential election year. (The change in 1924 was actually toward contractionary monetary policy.) It is difficult to draw any conclusions from this, but there does not seem to be any difference between presidential election years and off-year elections.

The picture is further clouded when the purchases of 1932 are taken into account. These purchases, and the pressure from Congress to increase them, took place early enough in the year that they do not seem to have been electorally motivated.

Regional Differences

Regional differences might also be expected to have played a role in the policies followed by the entire Federal Reserve System. Earlier, the following hypothesis was suggested:

H5: The Richmond and Minneapolis Federal Reserve Banks will, in general, have lower mean discount rates
than the New York and San Francisco Federal Reserve
Banks between 1924 and 1941.

Figure 3 shows that the four regional banks were
clearly pursuing different policies. Perhaps the most
interesting finding in Figure 3 is that while the New York
Federal Reserve Bank did, as hypothesized, have the highest
discount rate (6%), it also had the lowest discount rate
(1%). While Figure 3 indicates that the regional banks
pursued different policies, it does not tell the whole
story. Some simple descriptive statistics might help to
complete the picture. These statistics are reported in Table
1.

Table 1. Regional Discount Rates, 1924-1941

<table>
<thead>
<tr>
<th></th>
<th>January 1924-December 1935</th>
<th>January 1936-December 1941</th>
<th>January 1924-December 1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINNDR, mean</td>
<td>3.76</td>
<td>1.63</td>
<td>3.05</td>
</tr>
<tr>
<td>NYDR, mean</td>
<td>3.15</td>
<td>1.13</td>
<td>2.48</td>
</tr>
<tr>
<td>RICHDR, mean</td>
<td>3.76</td>
<td>1.63</td>
<td>3.05</td>
</tr>
<tr>
<td>SFDR, mean</td>
<td>3.49</td>
<td>1.64</td>
<td>2.88</td>
</tr>
<tr>
<td>MINNDR, s.d.</td>
<td>.70</td>
<td>.22</td>
<td>1.16</td>
</tr>
<tr>
<td>NYDR, s.d.</td>
<td>1.19</td>
<td>.22</td>
<td>1.37</td>
</tr>
<tr>
<td>SFDR, s.d.</td>
<td>.75</td>
<td>.22</td>
<td>1.19</td>
</tr>
<tr>
<td>RICHDR, s.d.</td>
<td>.86</td>
<td>.23</td>
<td>1.13</td>
</tr>
</tbody>
</table>

Minneapolis and Richmond each had a mean discount rate
of 3.05% over the entire period under study. New York’s mean
Figure 3. Regional Discount Rates, 1924-1941
rate, on the other hand, was 2.48% and San Francisco is 2.88%. This is completely contrary to the hypothesized relationship.

The results are somewhat different if the period under study is divided into two shorter periods. The first period is from January 1924 through December 1935 and the second is from January 1936 through December 1941. These two time periods are consistent with both the decrease in volatility in 1935 and the passage of the Banking Act of 1935. The first period continues to reflect the volatility of the whole time period. If, however, only the second period is examined, the volatility virtually disappears.

These statistics combined with a reexamination of Figure 3 seem to suggest a new hypothesis. It may be necessary to think of the New York bank in a leadership role as opposed to each bank responding separately to regional differences. Even though the volatility in discount rates decreased in the second time period, New York did seem to play a leadership role throughout the entire period under study. This would suggest the following hypothesis:

HA: Between January 1924 and December 1935, district banks did not change discount rates unless the New York Federal Reserve Bank changed rates first.

This would seem reasonable given the observed behavior of the discount rates plotted in Figure 3. The Minneapolis,
Richmond, and San Francisco banks did not usually change their discount rates until after the New York bank had already done so. It should be noted, though, that these banks did not always follow the New York bank’s lead. This is shown in both the plot of the discount rates and the fact that, prior to 1936, the standard deviation for the New York bank is so much higher than for the other three banks. The higher standard deviation shows that the New York bank tried various discount rates before the other banks.

It appears that the New York bank experimented with various discount rates while the other banks waited for the results of the change. If the rate change was unsuccessful, the New York bank would either adjust the policy or return to its previous policy. If the change was successful, the other banks would follow with changes of their own. Since the New York bank changed its discount rate more often, it had a higher standard deviation.

*Economic Variables*

Finally, the economic variables that may have influenced Fed behavior need to be considered. These variables and their relationships to holdings of U.S. government securities by the Federal Reserve System are plotted in Figures 4 through 7. The relationship suggested in the first of the economic hypotheses is shown in Figure
4. This hypothesis suggested that the Federal Reserve System would increase holdings of U.S. government securities as the stock market declined. In other words, one would expect an inverse relationship between the market index\(^{18}\) and holdings of U.S. government securities. According to Figure 4, it appears that the hypothesized relationship held at various times, especially after the market crash. The peak in the market index coincided with a trough in holdings of U.S. government securities in 1929 by the Federal Reserve System. The steep declines in the market index that followed were accompanied by sharp increases in the holdings of U.S. government securities.

Figure 5 shows the relationship between factory employment\(^{19}\) and holdings of U.S. government securities by the Federal Reserve System. As with the previous hypothesis, an inverse relationship would be expected: as factory employment decreased, holdings of U.S. government securities by the Federal Reserve System should have increased. This relationship does not appear to be particularly strong. While the sharp increase in Fed holdings of U.S. government securities coincided with the decrease in factory employment

\(^{18}\) This is an index of stock prices where the 1935-1939 average is equal to 100. This variable is labelled MI.

\(^{19}\) Factory employment is tapped using an index with the 1923-1925 average equal to 100. This variable is labelled FEMP.
Mi=Market index
NBCND=Holdings of U.S. government securities in $10 million increments

Figure 4. Fed Holdings and Market Index, 1924-1941
Figure 5. Fed Holdings and Factory Employment, 1924-1941
that occurred during the early 1930s, it seems that the two were largely unrelated during most of the period under study.

Figure 6 tests the third of the economic hypotheses. This hypothesis suggested an inverse relationship between industrial production\textsuperscript{20} and holdings of U.S. government securities by the Federal Reserve System. As was the case with the previous two hypotheses, the strongest relationship appears to be during the early 1930s. Not surprisingly, however, industrial production began to increase sharply after the start of World War II. The overall relationship, however, does not appear to be strong.

Finally, the last economic hypothesis suggested an inverse relationship between wholesale commodity prices\textsuperscript{21} and holdings of U.S. government securities by the Federal Reserve System. This relationship is presented in Figure 7. As with the previous hypotheses, this relationship appears to be strongest in the early 1930s. In the period prior to this, wholesale commodity prices were fairly stable while holdings of U.S. government securities by the Federal Reserve System were relatively volatile. In the period

\textsuperscript{20} Industrial production is measured by an index with the 1923-1925 average equal to 100. This variable is labelled INDPROD.

\textsuperscript{21} Wholesale commodity prices are tapped using an index where 1926 is equal to 100. This variable is labelled WCP.
Figure 6. Fed Holdings and Industrial Production, 1924-1941.
Figure 7. Fed Holdings and Wholesale Commodity Prices, 1924-1941
after, both seem to stabilize.

To help complete this analysis, correlation coefficients for the economic variables and holdings of U.S. government securities by the Fed are reported in Table 2. These are fairly consistent with what was observed in the graphs. The relationships between factory employment and industrial production with holdings of U.S. government securities are not statistically significant, while the relationships between market index and wholesale commodity prices with holdings of U.S. government securities are statistically significant and relatively strong. All of the relationships were in the expected direction.

Table 2. Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Factory Employment</th>
<th>Industrial Production</th>
<th>Market Index</th>
<th>Wholesale Commodity Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBONDS</td>
<td>-.0831 (p=.112)</td>
<td>-.0260 (p=.352)</td>
<td>-.4781 (p=.000)</td>
<td>-.6319 (p=.000)</td>
</tr>
</tbody>
</table>

Table 3 reports correlations for the same relationships with a one month lag between the independent variables and holdings of U.S. government securities. This lag should be long enough to give the Fed time to respond changes in the independent variable, but short enough to minimize the
effects of other influences.\textsuperscript{22} The relationships with a one
month lag are not much different from the relationships
without the lag. The same relationships that were
statistically significant without the lagged variables also
are statistically significant here.

Table 3. Lagged Correlation Coefficients

<table>
<thead>
<tr>
<th>NBONDS(_{1ag})</th>
<th>Factory Employment</th>
<th>Industrial Production</th>
<th>Market Index</th>
<th>Wholesale Commodity Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.0656</td>
<td>-.0115</td>
<td>-.4756</td>
<td>-.6161</td>
<td></td>
</tr>
<tr>
<td>(p=.169)</td>
<td>(p=.433)</td>
<td>(p=.000)</td>
<td>(p=.000)</td>
<td></td>
</tr>
</tbody>
</table>

A similar type of analysis can be done using multiple
regression.\textsuperscript{23} I ran the following two models, the second
with the dependent variable lagged:

Model 1:

\[
\text{NBONDS} = 447.70 + 6.75 \text{FEMP} - 1.71 \text{INDPROD} - .46 \text{MI} \\
-8.42 \text{WCP} \\
(1.21)\textsuperscript{24} (1.72) (1.31) (1.60)
\]

\textsuperscript{22} Using a month lag is, admittedly, problematic since it
may not be enough time for information about the economy to
reach decision-makers.

\textsuperscript{23} With this type of data, there is a strong possibility
that there will be a problem with autocorrelation. The
Durbin-Watson statistic equals .057 for the first model and
.054 for the second model. This indicates a severe problem
with positive autocorrelation. There are techniques to deal
with this; however, since the focus of this study is on the
first five hypotheses, the autocorrelation problem will not
be addressed beyond its acknowledgement here.

\textsuperscript{24} The standard errors are in parentheses.
Model 2:

\[ NBONDS_{1qg} = 434.26 + 6.79 \text{FEMP} - 1.69 \text{INDPROD} - .47 \text{MI} \]
\[ (1.23) \quad (.74) \quad (.14) \]
\[ -8.33 \text{WCP} \]
\[ (.61) \]

In these two models, all of the coefficients are statistically significant. The two most notable findings are the similarity of the coefficients in the two models and the direct relationship between factory employment and holdings of U.S. government securities. This is opposite of the hypothesized relationship and is also statistically significant with the regression coefficients as opposed to the correlation coefficients.

Another way to look at these data is to calculate the correlation coefficients again after dividing the data into three time periods: January 1924 to October 1929, November 1929 to December 1935, and January 1936 to December 1941 (see Table 4). The middle period tended to have lower values for the coefficients than the other two periods. There are two possible explanations for this finding. The first is that the second period was characterized by the volatility of the market crash and the start of the Depression. It could be that the various economic indicators were changing so rapidly that the Fed had difficulty responding. Second, Republican appointees controlled the Board of Governors during this period. This could have been an indicator of
support for more restrictive or contractionary monetary policy based on Republican ideology.

Table 4. Correlation Coefficients by Time Periods

<table>
<thead>
<tr>
<th></th>
<th>Factory Employment</th>
<th>Industrial Production</th>
<th>Market Index</th>
<th>Wholesale Commodity Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBONDS</td>
<td>-.7112 (p=.000)</td>
<td>-.6177 (p=.000)</td>
<td>-.5417 (p=.000)</td>
<td>.1012 (p=.202)</td>
</tr>
<tr>
<td>Jan 1924-Oct</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBONDS</td>
<td>-.1832 (p=.059)</td>
<td>-.2370 (p=.021)</td>
<td>-.6188 (p=.000)</td>
<td>-.2821 (p=.007)</td>
</tr>
<tr>
<td>Nov 1929-Dec</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBONDS</td>
<td>-.8000 (p=.000)</td>
<td>-.7987 (p=.000)</td>
<td>.2651 (p=.012)</td>
<td>-.48752 (p=.000)</td>
</tr>
<tr>
<td>Jan 1936-Dec</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBONDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary

What can be concluded about the behavior of the Federal Reserve System during the Depression? It does appear that the Fed responded after the initial market crash; however, there was a lag between the crash and the response. The Fed did not begin purchasing securities until December of 1929 and did not start large scale purchases of securities until 1932.

There seems to be considerable evidence that the Federal Reserve System responded to clear economic downturns, but not to much else. That is, the Fed did not appear to respond to the non-economic variables. Even its responses to economic variables were weak. Since neither
economic nor non-economic variables prove very helpful in explaining Fed behavior during the Depression, an alternative explanation needs to be considered.

An Alternative Explanation: Changes in the Organization of The Federal Reserve System

From Figures 1 and 2 it is clear that there was a considerable amount of volatility in Federal Reserve policy prior to the reforms of the mid-1930s. In addition, Figure 3 shows that the policies pursued by the various regional banks were not always consistent. The leveling off that occurs in the graphs tends to coincide with the enactment of the Banking Act of 1935 and the resultant centralization of monetary policy-making.

One of the primary architects of the Banking Act of 1935 was Marriner Eccles (FDR's choice to head the Board of Governors). The role that Eccles played in suggesting many of the ideas that made up the legislation that centralized the Fed and gave the Board of Governors real power to conduct monetary policy cannot be neglected when discussing the reform of the Fed. Eccles reportedly told FDR that

if you will help bring about by law the necessary legal changes in the Federal Reserve System, then I would welcome any consideration you might give to my personal fitness to serve as governor of the Federal Reserve Board (Hyman 1976, 155).

It should not be assumed, however, that Eccles was able
to about bring these changes singlehandedly. Eccles proposed reforms of the Federal Reserve System to FDR, which FDR then suggested to his allies in Congress.\textsuperscript{25}

The reforms that Eccles proposed for the Federal Reserve System became Title II of the Banking Act of 1935. These reforms were contained in a memo that Eccles presented to FDR on November 4, 1934. The memo included eight points, three of which discussed the actual structure of the Fed and one that focused on the use of open market operations (Hyman 1976, 157-158).

Title II contained two elements that are relevant here. First was the centralization of the tools of monetary policy:

\begin{quote}
the reserve act should be amended so only the board would control the instruments altering the supply of money: the discount rate a member bank paid to borrow from a reserve bank, the required reserve a member had to hold at a reserve bank, and open market sales and purchases of government securities (Patrick 1993, 249).
\end{quote}

Second are the organizational changes the act brought about:

\begin{quote}
The proposal would alter membership of the Federal Open Market Committee, so that the board rather than reserve banks would have primary responsibility for deciding open market policy. It would force district banks to participate in FOMC
\end{quote}

\textsuperscript{25} This was not the first attempt at reform of the Federal Reserve System; however, it was the first time the reformers were able to overcome the opposition of the leadership of the district banks and regional banking interests.
purchases and sales of government securities, reducing the possibility that divisions of
opinion could hamper board decisions (Patrick 1993, 249).

These changes had the effect of centralizing the power of the Federal Reserve System with the Board of Governors. This, combined with the centralization of monetary tools, gave the Board of Governors almost total control over monetary policy. This was considered to be essential since monetary policy could be ineffective if each district bank was independently pursuing its own policies.

There is support for the argument that these changes were influential. The Banking Act of 1935 was passed on August 19, 1935 and signed by FDR on August 23, 1935. Examining Figures 2 and 3 indicates that the policies of the Federal Reserve System became more consistent across banks and less volatile after 1935. After the Banking Act of 1935, holdings of U.S. government securities (Figures 1 & 2) hit a plateau that remained essentially unchanged for the rest of the period under study. Discount rates also showed reduced volatility and increased consistency across regions after the passage of the act. Further support can be found in the descriptive statistics for discount rates discussed earlier in this chapter. The period after the passage of the act (January 1936 through December 1941) showed a considerable decrease in volatility.
One problem with this alternative explanation of Fed behavior is that it only applies to a portion of the period under study, from 1935 onward. It does not explain Fed behavior prior to 1935. It could be suggested, however, that the success of the reorganization after the 1935 demonstrates the weaknesses prior to 1935. That is, the stabilizing of Fed behavior after 1935 shows that the lack of centralization prior to 1935 resulted in conflicting policies from region to region.
Chapter Four: Conclusions

My goal in this thesis was to explain Federal Reserve behavior during the Great Depression. Specifically, I wanted to explore the influence of a set of non-economic variables on the decisions and actions of the Federal Reserve System. I also wanted to consider the effects of some selected economic variables.

In this chapter I will review the major findings of the study. I will then discuss some of the limitations of this study and consider possibilities for further research. Finally, I will examine what these findings may imply for the contemporary Federal Reserve.

Findings

Examining the impact of the non-economic variables represented an attempt to test the idea of a political monetary cycle and the effect on monetary policy of actors outside of the Federal Reserve System. I was also interested in exploring the role of partisan control of the Board of Governors. Finally, I wanted to examine the differences in the discount rates of the regional banks.

I found that there did not appear to be a political monetary cycle influencing Fed policymaking between 1924 and 1941. Except for a few cases (the open market purchase
program of 1932, for example), external actors did not seem to have much effect on Fed behavior. I found that partisan control of the Board of Governors did not play a significant role in the formation of monetary policy. I also found differences in the discount rates of the various regional banks during the period under study; however, it is difficult to say what was driving these variations. Finally, and perhaps most significantly, it appears that, of the influences considered here, the centralization of the Federal Reserve System in 1935 played the biggest role in the Fed’s ability to set consistent monetary policy.

Limitations

Does it make sense to try to draw inferences from a single unique event (in this case monetary policy responses to the Great Depression) to a broader range of events (monetary policy formulation since World War II)? Although this thesis may appear to have limited generalizability due to the uniqueness of the situation under study, I would still argue that it has generated very useful information. As King, Keohane, and Verba argue: "The Alvarez hypothesis [a possible explanation of dinosaur extinction] cannot be tested with reference to a set of common events, but it does have observable implications for other phenomena that can be evaluated" (King, Keohane, and Verba 12). In this case, the
contrast between the lack of success of Fed policy prior to the reorganization that took place in 1935 and the consistency that began to characterize Fed policy after 1935 demonstrates the importance of a centralized and independent Federal Reserve System.

The three biggest limitations of this study involve generalizability, operationalization and establishing causality. The first of the problems, generalizability, is the basis for many of the criticisms of this type of research. As Robert Yin reminds us, however, we must not confuse statistical generalization with analytical generalization. In this case I am concerned with analytical generalization: whether or not one can "generalize a particular set of results to some broader theory" (Yin 1994, 36). In this case I would argue that the answer is "yes," since the results do speak to the questions of partisan control, regional differences, and political monetary cycles. Partisan control of the BOG as operationalized in this study did not appear to influence holdings of U.S. government securities by the Fed. This indicates a need for further research and revision of the stated hypotheses. Regional differences did exist, but not as hypothesized, again indicating a need for further research and revision of the suggested hypothesis. There was no support for a political monetary cycle.
The second and third areas, operationalization and establishing causality, are frequently problems in research. Demonstrating political or social opposition to a policy choice is extremely difficult. How should this type of opposition be operationalized? I have constructed arguments in this thesis based on assumptions about Republicans and Democrats, proximity of elections, and regional differences.

More archival research will be needed to establish causality in a more convincing manner. Perhaps a content analysis of the minutes of various Fed meetings, the memoirs of individual members of the Fed, regional newspapers, and publications of various regional economic interests could be used to extend the analysis. While the intended unit of analysis in this thesis was the Fed as a whole, an analysis of the individuals involved in the formation of monetary policy would be the next logical step to establish the causal links between the independent and dependent variables more explicitly.

This thesis has forced me to rethink assumptions about Republicans and Democrats in monetary policy formation. As president, Herbert Hoover did not appear any less willing than FDR to engage in programs aimed at combatting the Depression. The RFC, for example, was in response to Hoover’s perception that the Fed had failed in its role as lender of last resort. That is, the Fed was not engaging in
policy that was as expansionary as Hoover wanted.

In addition, it is not a simple matter to separate who would favor expansionary versus contractionary monetary policy along party lines. For example, a person whose income is dependent upon the interest received from savings accounts would support higher interest rates. On the other hand, a person whose wealth is composed of bonds would support lower interest rates since this would increase the value of their bond holdings.26

One possible approach to this problem might be the use of a monetary policy index as opposed to using appointing president when evaluating members of the Board of Governors. An index could be constructed (from 1 to 10 for example, 1 being most contractionary and 10 being most expansionary) based upon academic writings and stated positions of the members of the Board of Governors. This could then be used in quantitative analyses and to get a better approximation of the support of the Board of Governors for contractionary or expansionary policy.

Furthermore, establishing that a Board member's opposition to or support for a given policy choice was in fact a causal factor in the policy choice is very

26 The value of a bond is defined as the face value of the bond divided by the interest rate. In other words, there is an inverse relationship between the value of a bond and interest rates.
problematic. These problems can manifest themselves in the choice of indicators that have little or nothing to do with a stated concept under study. They can also result in seemingly causal relationships actually being spurious. In this case, for example, some third factor could be coming into play at election time that is driving or suppressing expansionary monetary policy. One example of such a third factor could be seasonal trends.

The difficulties with this type of research (a unique event with limited data) need to be kept in mind; however, they should not serve as deterrents to pursuing research of this type. King, Keohane, and Verba argue that this is when rigorous research techniques are most useful:

Uncertainty and limited data should not cause us to abandon scientific research. On the contrary: the biggest payoff for using the rules of scientific inference occurs precisely when data are limited, observation tools are flawed, measurements are unclear, and relationships are uncertain (King, Keohane, and Verba 10).

In other words, difficulty with research is not reason enough to forgo it. Rather, it is a reason to pursue the study with more rigor and to be wary of its limitations.

Evaluation

The centralization of authority and of control over the instruments of monetary policy with the Board of Governors in 1935 resulted in more consistent monetary policy. This
gave the Fed more leverage in carrying out monetary policy that may have been very unpopular.\textsuperscript{27} It allows the Fed to play a counter-majoritarian role similar to that of the U.S. Supreme Court. For example, the Fed has more independence to pursue anti-inflationary policies when these may be very unpopular with economic actors who are adversely affected by the contractionary policies and with elected officials who may be held responsible for the policies at election time.

The contemporary Federal Reserve System is able to resist political pressure and pursue consistent nationwide monetary policies. The Fed can resist demands to practice potentially harmful inflationary policies. It can also resist pressures to practice potentially harmful contractionary policies designed to strengthen the U.S. dollar.

The Federal Reserve has to negotiate between two extremes in the economy: inflation and recession. Inflation results in difficulties in planning for various economic actors, a devalued dollar, and increased economic instability. Recession results in a contracting economy that not only cannot provide jobs for new entrants to the labor

\textsuperscript{27} Centralizing power with the Board of Governors reduces the number of points where actors could influence Federal Reserve policy. For example, it would not make sense to pressure the president of the Cleveland bank if the bank is only following the directives of the Board of Governors.
force, but may actually result in a loss of jobs. The Federal Reserve System is charged with pursuing policies that will keep the economy at a point somewhere between inflation and recession. This is, of course, difficult due to the lag time between when a policy is implemented and when it starts to have an impact.

This policymaking process is further complicated due to the pressures put on the Fed by actors outside of the process of monetary policy formulation. There are several situations where external pressure on the Fed could increase. The first such situation is when the value of the U.S. dollar begins to decline. If the desired goal of monetary policy is to strengthen the dollar, the Fed should act to increase interest rates. This policy, however, could cause a recession if interest rates are raised to a

2 When the Fed is expected to act, it is expected to act in a manner that is consistent with the demand stimulus option discussed earlier. That is, anyone who expects Fed action would expect a counter-cyclical response. While not all schools of economic thought support Fed action, the opponents tend to be laissez-faire and oppose the idea of a central bank altogether. Economists who subscribe to monetarist, classical and new classical theories of macroeconomics oppose any role for a central bank whatsoever. The monetarists, for example, advocate setting money supply growth at a fixed rate and then eliminating all monetary policy options. When examining Fed action, it is necessarily assumed that any action taken will fit into the demand stimulus or Keynesian framework since other schools of economic thought oppose an interventionist role for the Fed. A president could, of course, appoint someone who opposes Keynesian policy prescriptions and supports a laissez-faire approach to monetary policy.
point where economic activity actually starts to decrease.

The second situation to consider is recession. The expected response to a recession is expansionary monetary policy. The most obvious tool here is interest rates. Cutting rates could start the economy again; however, it could also cause inflation that would have its own detrimental results. One possible side effect is devaluation of the dollar, creating a new set of problems. For example, if the U.S. dollar is seen as a bad investment, it will be harder for the U.S. government to borrow money.

If the Fed were to respond to these situations in a manner that appeased elected officials and voters, the result could be the formulation of policy that is actually harmful to the economy over the long run. The Fed's ability to resist these pressures is essential for the economic health of the U.S. Centralization and independence** allow the Fed to pursue policies that it believes to be optimal.

Two of the biggest critiques of Fed independence are that "experts" frequently cannot agree on proper policy responses and that, in a democracy, such important decisions

** By independence I mean the ability of the Fed to make monetary policy without having to consult either Congress or the President and to make policy without having to worry about electoral consequences. While there can be informal signalling by, for example, the Senate Banking Committee or the Secretary of the Treasury, there is no formal mechanism for control of the Fed short of changing the authorizing legislation.
should not be left to un-elected officials. My response to this is that policy needs to be designed and implemented at some point and that some body is needed to sort through the expert opinions and make a decision without the worry of electoral consequences.

I would argue that Fed independence is desirable since it shifts the focus of monetary policy from short-term to long-term goals. Focusing on short-term goals would be inflationary and would increase the volatility of various economic variables. This makes any form of business or financial planning difficult. Planning becomes difficult not only for those who are hoping to expand their businesses or purchase homes, but also for those who are lending money since it would be difficult to forecast inflation and set

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30 There is also a possible question about the constitutional authority of the Fed to engage in policy formation as it does. The Fed engages in the expansion and contraction of the money supply by regulating the availability of credit (lower interest rates and reserve ratios make it easier to borrow). This then changes the dollar value of checkable deposits which are a part of the narrowest definition of money, M1. Expanding and contracting checkable deposits in this manner is a form of money creation since checkable deposits are as much a part of M1 as currency and coin. Article 1, section 2 of the U.S. Constitution gives Congress the authority "To coin Money" and to "regulate the Value thereof." Had the Framers of the Constitution been aware of fractional banking, would they have wanted fractional banking regulated by Congress as well as the coining of money? One response to that question is that Congress did take steps to regulate fractional banking by creating the Fed.
interest rates.\textsuperscript{31} If the Fed were less independent than it is now, or if it were subject to more control by elected officials, the result might very well be micro-management of monetary policy for electoral goals which could then hurt economic stability. In sum, I would suggest, that if the Fed is going to continue in existence, it needs to maintain its current level of independence.

\textit{Summing Up}

This thesis explored many suggested determinants of Federal Reserve decision-making between 1924 and 1941. While the suggested causal factors did not always have much influence, useful information was generated. First, the importance of centralization in Fed policymaking was demonstrated through the volatility and lack of consistency in policy from district to district in the pre-1935 Federal Reserve System. Second, the need for more in-depth explorations of the causal dynamics of Fed decision-making was underscored.

This thesis, though not determining all of the factors influencing monetary policy formation during the Depression,

\textsuperscript{31} Interest rates (in their simplest form) are usually considered to be made up of two components. The first is a real return on money lent when paid back to the lender. The second element is the expected rate of inflation. Interest rates can be thought of as the sum of these two items.
does provide a starting point for further studies of the topic. Such studies could extend, refute, or do both with the findings generated here.
References


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