

The Effect of Changes in Monetary Policy on the Expectations, Spending, and Hiring Decisions of Small Business Owners

by

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William C. Dunkelberg and Jonathan A. Scott
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The transmission channels through which changes in monetary policy affect private sector spending and hiring are incompletely understood, especially in the small business sector. This sector is responsible for most of the job growth and innovation in the U.S. economy and half of the private sector GDP production. Despite the importance of this sector's contribution to real economic activity, many small firms are not closely tied to the capital markets.

This study documents how small firms react to unexpected changes in monetary policy. Monthly survey data obtained from the National Federation of Independent Business illustrate how owner expectations are affected by these changes, with corresponding adjustments to spending and hiring plans, and ultimately changes in actual spending and hiring. Thus, the results provide some new micro level insight into how quickly changes in monetary policy work through the small business sector and ultimately the aggregate real economy.

This analysis is unique among studies of the transmission channels of monetary policy in two ways. First, the data include small firm expectations for both the economy as it affects general business conditions and their own sales as well as for spending and hiring plans. Two of the surveys are bifurcated on the date of a surprise policy announcement, thus permitting a more precise examination of how the policy change affected expectations and plans of small firm owners. Second, the disaggregated data allow a comparison of the reaction of interest-sensitive sectors such as construction and manufacturing to less sensitive sectors such as non-professional services or retailing to monetary policy changes.

Overall Findings

The findings indicate that the small business sector responds immediately to announced changes in monetary policy and that these changes have significant impacts on employment and prices, the two major concerns of monetary policy.

Highlights

- Small business owners respond within two weeks of unexpected changes in monetary policy announced by the Federal Reserve Board. As measured by the percent of firms responding positively to a group of questions about expectations and spending plans, the changes were significant.
- Owners with no exposure to interest rates and borrowing costs respond in much the same way as interest-sensitive borrowers.
- These changes produced are associated with significant changes in the inflation and unemployment rates in the month after the announcement.
- The responses to changes in monetary policy differ substantially by industry groups.
- The spending responses do not conform to the simple predictions of capital market models of the response to monetary policy (e.g. lower rates do not always produce positive spending and hiring responses).
- Firm owners clearly interpret Federal Reserve Board actions in the context of other information about the economy and their local markets. A rational expectations model appears to describe the responses of owners better, but this model cannot be used to predict systematically the responses of owners to policy changes.

Methodology

The analysis relies on the monthly surveys conducted by the National Federation of Independent Business of their members. These surveys ask about the owner's outlook for the economy and overall business environment, company plans for hiring, capital spending, inventory investment, worker compensation and selling prices. Two of the surveys were bifurcated in April and September 2001 when the Federal Reserve Board announced surprise changes in monetary policy, with unexpected inter-meeting declines in the target Fed funds rate. In addition, the response of owners to an unexpected increase in the target Fed funds rate in April 1994 was examined as well. The former changes with the bifurcated samples allow a more precise assessment of how owner expectations and plans change.

The mean responses to the questions are computed before and after the policy change for April and September 2001. Significance is assessed by examining the sampling error between the two periods. Tests are conducted to ensure that the responses received before the policy change and after are statistically independent.

Assessment of the effect of policy changes on actual hiring and spending plans are more difficult to assess because of the effect of other economic events taking place during that time. An alternative approach is used that incorporates the post-policy change responses to hiring plans and planned price changes into previously estimated equations that related these variables to the unemployment rate and CPI inflation.

The responses are also disaggregated by industry for construction, manufacturing, retailing and non-professional services. The smaller sample sizes made it more difficult to assess the significance of changes,

but non-parametric tests still provide evidence of important negative effects on expectations and plans for the construction industry.

For the April 1994 policy change there is no bifurcated sample but it was a surprise increase instead of a surprise decrease as was the case in April and September 2001. While significant changes were identified comparing May versus March responses, they could have been attributable to seasonal factors. After seasonally adjusting the responses, none of the signs of the changes are affected, although the significance changes for a few of the variables.

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Introduction

The transmission channels through which changes in monetary policy affect private sector spending and hiring are incompletely understood, especially in the small business sector. Most of the research has been based on an analysis of time series aggregate data on investment spending (including housing). The small business sector is responsible for most of the job growth and innovation in the U.S. economy and half of the private sector GDP production but is quite different from the population of larger firms that has been the traditional focus of investment studies.¹

This study documents how small firms react to unexpected changes in monetary policy. Monthly survey data obtained from the National Federation of Independent Business illustrate how owner expectations are affected by these changes, with corresponding adjustments to spending and hiring plans, and ultimately changes in actual spending and hiring. These expectations and plan variables have been shown to be significantly related to spending and hiring at the macro level with a short lag (Dunkelberg, Scott and Dennis, 2003). Thus, the results can provide some new micro level insight into how quickly changes in monetary policy work through the small business sector and ultimately the aggregate real economy.

This analysis is unique among studies of the transmission channels of monetary policy in two ways. First, the data include owner expectations for both the economy as it affects general business conditions and firm sales as well as for spending and hiring plans. Information is also available on recent spending and hiring activity. The periodicity of the data makes it possible to identify how quickly owners respond to news of Federal Reserve Board (Fed) policy changes. Two of the surveys are bifurcated on the date of a surprise policy announcement, thus permitting a more precise examination of how the policy change affected expectations and plans of small firm owners. Second, the disaggregated data allow a comparison of the reaction of interest-sensitive sectors such as construction and manufacturing to less sensitive sectors such as non-professional services or retailing to monetary policy changes. Because the economy is dynamic and constantly changing, it is possible that owner responses could be contaminated by other events. Comparing response data for periods of 15 days either side of a surprise announcement substantially reduces the possibility that other events might have impacted owner views (although it is still possible that bad or good news in the days surrounding an announcement could mitigate or exaggerate the measured responses of owners).

The remainder of the report is organized as follows. Section II reviews some of the literature related to the monetary policy transmission mechanism in the context of its potential effect on small firms. Section III describes the survey

¹ See <http://app1.sba.gov/faqs/faqindex> for the response to the frequently asked question: "How important are small businesses to the economy?"

data used in the analysis. Section IV presents the analysis of small firm responses to changes in monetary policy. Section V summarizes the findings.

The Monetary Policy Transmission Mechanism

Of the several schools of thought regarding the channels through which monetary policy exercises its influence on real economic activity, the most familiar is the *asset price view* (Taylor, 1995). This view focuses on changes in interest rates (and associated changes in asset values and exchange rates) on the spending decisions of businesses and households. The higher the market rate of interest, the fewer the number of investment opportunities whose rate of return exceeds the cost of capital and, consequently, the lower the level of investment spending. And, rising interest rates change the price of current consumption and reduce financial market wealth, adversely affecting consumption. Except for housing (treated as part of gross private domestic investment), little empirical evidence is available to support the notion that interest rate changes have a strong direct effect on consumer spending. However, it appears that changes in asset values that are viewed as permanent do have a modest effect on consumer spending, raising spending about \$5 for every \$1,000 increase in permanent wealth.

A second view focuses on the supply of credit and the lending criteria of banks. In the case of consumers and firms, banks may not allocate credit simply through changes in the price of credit, but also refuse to take on certain credit risks and not lend at any price (rationing). This *credit supply* view sees monetary policy producing changes in credit standards at lenders as well as in rates charged as the monetary transmission channel (Bernanke and Gertler, 1995). If the transmission channel is through the supply side (changes in banks' risk tolerance and lending standards), firms will not notice the effect of changes in monetary policy until they apply for a new loan or a renewal (which many never do or do so irregularly). "Long and variable" is looking very plausible here. But, the model for affecting economic agents is not all-encompassing, with observations that "... monetary policy works at least in part through 'credit' (i.e., bank loans) as well as through 'money' (i.e., bank deposits)" (Bernanke and Blinder, 1992).

Other views rely on various structural rigidities in the economy to transmit monetary policy effects (the friction transmission view) to the real sector. Rigidities in the wage structure or price setting or in the ability of economic agents to reallocate assets in their portfolios explain why changes in nominal variables like the money supply or credit can affect real variables (Christiano, Eichenbaum, and Evans, 1997). These models typically depend on expectations of future inflation or nominal returns to drive decision making, transmitting the effects of monetary policy to real variables.

How the friction transmission model works at the micro level is not exactly clear. According to Christiano et. al: "The first friction is that some firms do not

immediately adjust prices in response to monetary policy shocks while ex post, output is demand determined. The effect of this friction is that aggregate output falls in response to a monetary contraction. The second friction is that households do not immediately adjust their nominal saving in response to monetary policy shocks. The effect of this friction is that monetary contractions disproportionately affect the reserves of banks and, hence, the supply of loanable funds. The result is a rise in interest rates which induces firms who need working capital to cut back on their scale of operations and aggregate output declines” (Christiano, et. al. 1997, p. 1203). The limited participation model is driven by “assuming that, in any given period, households must determine how much money to deposit with financial intermediaries prior to the realization of the monetary shock” (Christiano et. al. 1997, p. 1203). The sticky price version requires that intermediate goods producers set their prices first, then the policy change occurs and output is demand determined based on prices set before the policy change. Ultimately, it appears that firms are confronted with interest rate or credit availability changes that effect real variables. If the firm doesn’t borrow in the period, these changes will not matter.

Another channel for monetary policy transmission is suggested by rational expectations theory. Decision makers use the information provided by policymakers’ actions to predict future values of important variables such as company sales and then to make relevant spending decisions in the current period, not just in future periods. This view is especially pertinent to owners of firms that are continuously making sales, price and labor cost forecasts. These forecasts form the basis for plans to hire and spend in the current and in future periods. If changes in monetary policy announced to the public affect these forecasts, then changes in policy can immediately affect spending and hiring, long before business owners react when they apply for a loan or before the effect of policy shows up as a change in the number of customers coming in the front door (e.g. fewer home buyers in response to higher long term rates).

Furthermore, many business owners have no debt, do not use credit and have no assets other than their homes and businesses. If these owners use the information conveyed by changes in Fed policy to formulate forecasts of future economic activity and act on those expectations, monetary policy can still have its intended effect on these firms. This approach, however, does not produce clear and reliable predictions of the response to changes in monetary policy (Juks, 2004), because the response to a change in the Federal Funds target may depend not on the direction and size of the interest rate change but on how the change is interpreted in the context of economic conditions.

With the exception of the rational expectations perspective, the other views of how monetary policy transmission occurs have some shortcomings when applied to the small business sector. Although banks are not the primary source of capital for starting a new firm, they are the primary source of funds for small firms once started, providing working capital and funding for investment in

plant and equipment (Berger and Udell, 1998; Dunkelberg and Cooper, 1983). Changes in the cost and availability of funds at banks resulting from changes in monetary policy could have an important effect on small firm spending. But changes in loan terms and owner responses to these changes (for those that need capital) take time to develop. Changes in interest rates will have no effect on firms that don't borrow and those that borrow irregularly (e.g. long term loans secured by real estate). If loans re-price every five years, the effect of interest rate changes on decision makers is muted, limited only to owners borrowing or re-pricing in the current period and those with variable priced loans (increasing in frequency and perhaps making the economy more sensitive to monetary policy shifts). The period would be even longer for mortgage loans. Many firms never borrow, operating debt free.² Just how these less active credit market participants would be directly affected by changes in monetary policy through the asset price/interest rate mechanism is less clear.

A rational expectations model may better describe how small firms react to (unexpected) changes in monetary policy, but this model, as noted above, does not provide clear predictions of the owner response. Some proportion of the population of small business owners follows the news and uses that information to make forecasts of future values of important variables (sales, input prices, wages etc.) and ultimately acts on these forecasts. Expectations are modified immediately and spending plans changed in response to an announced change in monetary policy. Thus, real variables as well as prices will respond to changes in policy, possibly quite quickly. But, a given policy change, say a rate cut (that arguably should affect long term rates as well), may not immediately affect spending in the manner predicted by the investment or credit channel views. Rate cuts can be followed by cuts in investment spending, for example, not increases as conventional theory might anticipate if the policy change is interpreted as "behind the curve" or a signal of a weakening economy.

Even if small firms do not directly react, their customers may. For example, consumer responses to changes in interest rates are important in the housing sector, reducing the number of customers for homebuilders. Overall, if consumer expectations or sentiment are affected by the announcement of changes in monetary policy, and this change is translated into spending changes, the effect on small firm sales could be immediate. Changes in sales affect expectations for the future and the immediate need for employees and inventories.

This perspective does not in any way invalidate the importance of interest rates or bank lending policies as vehicles for transmitting monetary policy

² Berger and Udell (1998) report that slightly over 25 percent of small firms have debt from financial institutions. After financial institutions, trade credit (18 percent) is the next largest source of non-equity external financing. Also, the percent of firms reporting regular borrowing in the NFIB monthly surveys have averaged 35% between 1990 and 2004, with a minimum of 31% and a maximum of 38%.

changes. It does, however, broaden the potential effect of these changes by including agents that generate significant amounts of output and jobs but are not active participants in capital markets. This model also accommodates a more rapid response to changes in policy, independent of the degree of capital market participation of firms.

Data

This paper uses data collected on thousands of small business owners by the National Federation of Independent Business (NFIB) to identify the responses of owners to changes in monetary policy.³ Beginning in October, 1973, NFIB surveyed a random sample of its membership in the first month of each quarter about their businesses and the economy. Questionnaires are mailed on the first day of the month, with a repeat mailing 10 days later (duplicate responses are eliminated). Beginning with 1986, the surveys were undertaken monthly. In addition to the questions detailed above, basic descriptive data were also collected (industry, sales, sales change, state, size of community etc.). In the first month of each quarter, sample size ranges from 1,200 to 2,500. In the remaining two monthly surveys, sample size ranges from 400 to 650 observations. A copy of an analysis of a recent survey report that contains all of the questions and a recent time series of responses can be found at this site: http://www.nfib.com/object/IO_24069.html.

The firms surveyed are representative of a very important part of the overall economy. The Small Business Administration (SBA) website provides recent research documenting the size and importance of the small business sector of the U.S. economy.⁴ Small businesses produce roughly half of the private sector GDP and employ an even larger percentage of the private sector labor force. Studies suggest that nearly 70 percent of the net job creation in the U.S. is done by small firms with fewer than 20 employees. There are approximately six million employers in the U.S., 90% with fewer than 20 employees. There are an additional eight million or so individuals who are the only employees of their small enterprise but derive the majority of their income from the business.

The monthly survey data provide a good laboratory to study the transmission of monetary policy. These survey data have been shown to be good predictors of aggregate changes in labor markets (e.g., private sector employment), inflation, business inventories, and private fixed investment, as well as real GDP growth.⁵ To the extent that these measures of macroeconomic activity are affected by monetary policy, and the NFIB indicators anticipate changes in aggregate economic activity by one or two quarters, the ability to

³ The National Federation of Independent Business (NFIB) has over 600,000 member firms. At the beginning of the studies in 1973, membership was about 250,000.

⁴ See <http://app1.sba.gov/faqs/faqindex> for the response to the frequently asked question: "How important are small businesses to the economy?"

⁵ Ibid, fn. 2.

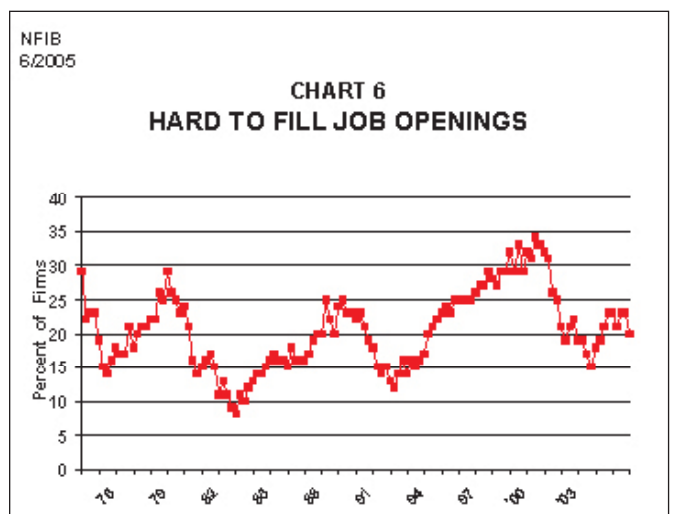
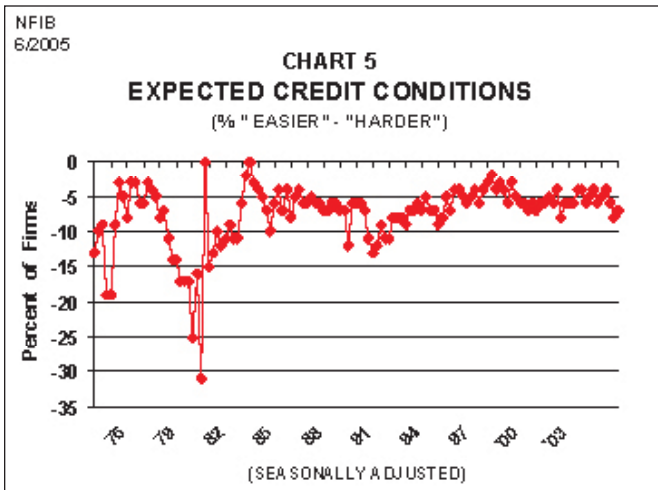
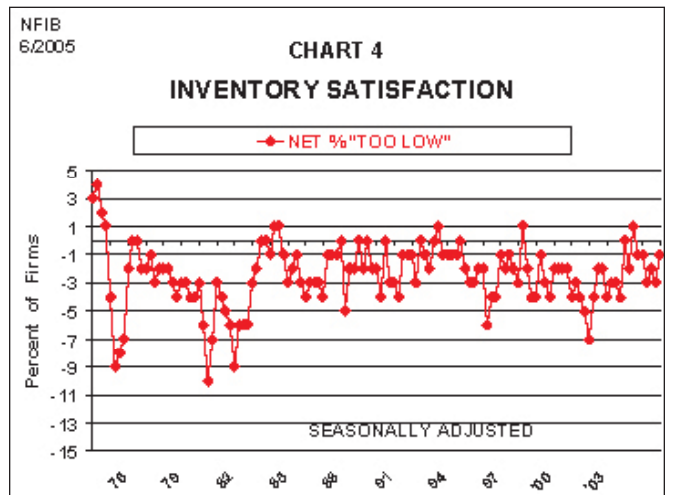
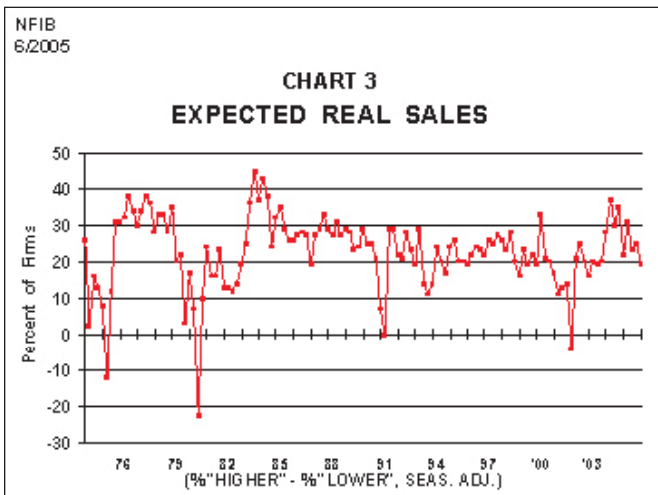
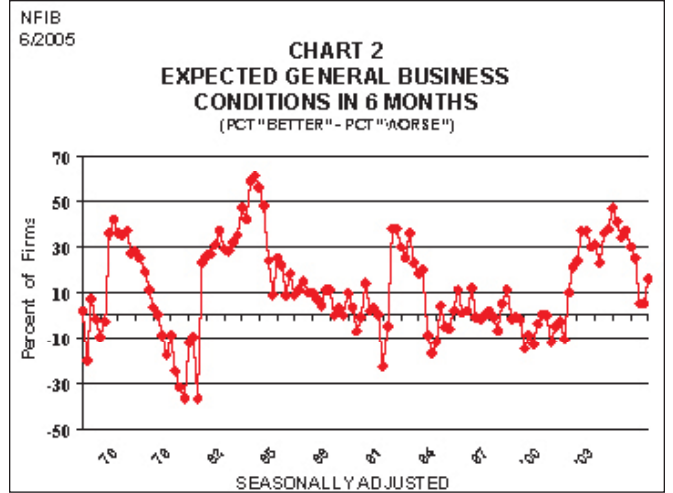
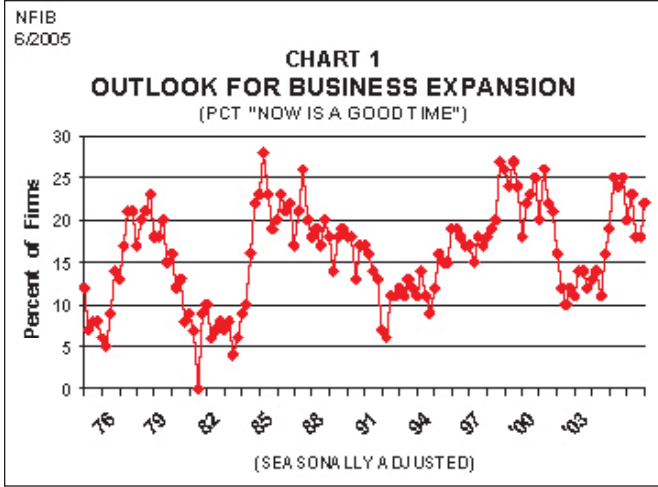
track changes in monetary policy through the NFIB membership may provide important microeconomic insights into this process.

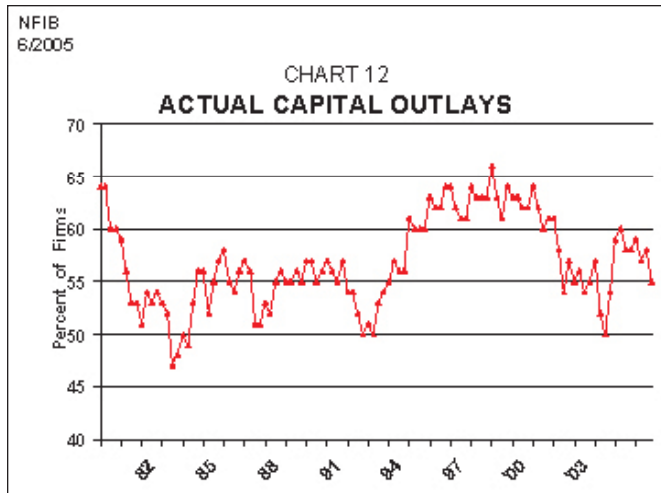
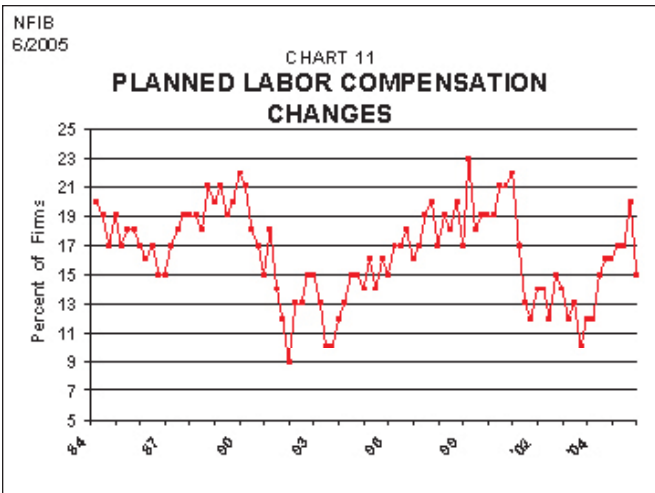
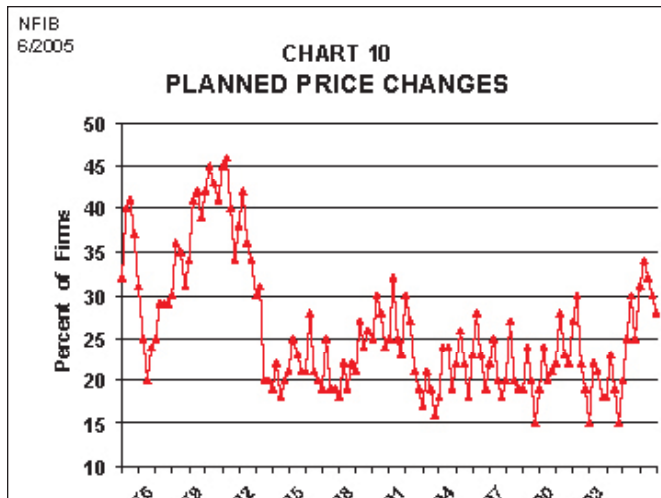
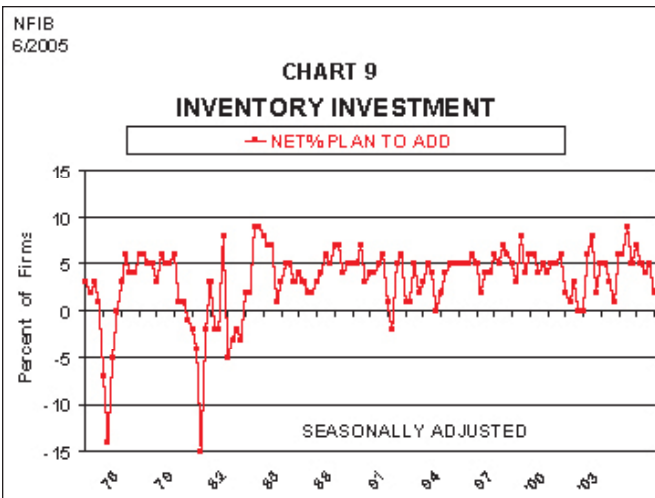
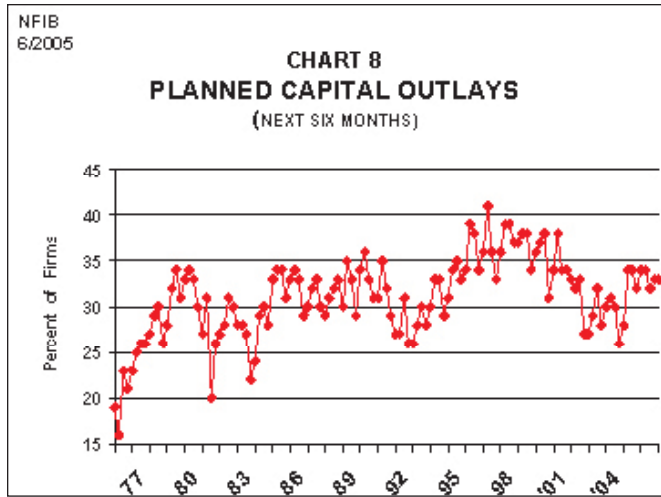
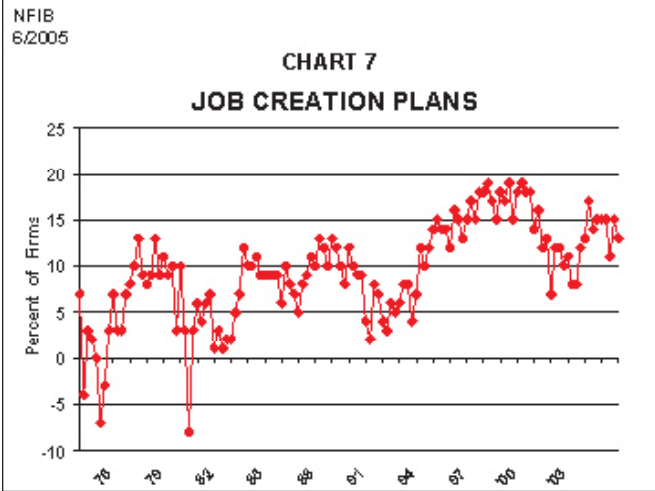
A change in policy should first influence owner expectations about economic performance. Changes in policy signal the Federal Reserve Board's assessment of future economic activity and change important prices (relative interest rates) that the owner may respond to and would expect other owners to respond to. The following survey questions address owner expectations about the economy and the business environment. Charts 1 to 6 show the response patterns for these questions since 1973.

- Do you think the next three months will be a good time for small business to expand substantially? (Chart 1)
- About the economy in general, do you think that six months from now general business conditions will be better than they are now, about the same, or worse? (Chart 2)
- Overall, what do you expect to happen to the real volume (number of units) of goods and/or services that you will sell during the next three months? (Chart 3)
- At the present time, do you feel your inventories are too large, about right or inadequate? (Chart 4)
- Do you expect to find it easier or harder to obtain your required financing during the next three months? (Chart 5)
- Do you have any job openings that you are not able to fill right now? (Chart 6)

These expectations will be translated into changes in owner plans to adjust major real variables such as hiring, capital spending, inventory investment, as well as worker compensation and selling prices. These following questions address owner plans and Charts 7 to 11 provide a time series perspective.

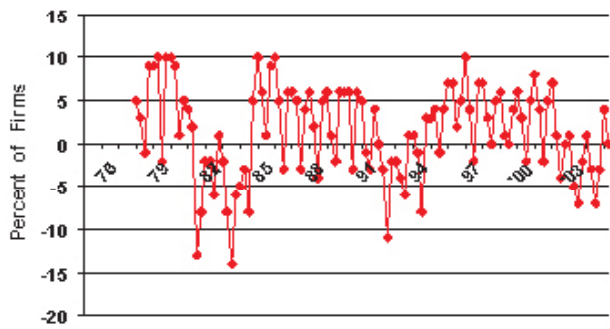
- In the next three months, do you expect to increase or decrease the total number of people working for you? (Chart 7)
- Looking ahead to the next three to six months, do you expect to make any capital expenditures for plant and/or physical equipment? (Chart 8)
- Looking ahead to the next three to six months, do you expect, on balance, to add to your inventories, keep them about the same, or decrease them? (Chart 9)
- In the next three months, do you plan to change the average selling prices of your goods and/or services? (Chart 10)
- Do you plan to change average employee compensation (wages and benefits, but not Social Security, unemployment compensation, taxes, etc.) during the next three months? (Chart 11)





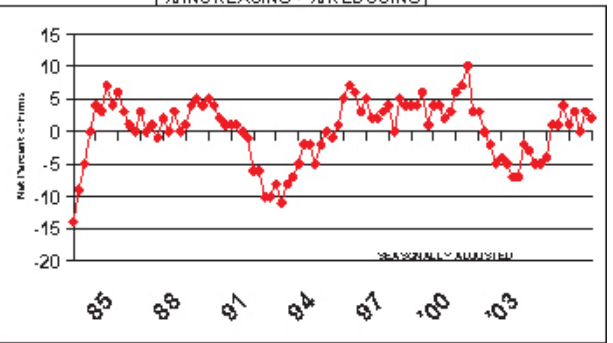
NFIB
6/2/2005

CHART 13
NET PERCENT OF FIRMS ADDING JOBS



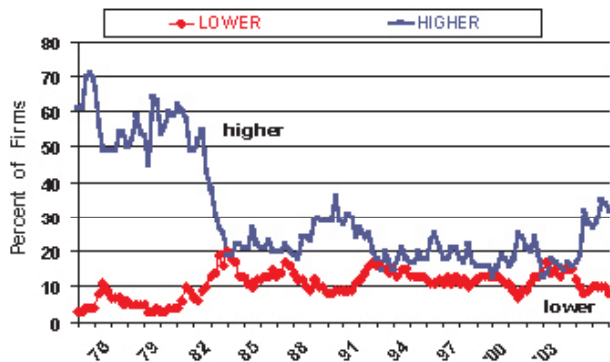
NFIB
6/2/2005

CHART 14
ACTUAL CHANGE IN INVENTORY
(% INCREASING - % REDUCING)



NFIB
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CHART 15
PAST PRICE CHANGES



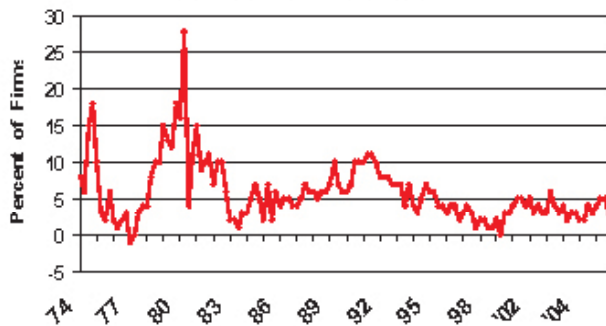
NFIB
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CHART 16
CHANGED LABOR COMPENSATION
SEASONALLY ADJUSTED NET % OF FIRMS



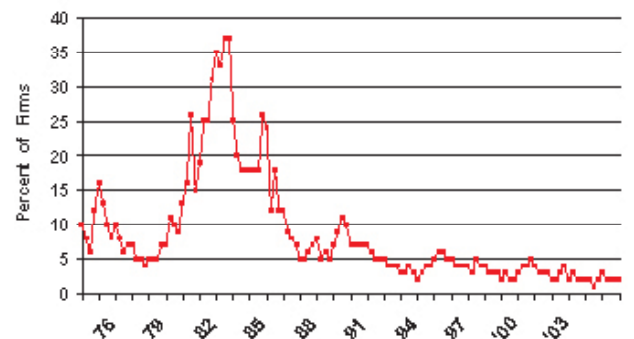
NFIB
6/2/2005

CHART 17
SMALL BUSINESS CREDIT PROBLEMS
(% HARDER TO GET - % EASIER)



NFIB
6/2/2005

CHART 18
MOST IMPORTANT PROBLEM:
CREDIT COST AND AVAILABILITY



Finally, the effect of policy changes should be observed in actual outcomes: changes in hiring, capital spending, inventories, actual prices and labor compensation and the ease or difficulty in obtaining financing. The following questions measure outcomes in firm spending and hiring and their experience in capital markets:

- During the last six months, has your firm made any capital expenditures to improve or purchase equipment, buildings or land? (Chart 12)
- In the last three months, did the total number of employees in your firm increase, decrease, or stay about the same? (Chart 13)
- During the last three months, did you increase or decrease your inventories? (Chart 14)
- How are your average selling prices now compared to three months ago? (Chart 15)
- Over the past three months, did you change average employee compensation, including wages and benefits, but not Social Security, unemployment compensation taxes? (Chart 16)
- Are these loans easier or harder to get than they were three months ago? (Chart 17)
- What is the single most important problem facing your business today? Financing and Interest Rates (Chart 18)

Table 1 identifies the dates on which the Federal Open Market Committee (FOMC) announced a change in the Federal Funds target and the magnitude of the change in the target. The most promising periods for detecting the effect of policy changes on expectations are the unexpected or inter-meeting announcements, making a before/after comparisons of measurements more likely to reveal whatever responses that occurred. If the rate change was expected, owners could have made adjustments prior to the actual announcement, making it more difficult to identify responses to policy changes.

The data set permits the tracking of expectations, spending plans, and actual spending and hiring on a monthly basis before and after changes in monetary policy. For two unexpected Fed monetary policy changes, April 2001 and September 2001, the monthly data have been bifurcated on the date of the policy change. An examination of the news archives for any other surprise economic announcements within 15 days of the Fed's announcement revealed nothing unusual, suggesting that the observed response of owners to the surprise policy announcement is not contaminated by other events. However, the identification of post-change actual spending and hiring is confounded by the inability to hold 'all else equal.' Owner actions may be influenced by subsequent changes in fed policy or other developments in the economy and not just the specific policy change identified.

There is no a priori reason to expect that the respondents in the latter part of the month are any different from those responding in the first part of the

month. Appendix 1, which compares demographic and financial characteristics for the pre- and post-change groups, confirms this hypothesis. There is no statistically significant difference between the characteristics of the two groups, either in April, 2001 or September, 2001. Additionally, the questionnaire is mailed to the full sample on the first day and on the tenth of each month (duplicates removed). Ninety-eight percent of the “before” population responded to the first mailing and eighty-eight percent of the “after” sample responded to the second mailing. The tail of the response to the second mailing is eliminated because no interviews are accepted after the last few days of the month. Considering each group as a random sample of the NFIB membership seems to be a reasonable assumption for analytical purposes.

Appendix 2 shows the industry distributions for the original sample and for the responses. Overall, 21% of the owners contacted by mail responded to the questionnaire, 71% were from the first mailing and 29% from the second mailing ten days later (duplicates removed). Weighting responses to match the distribution of the original sample has no significant impact on the sample statistics. This result is not surprising because the questions are not linked to particular industry issues and consequently the industry distribution of respondents is basically unchanged over time.

Small Firm Responses to Monetary Policy Changes

The April 2001 Surprise Decrease

In early January of 2001, the FOMC cut the Federal Funds rate by 50 basis points to 5 ½%. This was followed by a reduction of an additional 50 basis points on March 20 at the regular FOMC meeting. At this meeting, a number of FOMC members favored a 75 basis point cut, which might have been a clue that an inter-meeting cut was a possibility. Then, on April 18, Chairman Greenspan announced another 50 basis point cut to 4 ½%, the April “surprise.” At the regular meeting on May 20, the Federal Funds target was cut another 50 basis points to 4%. Although the April 18 reduction between meetings was unexpected, at least to the extent that it was not at a regular meeting, the trend of cutting rates was clearly established by FOMC actions earlier in the year and additional cuts could have been expected. However, the inter-meeting timing may have signaled more concern with the course of the economy than a cut at a regularly scheduled meeting.

The surprise rate cut created an opportunity to measure the effect of a policy change on the expectations of small business owners. The responses to the April survey, mailed on April 1 and April 10, were divided by postmark into pre-April 18 and post-April 18 groups. The pre-policy change group contained 1,043 observations and the post change group contained 473 responses. Since the observations are confined to a 30 day period surrounding the Fed move, there is little opportunity of contamination of the findings from changes in the economy.

Table 2 shows the pre and post change statistics for the expectations variables. The announcement clearly had an adverse impact on owner expectations. The percent of owners viewing the current period as a good time to expand fell three points and the percent reporting “no” rose two points for an adverse move of five percentage points. The percent expecting the economy to be better in 6 months fell two points and those expecting the economy to worsen rose three points for a net deterioration of five points. The net percent of owners expecting higher real sales volumes deteriorated 15 points. Current inventory stocks became less desirable (three point deterioration). And, in spite of the rate cuts, the percent of owners expecting easier credit conditions actually deteriorated a point. For the six variables, five changes were negative and one registered no change. Although trends in the economy were weak at the time, changes in the expectations variables of the magnitudes recorded are not very likely to be attributed to changes in the economy occurring in the month of April.

Plans to generate GDP (hire, make capital outlays, invest in inventories) were similarly affected by the surprise 50 basis point cut (Table 3). Although the percent of owners with unfilled job openings did not change, the percent of owners planning to create new jobs fell three points and the percent planning to reduce employment rose two points for a net deterioration of five points in job creation plans. Similarly, capital spending plans lost three points. Plans to raise selling prices were adversely affected, losing six points. Similarly, plans to raise worker compensation deteriorated three points. Even though the surprise cut occurred in the middle of a string of rate cuts, the effect of the announcement appears to have conveyed a negative signal about economic prospects, producing significant downward revisions in spending and hiring plans and pricing decisions.

Using a sampling error of \pm three percentage points, 9 of the 11 changes in the expectations variables are significant at the 95 percent level.⁶ If the announcement had no effect, then the changes might be expected to be equally positive and negative (random changes within a 30 day period). Over the 11 variables, 10 changes were negative and one was unchanged. The chance of this occurring is nil versus a null hypothesis of random positive and negative signs.

⁶ Sampling errors for these percentages, developed by the Survey Research Center at the University of Michigan, are as follows:

Reported Percentage	2 Std. Errors (95% Confidence)		
	Sample=500	Sample=1000	Sub-Group
50%	4.9	3.6	
30% or 70%	4.5	3.3	5.8
20% or 80%	3.9	2.9	4.7
10% or 90%	2.9	2.2	3.5
5% or 95%	2.1	1.8	2.6

The numbers are 95% confidence intervals for comparisons of statistics between two sub-groups of the same sample of size 1000 and 500 respectively.

The premise of this paper is that the actions of the Federal Reserve will ultimately affect real economic variables, not through the impact of their actions on interest rates (cost of capital) or on the availability of credit (non-price lender rationing), but through revisions in expectations of all owners, whether they participate in credit markets or not. The second and third panels of Table 2 and Table 3 compare the responses of owners that report borrowing at least once a quarter and those that borrow less frequently or never.⁷ The perceptions of the two groups of owners were very different regarding the implications of Fed actions for credit market conditions. Infrequent borrowers did not interpret Fed actions as having an effect on credit market conditions (and didn't care). The percent of owners expecting credit conditions to improve or become more difficult was virtually unchanged after the surprise announcement. For frequent borrowers, the Fed cut did result in a 2 point decline in the percent of owners expecting credit conditions to become "harder," from 21 percent expecting "harder" to 19 percent (a change in the expected direction, but not significant). Four percent expected "easier" credit conditions before and after the announcement.

In terms of expectations for the economy, the response of both groups to the announcement was virtually the same – a significant deterioration in the outlook and in plans to hire and spend (only the percent of firms reporting hard-to-fill job openings did not deteriorate, with borrowers reporting an increase in openings, an unexpected outcome). This result provides support for the rational expectations view of monetary policy transmission. With both borrowers and non-borrowers responding similarly, the Fed announcement was likely to have a negative effect on aggregate spending and hiring by motivating owners to reduce spending and hiring in future periods.⁸

The effect of the surprise announcement on actual economic outcomes is more difficult to measure. Actual behavior is not likely to change much in a matter of days or even a month after the announcement. Table 4 shows a very mixed picture of outcomes. The last column of the table shows the net adverse change in each indicator. The post-announcement period produced significantly higher reports of sales gains and reduced reports of sales declines. A naïve forecast would predict improved economic performance in response to a rate cut.

However, the policy change in April could not have had much of an effect on actual spending in the month of April and little is known about inter-month

⁷ See Scott, Dunkelberg and Dennis, Credit, Banks and Small Business: The New Century, NFIB Foundation, 2004, Washington, D.C. Thirteen percent reported never applying for a loan and 9 percent did not respond to the question asking for the last time the owner applied for a loan.

⁸ See Dunkelberg, Scott and Dennis, Small Business Indicators of Economic Activity, NFIB Foundation, October, 2003. The NFIB indicators are significant leading predictors of the inflation rate, the unemployment rate and other macro measures of economic activity.

sales patterns and the data. In addition, the data are not seasonally adjusted (the end of April is part of the transition to summer spending season). For the remaining indicators, there were no significant changes in pre and post values as would be expected and the signs of the changes were positive and negative with nearly equal frequency. The frequency of capital outlays and inventory investment were negative (not positive in response to a rate cut) but increases in employment exceeded reductions. Any change in real variables in response to the policy announcement would be expected months after the announcement, not in the same month.

Looking at the before/after responses in the context of a longer time frame, the evidence that the announcement effects were significant still appears compelling. The interpretation is more difficult because determining what the expected change in a variable should be is not always clear and the surprise cut occurred in the context of four 50 basis point reductions in the first half of the year. Table 5 shows the values of the expectations and plans questions six months before the surprise and six months after. The last column shows the net adverse change in each indicator. The percent of firms expecting business conditions to be better six months later was adversely affected by the announcement, a five point deterioration in the balance for the responses to the question. But over the next six months, the mean of the positive and negative response categories moved 17 points to the positive side (intervening economic developments could have affected these assessments). This change could be a result of growing confidence that the additional cuts made in the six months following the April announcement were sufficient to remedy the weakness in the economy. It could also be a result of changes in actual business conditions in the six months after April. A review of the headlines over this period (and that following the rate cut in September) uncovered no other shocks that would have had a large impact on owner expectations/plans beyond the trend in the economy - and the fact that 2001 was the middle of a rate cutting episode.

Capital spending plans may provide a cleaner test of the effect because capital spending plans embody a longer operating horizon than the horizon for changing inventories or employment. Capital spending plans gave up three points on the announcement and twice that amount over the next six months, a significant deterioration. The sign of the expected change in credit market conditions is not clear. After a number of rate cuts, owners could expect credit market conditions to improve or to deteriorate further, so a strong prior is not easily established. Overall, eight of the eleven variables carried the expected sign, six of the changes were significant, and one was indeterminate in sign.

The evidence from the April surprise announcement on owner expectations and spending plans is clear – the inter-meeting rate cut had an adverse effect. For 11 measures, virtually all registered a significant decline and the signs of change were all negative but one, which registered no change. Over the six month period following the announcement, spending plans, hiring plans

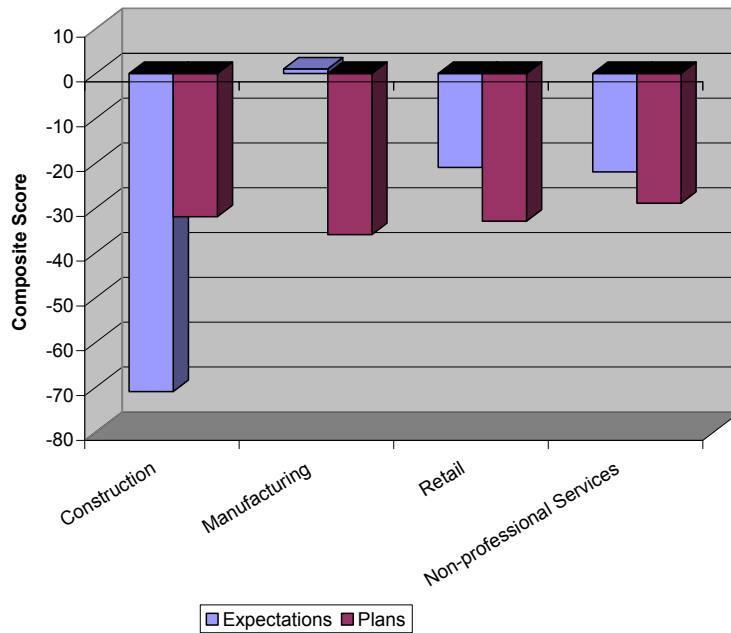
April 2001 Industry Responses

Many studies of monetary policy have identified interest sensitive industries such as housing as primary transmitters of monetary policy to the real economy. To investigate whether unexpected changes have differential effects by industry, Tables 6 and 7 show the responses of business owners to the April 2001 surprise rate cut in four industry groups: construction, manufacturing, retailing and non-professional services (sample sizes in other industry groups were too small to provide reliable results).

The changes in the responses to each question were usually largest among construction firm owners, especially for changes in owner expectations such as “good time to expand” and “expected real sales volume.” Changes in owner plans were pronounced in all industry groups, even non-professional services. For example, the most negative effect for change in selling prices and capital expenditures was in the construction industry, while the most negative effect for employment was in non-professional services, for business inventories in retail, and for compensation changes in manufacturing. These disaggregated results provide additional evidence that the effect of a surprise must be assessed in the context of the economy. Rate decreases would normally have a favorable effect on construction firms, unless the decline provides a signal of further weakening in the economy – which appears to be the case for the April announcement.

Figure 1 presents a composite picture of the industry effects by summing the net change for each question by industry in Table 6 (shown as Expectations in the figure) and Table 7 (shown as Plans in the figure). Clearly the expectations of owners of construction firms for the economy were most adversely affected by the surprise rate change, while the owners in all four industries registered about the same adverse effect on future plans for spending and hiring. These results provide further evidence that economic agents with no exposure to interest rates and borrowing costs such as non-professional service firms respond in much the same way as those firms that are interest sensitive such as construction.

Figure 1
Composite Change by Industry: April 2001



The September 2001 Aftershock

By September, a rate cut environment was clearly established. In January, the target Federal Funds rate was 6.5%. By the end of August, the target rate was already down to 3.5% (see Table 1). The FOMC apparently felt that, given economic developments throughout the year, the target rate was still too high and consequently undertook a second intra-meeting cut on September 18 of 50 basis points. There were only 500 respondents to the September 2001 monthly survey, 240 before the surprise cut and 260 after. Again, this provides an opportunity to observe business owner responses to the Fed policy change with little opportunity for changes in the economy to contaminate the responses of owners, although responses here were likely impacted by 9/11.

Expectations were seriously damaged by the announcement (and 9/11) (Table 8). The percent of owners viewing the current period as a good time to expand fell from an already low 11 percent to only 6 percent and the “no” response rose 3 points, an adverse swing of -9 points. The percent of owners expecting the economy to improve gave up 11 points. And, expectations regarding the direction of sales at their own firms registered a 17 point deterioration. Job openings disappeared at five percent of all firms. Inventories looked a bit more excessive as expectations for the economy worsened.

In Table 9 spending plans appear to be equally impaired by the announcement. The percent of firms with hard to fill job openings fell five points and plans to create new jobs lost a net nine percentage points in the days following the September announcement. Plans to make capital outlays gave up

an identical number of points, both substantial losses. Plans to reduce inventories also increased, producing a net loss in inventory investment plans of four points. Overall, all seven of the spending questions gave up ground.

Using a sampling error of ± 5 points (the sample size is smaller than the April survey), seven of the 11 changes were significant in magnitude. All 11 variables registered a decline, again significant against a null hypothesis of random positive and negative changes if the announcement has no effect and only sampling error produces variation in the two sub-samples

Overall, the findings suggest that economic agents may not simply respond passively to changes in the price of credit (value of assets) or credit availability, but incorporate the Fed policy changes into forecasts about sales and costs that precipitate immediate changes in spending and hiring in addition to any lagged response to encountering changes in credit costs or availability that result from Fed actions. Firms that have no debt and do not borrow (regularly) appear to respond to Fed policy changes in statistically identical ways to their counterparts who have debt on their balance sheets and that borrow at least once a quarter to support their business activities.

The April 1994 Surprise Increase

The April and September 2001 surprise changes in the Federal Funds rates were not the only ones during the Greenspan era, but they are the only events where a pre- and post-change sample could be obtained from the respondents to the NFIB monthly surveys. It is useful, however, to examine owner responses in a different economic environment. Although a precise split of the sample is not possible, monthly data are available on both sides of every change in monetary policy. The April 1994 intra-meeting increase in the Federal Funds target was selected for analysis. It occurred in the middle of a rate increase policy cycle where the Fed had already raised the Fed Funds rate by 25 basis points at its scheduled February and March meeting, and by 50 basis points at its scheduled May. As was the case for the April 2001 surprise rate cut, the April 1994 increase was unscheduled, but may not have been a total surprise in the context of a series of rate increases.

At this time the Fed was not providing the context for the change as it does today (in terms of the post-meeting FOMC press release), leaving more uncertainty about their forward thinking regarding the economy. Speculation about the response of owners (a signal that the expansion was strong and had some distance to go or that the rate hikes would signal the end of growth) produces weak priors as to how owners should have responded. However, the issue here is whether or not a significant response occurred, regardless of its sign.

The April surprise occurred on the 18th, leaving only 12 days before the May survey was mailed to respondents. With no major news in that time, the

May data may reasonably reflect the response of owners to the April surprise (Table 10). In May, the percent of owners viewing the current period as a good time to expand fell three percentage points from March with no change in those thinking it would not be a good time. All other measures suggest that owners responded positively to the rate hike (e.g. the economy was strong and the Fed was trying to manage the growth). Of the six indicators, 4 exhibited significant changes, indicating that the policy announcement significantly affected expectations (and ultimately spending and hiring decisions). The textbook expectation is that raising interest rates should dampen economic behavior, but that is not evident from the data presented here, supporting the notion that responses to policy changes in interest rates are complex and involve more factors than simply the change in rates (e.g. expected future rates and values of other variables).

The unexpected increase in April 1994 did affect owner plans, with all 5 variables measuring spending and hiring plans and plans to change prices and compensation showing significant change (see Table 11). Between March 1994 and May 1994, owners reduced their plans to increase total employment (a net decline of six percentage points) and reduced capital expenditure plans (a net decline of eight percentage points). The plans to change average selling prices fell as well (a net decline of four percentage points) and plans to add to inventories strengthened. The frequency of plans to increase labor compensation improved (a net increase of five percentage points), but plans to raise average selling prices fell (down 4 points). The internal consistency of these changes is not clear, but the changes are significant.

Some of the variables could be subject to substantial seasonal change over a two month period (possible but less important within the 30 day periods analyzed above). Thus, observed changes, positive or negative, could be the result of normal seasonal changes rather than a real response to the change in monetary policy. The changes observed in Tables 10 and 11 are shown seasonally adjusted in the last column of each Table.⁹ Four of the variables (current inventory satisfaction, expected change in ease of getting loans, planned capital expenditures, and plans to change employee compensation) have no seasonal adjustments between March and May, so observed changes are seasonally adjusted. Another four others (good time to expand, planned price changes, planned employment changes, and current job openings) have adjustment factors that produce a difference between seasonally adjusted and unadjusted figures of 2 points or less. And three variables (expected business conditions, expected real sales volume changes and inventory investment plans) have large seasonal adjustment factors, two with a five point differential between March and May and one with a 10 point differential. The signs of the changes for

⁹ The seasonal factors are computed by regressing the monthly series against a set of 1/0 dummy variables for the months and then recovering all of the coefficients to create the seasonal adjustments. Seasonal adjustments add to zero over the year. This approach is appropriate because the data have no trends in them.

the 11 variables are not changed using seasonally adjusted data, although two more of the changes are not significant using a three point sampling error.

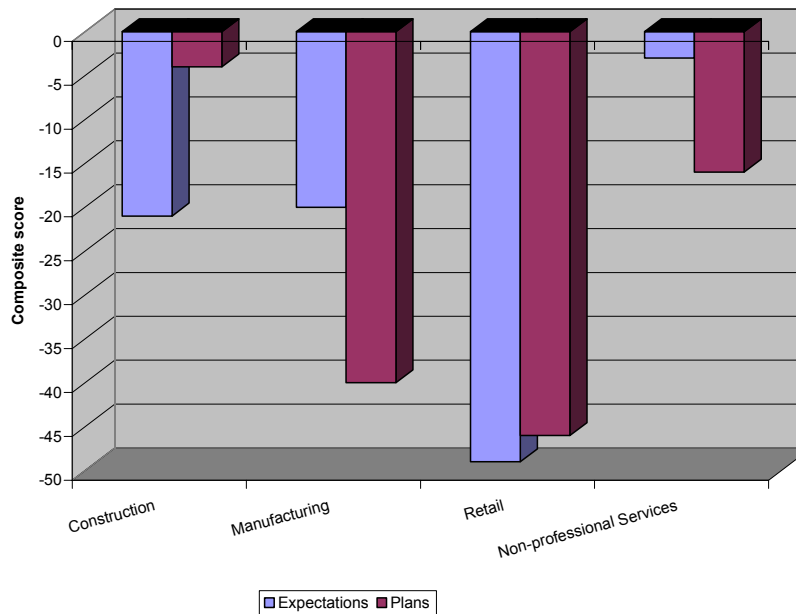
April 1994 Industry Responses

The responses of owners in four industry groups (construction, manufacturing, retail and non-professional services) are shown in Tables 12 and 13. All of the industry groups reported a similar worsening outlook for the economy in regards to whether it is a good time to expand after the April 1994 surprise rate increase (Table 12), but retail firms were the most pessimistic. Both retail and construction firms were much more negative regarding the outlook for the economy than the others (a decline of 24 and 21 percentage points respectively versus five percentage points for non-professional services and 11 points for manufacturing). Retailing firms reported a very large drop in expectations for real sales volumes compared to the other sectors. This particular instance reinforces the idea that the context of the economy is important for how surprise rate changes affect small firms. By early 1994 the economy was closer to full employment than in April 2001.

Changes in spending plans and plans to raise prices and compensation are shown in Table 13. All industries show net declines in plans to change prices and in plans to create new jobs. Retailers reported the biggest adverse change in both planned changes in average selling prices and planned changes in employment, consistent with their negative outlook for the overall economy. All sectors except non-professional services reported double-digit reductions in capital expenditure plans.

Figure 2 summarizes the results reported in Tables 12 and 13 by summing the changes in responses across the questions. The results clearly illustrate the negative responses of owners to the Fed policy change. Although sampling errors are larger for the smaller samples in these tables, it does appear that there were substantial changes in expectations and plans in response to the Fed move, especially in the retailing industry.

Figure 2
Composite Change by Industry: April 1994



Summary and Conclusions

Just how monetary policy affects the real economy (e.g. employment, capital spending) has long been a subject of intense interest to academics and policy makers. Basic economic theory posits a relationship between real investment spending and the level of nominal and real interest rates. Capital spending is driven by a comparison of the rate of return expected on investments to market interest rates as a proxy for the cost of capital. But, the linkages between the financial and real sectors are complex and often opaque. Clearly changes in interest rates impact asset values and investment decisions for many economic agents. And, providers of capital often prefer to manage risk by refusing to make certain loans rather than trying to price the risk in the rate and fees charged (this type of rationing may not be related to the level of interest rates however). Other explanations rely on stickiness and lags, decisions made before interest rates changes that must be adjusted after the change is made.

A more direct conduit to link policy changes to the real economy is described by the rational expectations model. Policy changes provide information signals which, taken together with other available information, are factored into forecasts of the future. These forecasts drive employment and spending decisions. The small business sector is the major employer in the economy and produces half the private sector GDP. But, many of these firms rarely or never use debt to finance their operations and consequently are likely to be unaffected by monetary policy changes. Infrequent borrowers see their loans re-priced at long intervals, insulating them from current changes in interest rates.

Highly publicized changes in Federal Reserve policy are immediately known to small business owners, regardless of the amount of debt on their balance sheets. These changes are incorporated into forecasts for the firm's future and, based on these forecasts decisions for hiring and spending are made. The evidence presented here makes it clear that Fed policy changes have an immediate impact on expectations about future business and these forecasts are translated into spending and hiring plans. These plans are then translated into actual changes in hiring and spending. At the macro level, small business hiring and spending plans are strongly correlated with macro measures of economic activity in subsequent periods (particularly with inflation and unemployment measures, top concerns of economic policy makers).

The evidence in this paper shows that (1) the response to changes in monetary policy are quick, affecting expectations and plans immediately; (2) owners with no exposure to interest rates and borrowing costs respond in much the same way as interest sensitive businesses; (3) actual changes in spending and hiring do occur over a longer period of time; (4) many economic agents do not participate in the real adjustments (changes in hiring and spending) relative to the magnitude of changes in expectations and; (5) a given change in rates at a point in time may have totally opposite effects on the behavior of economic agents (e.g. a rate increase can result in increases or decreases in spending and hiring), depending on the context of the economy.

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Appendix 1: Demographic description of pre- and post- policy change survey respondents for the April 2001 NFIB Survey

The table reports the frequency distribution of selected characteristics of the survey respondents for two groups. The column labeled 'Before' includes those firms that responded before the surprise fed funds target rate change on April 18; and the column labeled 'After' reports the distributions for those firms responding after the surprise rate change. Ninety-eight percent of the 'Before' group responded to the first mailing and 88 percent of the 'After' group responded to the second mailing.

	Before	After		Before	After
Business Form			No. of Employees		
Proprietorship	28%	26%	1	9%	7%
Partnership	6%	7%	2	10%	10%
Corporation	42%	43%	3-5	25%	28%
Sub-S Corporation	22%	19%	6-9	18%	16%
No Reply	2%	5%	10-14	12%	11%
Total	100%	100%	15-19	6%	7%
			20-39	12%	10%
Industry			40 or more	8%	10%
Construction	19%	14%	No Reply	1%	1%
Manufacturing	12%	14%	Total	100%	100%
Transportation	4%	3%			
Wholesale	7%	8%	Region		
Retail	26%	23%	New England	4	4
Agriculture	7%	9%	Mid-Atlantic	10	11
Financial Services	7%	7%	East North Central	5	9
Services-Non-Professional	14%	14%	West North Central	13	10
Services-Professional	5%	6%	South Atlantic	26	21
Total	100%	100%	East South Central	8	7
			West South Central	10	10
Gross Sales in Last Quarter			Mountain	11	10
Under \$ 12,500	7%	8%	Pacific	10	16
\$12,500-24,999	7%	5%	Not Ascertained	3	2
\$25,000-49,999	13%	14%		100	100
\$50,000-87,499	12%	15%			
\$87,500-199,999	17%	18%			
\$200,000-374,999	15%	15%			
\$375,000-749,999	10%	9%			
\$750,000-1,249,999	6%	6%			
\$1,250,000 or more	9%	7%			
No Reply	4%	4%			
Total	100%	100%			

Appendix 2: Response Analysis

This table reports the industry distribution of NFIB members who were sent the monthly Small Business Economic Trends survey in July and September 2001, as well as the distribution of those who responded to the survey. Column (1), labeled 'Sample,' reports the number of surveys mailed and column (2) reports the frequency distribution for the Sample. Column (3), labeled 'Responses', reports the number of surveys returned and column (4) reports the frequency distribution for Responses. The response rate (Responses/Sample) is reported in Column 5.

	(1)	(2)	(3)	(4)	(5)
					Response
July 2001	Sample	%	Responses	%	Rate (%)
Agriculture	450	6.3	120	7.9	26.7
Construction	1,078	15.0	260	17.2	24.1
Manufacturing/mining	733	10.2	190	12.5	25.9
Transportation	268	3.7	52	3.4	19.4
Wholesale trade	494	6.9	112	7.4	22.7
Retail trade	1,506	21.0	385	25.4	25.6
Finance/insurance/real estate	394	5.5	104	6.9	26.4
Non-professional services	1,408	19.6	208	13.8	14.8
Professional services	423	5.9	83	5.5	19.6
No answer	415	5.8			
Total	7,169	100.0	1,516	100.0	21.1
September 2001					
Agriculture	158	6.0	36	6.2	22.8
Construction	390	14.9	95	16.3	24.4
Manufacturing/mining	278	10.6	82	14.1	29.5
Transportation	77	2.9	26	4.5	33.8
Wholesale trade	189	7.2	42	7.2	22.2
Retail trade	535	20.4	145	24.9	27.1
Finance/insurance/real estate	152	5.8	43	7.4	28.3
Non-professional services	489	18.6	81	13.9	16.6
Professional services	164	6.3	32	5.5	19.5
No answer	192	7.3			
Total	2,624	100.0	582	100.0	22.2

Table 1: Federal Funds Rate Changes

This Table shows announcement dates and magnitude of the changes in target Fed Fund Rates by Federal Reserve Bank. Dates on which FOMC meetings were held unannounced and unexpected changes in target rates were announced are shown in **bold** type . The Federal Open Market Committee began providing target levels in 1996. Prior to that time a range was provided and thus there are no entries Target Level (%) prior to 1996.

Date	Increase	Decrease	Target Level (%)	Date	Increase	Decrease	Target Level (%)
<u>2004</u>				<u>1997</u>			
14-Dec	25		2.25	25-Mar	25		5.50
10-Nov	25		2.00				
21-Sep	25		1.75	<u>1996</u>			
10-Aug	25		1.50	31-Jan		25	5.25
30-Jun	25		1.25				
				<u>1995</u>			
<u>2003</u>				19-Dec		25	NA
25-Jun		25	1.00	6-Jul		25	NA
				1-Feb	50		NA
<u>2002</u>				<u>1994</u>			
6-Nov		50	1.25	15-Nov	75		NA
				16-Aug	50		NA
<u>2001</u>				17-May	50		NA
11-Dec		25	1.75	18-Apr	25		NA
6-Nov		50	2.00	22-Mar	25		NA
2-Oct		50	2.50	4-Feb	25		NA
17-Sep		50	3.00				
21-Aug		25	3.50	<u>1992</u>			
27-Jun		25	3.75	4-Sep		25	NA
15-May		50	4.00	2-Jul		50	NA
18-Apr		50	4.50	9-Apr		25	NA
20-Mar		50	5.00				
31-Jan		50	5.50	<u>1991</u>			
3-Jan		50	6.00	20-Dec		50	NA
				6-Dec		25	NA
<u>2000</u>				6-Nov		25	NA
15-May	50		6.50	31-Oct		25	NA
21-Mar	25		6.00	13-Sep		25	NA
2-Feb	25		5.75	5-Aug		25	NA
				30-Apr		25	NA
<u>1999</u>				8-Mar		25	NA
16-Nov	25		5.50	1-Feb		50	NA
24-Aug	25		5.25	9-Jan		25	NA
30-Jun	25		5.00				
				<u>1998</u>			
<u>1998</u>				17-Nov		25	4.75
17-Nov		25	4.75	15-Oct		25	5.00
15-Oct		25	5.00	29-Sep		25	5.25
29-Sep		25	5.25				
				13-Nov		25	NA
				29-Oct		25	NA
				13-Jul		25	NA

Table 2: Changes in Owners' Expectations, Pre- and Post- April 2001 Surprise Announcement

This Table shows changes in expectations of small business owners before and after the unexpected monetary policy change of April 18, 2001. The figures are percentage of responses from NFIB surveys of small business owners compiled before and after the policy change was announced. "Full sample" includes responses from all the respondents, both those that borrow regularly and those that don't. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative expectations.

Owner Expectation Questions Variable	Full Sample				Don't Borrow Regularly				Borrow Regularly			
	Before	After	Change	Net Change	Before	After	Change	Net Change	Before	After	Change	Net Change
Is the Current Period a Good Time to Expand?												
Yes	14	11	-3		13	10	-3		15	14	-1	
No	52	54	2	-5	52	52	0	-3	52	56	4	-5
Net % Expecting Economy to be Better in Six Months												
Better	32	30	-2		31	29	-2		34	31	-3	
Worse	16	19	3	-5	17	18	1	-3	16	20	4	-7
Expectations for Real Sales Volumes												
Go Up	52	43	-9		51	42	-9		52	44	-8	
Go Down	18	24	6	-15	18	24	6	-15	20	24	4	-12
Hard to Fill Job Openings												
Yes	27	27	0	0	25	23	-2	-2	29	36	7	7
Current Inventory Satisfaction												
Too Low	7	6	-1		5	4	-1		10	8	-2	
Too Large	11	13	2	-3	8	10	2	-3	15	17	2	-4
Expected Change in Ease of Getting Loans												
Easier	3	2	-1		2	2	0		4	4	0	
Harder	9	9	0	-1	3	3	0	0	21	19	-2	2
Sample Size	1043	473			672	301			371	172		

Table 3: Changes in Owners' Plans, Pre- and Post April 2001 Surprise Announcement

This Table shows changes in plans of small business owners before and after the unexpected monetary policy change of April 18, 2001. The figures are percentage of responses from NFIB surveys of small business owners compiled before and after the policy change was announced. "Full sample" includes responses from all the respondents, both those that borrow regularly and those that don't. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive negative plans.

Owners' Plan Questions	Full Sample				Don't Borrow Regularly				Borrow Regularly			
	Before	After	Change	Net Change	Before	After	Change	Net Change	Before	After	Change	Net Change
Plan to Change Average Selling Prices												
Raise	24	18	-6		24	17	-7		24	19	-5	
Lower	4	4	0	-6	4	4	0	-7	3	6	3	-8
Plan to Increase or Decrease Total Employment												
Increase	25	22	-3		23	18	-5		27	27	0	
Decrease	4	6	2	-5	3	6	3	-8	5	5	0	0
Plan to Increase/Decrease Inventories												
Increase	19	15	-4		17	13	-4		23	19	-4	
Decrease	12	14	2	-6	9	12	3	-7	16	19	3	-7
Plan Capital Expenditures												
Yes	34	31	-3		33	31	-2		36	32	4	
Plan to Change Employee Compensation												
Increase	19	16	-3		18	14	-4		21	20	1	
Decrease	1	1	0	-3	0	0	0	-4	1	1	0	1
Sample Size	1043	473			672	301			371	172		

Table 4: Changes in Owner Outcomes, Pre- and Post- April 2001 Surprise Announcement

This Table shows changes in the level of firm activities before and after the unexpected monetary policy change of April 18, 2001. The figures are percentage of responses from NFIB surveys of small business owners compiled before and after the policy change was announced. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative outcomes.

Variable	Before	After	Change	Net Change
Sales Last Three Months Higher or Lower				
Higher	22	28	6	
Lower	35	29	-6	12
Average Selling Prices Higher or Lower				
Higher	23	26	3	
Lower	12	14	2	1
Total Employment Increased or Decreased				
Increased	12	15	3	
Decreased	12	13	1	2
Hard to Fill Job Openings				
Yes	27	27	0	0
Inventories Increased or Decreased				
Increased	17	17	0	
Decrease	17	18	1	-1
Loans Easier or Harder to Get				
Easier	2	2	0	
Harder	6	7	1	-1
Able to Satisfy Borrowing Needs				
Yes	36	35	-1	-1
Make Any Capital Expenditure				
Yes	64	62	-2	-2
Change Employee Compensation				
Increased	30	29	-1	
Decreased	2	2	0	-1
Sample Size	1043	473		

Table 5: Changes in Owners' Expectations, Six Months Before and After April 2001 Surprise Announcement

This Table shows changes in expectations of small business owners before and after the unexpected monetary policy change of April 18, 2001. The figures are percentage of responses from NFIB surveys of small business owners compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive expectations and changes in negative expectations.

Variable	2000						2001										6 Month Mean			Net Change	Std. Dev
	Oct	Nov	Dec	Jan	Feb	Mar	18-Apr		May	Jun	Jul	Aug	Sep	Oct	Before April	After April	Change				
							Before	After													
Is the Current Period a Good Time to Expand?																					
Yes	14	11	11	11	13	17	14	11	16	12	12	12	8	9	12.8	11.5	1.3	2.46			
No	47	48	52	53	49	52	52	54	51	52	53	53	63	64	50.2	56.0	-5.8	-7.1	4.86		
Net % Expecting Economy to be Better in Six Months																					
Better	11	14	14	22	28	32	32	30	31	28	31	31	31	36	20.2	31.3	-11.2	7.95			
Worse	21	21	29	26	21	18	16	19	13	19	15	14	22	19	22.7	17.0	5.7	5.5	4.42		
Expectations for Real Sales Volumes																					
Go Up	35	29	30	35	44	50	52	43	48	40	38	41	29	25	37.2	36.8	0.3	8.43			
Go Down	30	32	34	30	23	18	18	24	15	23	22	24	36	41	27.8	26.8	1.0	0.7	7.57		
Plan to Change Average Selling Prices																					
Raise	27	30	26	30	26	23	24	18	22	20	19	18	16	15	27.0	18.3	8.7	4.94			
Lower	4	3	4	4	3	5	4	4	3	3	4	4	4	5	3.8	3.8	0.0	-8.7	0.66		
Plan to Increase or Decrease Total Employment																					
Increase	17	15	16	23	25	27	25	22	22	16	17	20	17	12	20.5	17.3	3.2	4.48			
Decrease	9	10	8	6	6	5	4	6	6	5	7	8	12	11	7.3	8.2	-0.8	-4.0	2.41		
Hard to Fill Job Openings																					
Yes	33	35	31	29	30	25	27	27	27	27	26	31	27	22	30.5	26.7	3.8	-3.8	3.39		
Current Inventory Satisfaction																					
Too Large	11	11	13	12	12	11	11	13	13	11	12	12	12	13	11.7	12.2	-0.5	0.83			
Too Low	7	7	7	9	10	6	7	6	7	7	7	7	6	6	7.7	6.7	1.0	-1.5	1.14		
Plan to Increase/Decrease Inventories																					
Increase	14	14	14	19	23	17	19	15	16	15	13	14	13	12	16.8	13.8	3.0	3.01			
Decrease	17	14	18	13	14	9	12	14	13	13	15	14	16	17	14.2	14.7	-0.5	-3.5	2.33		
Expected Change in Ease of Getting Loans																					
Easier	1	1	1	1	2	1	3	2	2	2	2	2	2	2	1.2	2.0	-0.8	?	0.61		
Harder	8	8	8	7	6	6	9	9	8	6	7	6	10	8	7.2	7.5	-0.3	?	1.28		
Plan Capital Expenditures																					
Yes	33	34	34	32	38	33	34	31	31	30	27	28	28	27	34.0	28.5	5.5	3.20			
Don't Know	16	17	13	16	17	17	15	18	16	14	15	18	15	16	16.0	15.7	0.3	-5.2	1.44		
Plan to Change Employee Compensation																					
Increase	21	22	24	23	19	22	19	16	19	16	14	16	13	14	21.8	15.3	6.5	3.63			
Decrease	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1.0	1.3	-0.3	-6.8	0.36		

= 50bp reduction in target federal funds rate

Table 6: Changes in Owner Expectations by Industry, April 2001

This table shows changes in expectations of small business owners by industry (Construction, Manufacturing, Retail, Business Services) before and after the unexpected monetary policy change of April 18, 2001. The figures are percentage of responses from NFIB surveys of small business owners, compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative expectations.

Variable	Before	After	Change	Net Change
<i>Is the Current Period a Good Time to Expand?</i>				
Construction				
Yes	22	8	-14	
No	43	55	12	-26
Manufacturing				
Yes	14	15	1	
No	51	47	-4	5
Retail				
Yes	11	8	-3	
No	53	53	0	-3
Non-professional Services				
Yes	12	9	-3	
No	57	49	-8	5
<i>Net % Expecting Economy to be Better in Six Months</i>				
Construction				
Better	31	32	1	
Worse	11	17	6	-5
Manufacturing				
Better	40	45	5	
Worse	15	14	-1	6
Retail				
Better	30	25	-5	
Worse	18	15	-3	-2
Non-professional Services				
Better	24	19	-5	
Worse	17	26	9	-14
<i>Expectation for Real Sales Volume</i>				
Construction				
Go up	56	46	-10	
Go down	14	26	12	-22
Manufacturing				
Go up	51	53	2	
Go down	23	23	0	2
Retail				
Go up	54	45	-9	
Go down	18	21	3	-12
Non-professional Services				
Go up	48	42	-6	
Go down	17	22	5	-11

Table 6 (continued)				
Variable	Before	After	Change	Net Change
<i>Hard to Fill Job Openings</i>				
Construction				
Yes	37	32	-5	-5
Manufacturing				
Yes	32	35	3	3
Retail				
Yes	22	27	5	5
Non-professional Services				
Yes	26	21	-5	-5
<i>Current Inventory Satisfaction</i>				
Construction				
Too low	9	3	-6	
Too large	3	8	5	-11
Manufacturing				
Too low	7	3	-4	
Too large	13	20	7	-11
Retail				
Too low	9	8	-1	
Too large	16	14	-2	1
Non-professional Services				
Too low	7	9	2	
Too large	9	12	3	-1
<i>Expected Change in Ease of Getting Loans</i>				
Construction				
Easier	1	0	-1	
Harder	8	9	1	-2
Manufacturing				
Easier	4	5	1	
Harder	10	12	2	-1
Retail				
Easier	4	2	-2	
Harder	11	9	-2	0
Non-professional Services				
Easier	1	0	-1	
Harder	8	8	0	-1
<i>Sample Size</i>				
Construction	194	66		
Manufacturing	124	66		
Retail	274	111		
Non-professional Services	141	67		

Table 7: Changes in Owner Plans by Industry, April 2001

This table shows changes in expectations of small business owners by industry (Construction, Manufacturing, Retail, Business Services) before and after the unexpected monetary policy change of April 2001. The figures are percentage of responses from NFIB surveys of small business owners, compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative expectations.

Variable	Before	After	Change	Net Change
<i>Plan to Change Average Selling Prices</i>				
Construction				
Raise	30	18	-12	
Lower	3	3	0	-12
Manufacturing				
Raise	19	14	-5	
Lower	5	8	3	-8
Retail				
Raise	28	23	-5	
Lower	3	3	0	-5
Non-professional Services				
Raise	22	18	-4	
Lower	1	2	1	-5
<i>Plan to Increase or Decrease Employment</i>				
Construction				
Increase	39	27	-12	
Decrease	3	0	-3	-9
Manufacturing				
Increase	24	27	3	
Decrease	6	5	-1	4
Retail				
Increase	17	21	4	
Decrease	4	5	1	3
Non-professional Services				
Increase	28	16	-12	
Decrease	3	2	-1	-11
<i>Plan to Increase or Decrease Inventories</i>				
Construction				
Increase	20	15	-5	
Decrease	5	6	1	-6
Manufacturing				
Increase	20	11	-9	
Decrease	12	23	11	-20
Retail				
Increase	26	17	-9	
Decrease	18	21	3	-12
Non-professional Services				
Increase	22	18	-4	
Decrease	7	9	2	-6

Table 7 (continued)				
Variable	Before	After	Change	Net Change
<i>Planned Capital Expenditures</i>				
Construction				
Yes	36	24	-12	-12
Manufacturing				
Yes	40	46	6	6
Retail				
Yes	27	27	0	0
Non-professional Services				
Yes	38	24	-14	-14
<i>Plan to Change Employee Compensation</i>				
Construction				
Increase	23	29	6	
Decrease	1	0	-1	7
Manufacturing				
Increase	27	14	-13	
Decrease	1	0	-1	-12
Retail				
Increase	16	12	-4	
Decrease	1	2	1	-5
Non-professional Services				
Increase	16	10	-6	
Decrease	1	2	1	-7
<i>Sample Size</i>				
Construction	194	66		
Manufacturing	124	66		
Retail	274	111		
Non-professional Services	141	67		

Table 8: Changes in Owners' Expectations, Pre- and Post- September 2001 Surprise Announcement

This Table shows changes in expectations of small business owners before and after the unexpected monetary policy change of September 17, 2001. The numbers shown are the percentage of responses from NFIB surveys of small business owners compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive expectations and changes in negative expectations.

Variable	Before	After	Change	Net Change
Is the Current Period a Good Time to Expand?				
Yes	11	6	-5	
No	61	64	3	
Uncertain	27	28	1	-9
Net % Expecting Economy to be Better in Six Months				
Better	30	31	1	
Worse	16	28	12	-11
Expectations for Real Sales Volume				
Go Up	32	28	-4	
Go Down	27	40	13	-17
Current Inventory Satisfaction				
Too Large	11	11	0	
Too Low	6	7	1	-1
Expected Change in Ease of Getting Loans				
Easier	2	2	0	
Harder	10	10	0	0
Sample Size	240	260	20	

Table 9: Changes in Owners' Plans, Pre- and Post- September 2001 Surprise Announcement

This Table shows changes in plans of small business owners before and after the unexpected monetary policy change of September 17, 2001. The numbers shown are the percentage of responses from NFIB surveys of small business owners compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive plans and changes in negative plans.

Variable	Before	After	Change	Net Change
Plan to Change Average Selling Prices				
Raise	16	16	0	
Lower	3	5	2	-2
Plan to Increase or Decrease Total Employment				
Increase	22	14	-8	
Decrease	12	13	1	-9
Job Openings Hard to Fill				
Yes	29	24	-5	-5
Inventory Too Large or Too Low				
Too Low	6	7	1	
Too Large	11	11	0	1
Plan to Increase/Decrease Inventories				
Increase	13	14	1	
Decrease	13	18	5	-4
Plan Capital Expenditures				
Yes	31	25	-6	
Don't Know	14	17	3	-9
Plan to Change Employee Compensation				
Increase	15	13	-2	
Decrease	2	1	-1	-1
Sample Size	240	260		

Table 10: Changes in Owners' Expectations, Pre- and Post April 1994 Surprise Announcement

This Table shows changes in expectations of small business owners before and after the unexpected monetary policy change of April, 18 1994. The numbers shown are the percentage of responses from NFIB surveys of small business owners compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive expectations and changes in negative expectations. The seasonal adjusted data in the last column is computed by adding seasonal adjustments to the March, April and May responses. The seasonal factors are computed by regressing the monthly series against a set of 1-0 dummy variables for the months, recovering all coefficients to create the seasonal adjustments.

Variable	Before		After		Net Change	Seasonally Adjusted
	Mar-94	Apr-94	May-94	Change		
Is the Current Period a Good Time to Expand						
Yes	19	18	16	-3		
No	45	43	45	0		
Uncertain	35	37	37	2	-5	-4
Net % Expecting Economy to be Better in Six Months						
Better	10	14	17	7		
Worse	33	33	28	-5	12	22
Expectations for Real Sales Volumes						
Go Up	32	33	34	2		
Go Down	32	31	29	-3	5	10
Current Inventory Satisfaction						
Too Low	8	9	10	2		
Too Large	10	10	10	0	2	2
Expected Change in Ease of Getting Loans						
Easier	1	1	1	0		
Harder	8	8	9	1	-1	-1
Sample Size	799	1975	778			

Table 11: Changes in Owners' Plans, Pre- and Post- April 1994 Surprise Announcement

This Table shows changes in plans of small business owners before and after the unexpected monetary policy change of April 18, 1994. The numbers shown are the percentage of responses from NFIB surveys of small business owners compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive plans and changes in negative plans. The seasonal adjusted data in the last column is computed by adding seasonal adjustments to the March, April and May responses. The seasonal factors are computed by regressing the monthly series against a set of 1-0 dummy variables for the months, recovering all coefficients to create the seasonal adjustments.

Variable	Before		After		Net Change	Seasonally Adjusted
	Mar-94	Apr-94	May-94	Change		
Plan to Change Average Selling Prices						
Raise	25	22	21	-4		
Lower	2	2	2	0	-4	-2
Plan to Increase or Decrease Total Employment						
Increase	29	23	23	-6		
Decrease	5	5	5	0	-6	-8
Hard to Fill Job Openings						
Yes	3	4	6	3	3	1
Plan to Increase/Decrease Inventories						
Increase	15	13	18	3		
Decrease	16	18	14	-2	5	10
Plan Capital Expenditures						
Yes	38	35	32	-6	-6	-6
Plan to Change Employee Compensation						
Increase	10	12	16	6		
Decrease	1	4	2	1	5	5
Sample Size	799	1975	778			

Table 12: Changes in Owners' Expectations by Industry, Pre- and Post- April 1994 Surprise Announcement

This table shows changes in expectations of small business owners by industry (Construction, Manufacturing, Retail and Business Services) before and after the unexpected monetary policy change of April 18, 1994. The numbers shown are the percentage of responses from NFIB surveys of small business owners by industry (construction and business services), compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative expectations.

Variable	Before		After		Net Change
	Mar-94	Apr-94	May-94	Change	
<i>Is the Current Period a Good Time to Expand</i>					
Construction					
Yes	24	22	20	-4	
No	38	40	36	-2	-2
Manufacturing					
Yes	21	19	20	-1	
No	39	46	45	6	-7
Retail					
Yes	15	17	19	4	
No	38	43	56	18	-14
Non-professional Services					
Yes	19	20	15	-4	
No	46	37	46	0	-4
<i>Net % Expecting Economy to be Better in Six Months</i>					
Construction					
Better	35	21	16	-19	
Worse	13	22	15	2	-21
Manufacturing					
Better	30	25	25	-5	
Worse	14	20	20	6	-11
Retail					
Better	17	12	8	-9	
Worse	21	30	36	15	-24
Non-professional Services					
Better	20	24	17	-3	
Worse	21	18	23	2	-5
<i>Expectations for Real Sales Volumes</i>					
Construction					
Go Up	59	55	57	-2	
Go Down	10	12	13	3	-5
Manufacturing					
Go Up	54	53	61	7	
Go Down	15	11	14	-1	8
Retail					
Go Up	44	32	20	-24	
Go Down	21	29	39	18	-42
Non-professional Services					
Go Up	55	51	56	1	
Go Down	10	15	14	4	-3

Table 12 (continued)					
Variable	Before		After		Net Change
	Mar-94	Apr-94	May-94	Change	
<i>Hard to Fill Job Openings</i>					
Construction					
Yes	2	6	10	8	8
Manufacturing					
Yes	4	4	6	2	2
Retail					
Yes	2	1	11	9	9
Non-professional Services					
Yes	4	3	8	4	4
<i>Current Inventory Satisfaction</i>					
Construction					
Too Low	11	7	10	-1	
Too Large	6	8	7	1	-2
Manufacturing					
Too Low	12	12	15	3	
Too Large	9	9	17	8	-5
Retail					
Too Low	10	10	6	-4	
Too Large	10	8	6	-4	0
Non-professional Services					
Too Low	4	9	12	8	
Too Large	4	7	6	2	6
<i>Expected Change in Ease of Getting Loans</i>					
Construction					
Easier	0	2	1	1	
Harder	11	10	11	0	1
Manufacturing					
Easier	1	1	1	0	
Harder	6	6	13	7	-7
Retail					
Easier	2	0	0	-2	
Harder	8	11	8	0	-2
Non-professional Services					
Easier	1	2	0	-1	
Harder	6	6	6	0	-1
<i>Sample Size</i>					
Construction	122	299	126		
Manufacturing	103	268	103		
Retail	52	105	136		
Non-professional Services	135	279	124		

Table 13: Changes in Owners' Plans by Industry, Pre- and Post- April 1994 Surprise Announcement

This table shows changes in plans of small business owners by industry (Construction, Manufacturing, Retail and Business Services) before and after the unexpected monetary policy change of April 18, 1994. The numbers shown are the percentage of responses from NFIB surveys of small business owners in construction industry, compiled before and after the policy changes. "Before" is the response from before announcement of the policy changes. "After" is the response from after announcement of the policy changes. "Change" is the difference between "After" and "Before" columns. "Net Change" is the difference between the changes in positive and negative plans.

Variable	Before		After		Net Change
	Mar-94	Apr-94	May-94	Change	
Plan to Change Average Selling Prices					
Construction					
Raise	27	33	24	-3	
Lower	1	2	1	0	-3
Manufacturing					
Raise	28	23	25	-3	
Lower	1	3	3	2	-5
Retail					
Raise	23	8	8	-15	
Lower	2	2	6	4	-19
Non-professional Services					
Raise	24	24	23	-1	
Lower	1	2	3	2	-3
Plan to Increase or Decrease Total Employment					
Construction					
Increase	35	34	30	-5	
Decrease	2	4	6	4	-9
Manufacturing					
Increase	46	26	35	-11	
Decrease	5	4	4	-1	-10
Retail					
Increase	23	17	11	-12	
Decrease	4	9	11	7	-19
Non-professional Services					
Increase	29	24	19	-10	
Decrease	4	6	3	-1	-9
Plan to Increase/Decrease Inventories					
Construction					
Increase	21	18	23	2	
Decrease	7	10	10	3	-1
Manufacturing					
Increase	26	17	20	-6	
Decrease	15	14	11	-4	-2
Retail					
Increase	21	21	25	4	
Decrease	18	18	14	-4	8
Non-professional Services					
Increase	13	17	13	0	
Decrease	9	5	7	-2	2

Table 13 (continued)					
Variable	Before		After		Net Change
	Mar-94	Apr-94	May-94	Change	
<i>Plan Capital Expenditures</i>					
Construction					
Yes	38	29	22	-16	-16
Manufacturing					
Yes	55	49	43	-12	-12
Retail					
Yes	38	30	19	-19	-19
Non-professional Services					
Yes	36	35	31	-5	-5
<i>Plan to Change Employee Compensation</i>					
Construction					
Increase	23	18	13	-10	
Decrease	2	2	1	-1	-9
Manufacturing					
Increase	22	21	14	-8	
Decrease	2	1	5	3	-11
Retail					
Increase	8	10	14	6	
Decrease	0	1	3	3	3
Non-professional Services					
Increase	13	15	18	5	
Decrease	2	2	1	-1	6
<i>Sample Size</i>					
Construction	122	299	126		
Manufacturing	103	268	103		
Retail	52	105	136		
Non-professional Services	135	279	124		