Why do Markets React Badly to Good News? Evidence from Fed Funds Futures[1]

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Abstract

It is well known that U.S. monetary policy is well-approximated by a Taylor rule. This suggests a reason why good macroeconomic news sometimes depresses equity returns: good news about the real side of the economy implies tighter future monetary policy. I test this hypothesis by assessing the effect of news on equity returns after controlling for changes in expectations of future monetary policy using Fed Funds Futures data. The results do not support the theory. Furthermore, the negative response of stock markets to unanticipated inflation is unchanged by controlling for changes in monetary policy expectations.

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1 Introduction

Several recent papers examine how asset prices respond to the surprise component in macroeconomic news. An emerging puzzle is that equity markets may respond differently to non-monetary policy news depending on whether the economy is in a recession or an expansion. Good macroeconomic news may depress equity returns during expansions while markets respond favorably to positive surprises during recessions (McQueen and Roley 1993; Boyd, Hu, and Jagannathan 2005; Andersen, Bollerslev, Diebold, and Vega 2007). In aggregate, the coefficient on positive news surprises is therefore often found to be small although occasionally significant (Rigobon and Sack 2006). One theory is that there is an asymmetric response is because good news during an expansion primarily conveys information about the future of the risk-free rate.

This paper tests whether one particular asymmetry is responsible for the failure of equity markets to respond significantly to macro news shocks: that news conveys different information about monetary policy expectations at different times. I test this hypothesis by assessing the response of equity returns to macroeconomic news after controlling for changes in the market's expectation of future Federal Reserve policy. If there is an asymmetry because the news conveys different information about future monetary policy depending on where the economy is at in the business cycle, controlling for monetary policy expectations on announcement days enables identification of the effect the news has on other variables affecting stock returns.

I incorporate a market-based measure of changes in expectations of the future risk-free rate in a standard event study framework to examine the effect of seven major news announcements on returns. I find no evidence that changes in market expectations of future monetary policy explain the weak response of equity markets to good news about real activity. Rather than the VAR framework Boyd, Hu, and Jagannathan (2005) use to measure the shock to expectations regarding unemployment, this paper constructs survey-based measures of the shock to unemployment and other real variables.

The results contrast with the conclusions drawn by Boyd, Hu, and Jagannathan. Based on the reaction of bond prices to news, Boyd, Hu, and Jagannathan suggest that the negative reaction of stock markets to positive employment news during expansions results from changes in expectations of the risk-free rate. However, bond yields are not in general weighted averages of expected future short-rates (see, for example, Diebold, Rudebusch, and Aruoba 2006) as predicted by the expectations hypothesis. It is therefore necessary to directly assess the effect of news on expected future short-rates.

I also find that, contrary to the predictions of the Fisher hypothesis, inflation reduces nominal stock returns even after controlling for changes in monetary policy expectations. Economists have known about the negative correlation between stock returns and inflation since at least since Fama and Schwert's (1977) seminal study. While earlier literature focused on the correlation, more recent empirical literature suggests that the relationship runs from inflation to stock prices consistent with my findings [see, for example, Lee (1992), Sharpe (2002), Rigobon and Sack (2006)]. However, there has been disagreement over the source of the correlation. The findings here indicate that inflation causes stock prices to fall, ruling out the proxy theory, and that it causes stock prices to fall for reasons unrelated to changes in expectation of the short-term discount rate.

The rest of the paper proceeds as follows: Section 2 briefly discusses the different channels through which macroeconomic news may affect asset prices. Section 3 assesses the effect of news on expectations of future monetary policy. Section 4 examines the effect of news on equity and bond returns after controlling for the effect of news on expectations of future monetary policy.

2 Theoretical Framework

As is well-known, U.S. monetary policy is well approximated by a forward-looking Taylor rule. That is, the Federal Reserve responds to increases in expected real activity or expected

inflation above trend by increasing the Fed Funds rate. Letting R_t^F be the Fed Funds rate, π_t and Y_t be some measures of inflation and real activity at date t with π and Y their steady-state levels, the market expectation for R_{t+j}^F can be described by

$$E_t R_{t+j}^F = \phi_\pi E_t(\pi_{t+j} - \pi) + \phi_Y E_t\left(Y_{t+j} - Y\right)$$

Suppose information relevant to either $E_t\pi_{t+j}$ or $E_t Y_{t+j}$ arrives at date $\tau \in (t, t+j)$. It immediately follows that

$$E_\tau R_{t+j}^F - E_t R_{t+j}^F = \phi_\pi\left(E_\tau\pi_{t+j} - E_t\pi_{t+j}\right) + \phi_Y\left(E_\tau Y_{t+j} - E_t Y_{t+j}\right)$$

Macroeconomic news surprises that contain information about either π_{t+j} or Y_{t+j} will thus raise market expectations for the future risk-free rate.

I consider two broad classes of indicators: indicators with information primarily about the real side of the economy (i.e., information relevant to expectations of Y_{t+j}) and those with information about the nominal side of the economy (i.e., information relevant to expectations of π_{t+j}). As a result, of the information structure above, each indicator will in general contain information about two or more factors that affect equity returns. Good news about the real side of the economy implies tighter future monetary policy and higher cash flows. According to standard general equilibrium asset pricing models where the price of an asset is the sum of its expected future discounted dividends, good news about future cash flows should increase equity returns. The cash flow and Fed Funds channel thus work in opposite directions for all broad measures of real U.S. economic activity. This may explain the finding of Boyd, Hu, and Jagannathan (2005), who report that stocks respond negatively to falls in the unemployment rate during an expansion suggesting, that during these period, the news this indicator contains about the future risk-free rate dominates the news it contains about future cash flows. Campbell and Diebold (forthcoming) similarly report that improvements in expected business conditions negatively affect equity returns.

The model also implies that news about the nominal side of the economy includes information about both future inflation and future monetary policy. Kaul (1987, 1990) postulates that this is the cause of the empirical relationship between inflation and stock returns. In a VAR framework, Goto and Valkanov (2002) also find some evidence for this channel.

However, several explanations for the negative correlation between inflation and stock returns do not rely on the monetary authority's reaction to news about inflation. First, monetary general equilibrium models (e.g., Marshall 1992) imply that changes in inflation expectations lower stock returns. Because increases in expected inflation lower the return to money, such increases will also lower all real asset returns that substitute for money, including equity.

Modigliani and Cohn (1979) suggest another possibility for the negative relationship: Investors suffer from one of two forms of money illusion. First, analysts may confuse the nominal and real discount rates such that a rise in inflation that increases nominal bond returns will lead to a fall in equity prices. Ritter and Warr (2002), Campbell and Vuolteenaho (2004), and Cohen, Polk, and Vuolteenaho (2005) all find evidence that investors commit this valuation error. French, Ruhback, and Schwert (1983) and Ritter and Warr (2002) also find that investors suffer from the second form of money illusion Modigliani and Cohn suggest: analysts fail to properly adjust profits for the decline in the real value of corporate liabilities that inflation induces.

Feldstein (1980) proposes instead that the nominal nature of the tax code and historically-based depreciation allowances as reasons why higher inflation may lower stock prices.

Finally, changes in inflation may change the equity risk premium if higher inflation coincides with a change in investors' risk preferences. However, Campbell and Vuolteenaho (2004) find that inflation has little effect on risk premia.

3 The Effect of News on Monetary Policy Expectations

Market efficiency implies that markets should only react to the unanticipated component in macroeconomic news announcements; by the time of the news release, prices already incorporate the anticipated component of the news. The right measure of news is thus the deviation of the indicator from the market's consensus forecast for it. I further assume that the market reacts to the real-time value of the indicator rather than the true value that may emerge in later data revisions.

Both the consensus forecast and the actual real-time value of the indicators are from the MMS Survey and were purchased from Haver Analytic. I normalize the surprise component of each news announcement by dividing by the standard deviation of the news surprise in the sample as in Balduzzi, Elton, and Green (2001) and Andersen, Bollerslev, Diebold, and Vega (2003, 2007). That is, for each indicator k, the surprise is given by

$$S_{k,t} = \frac{A_{k,t} - E_{k,t}}{\hat{\sigma} k}$$

where $A_{k,t}$ is the actual real-time value of indicator k announced at date t, $E_{k,t}$ is the consensus forecast, and $\hat{\sigma}_k$ is the sample standard deviation of $A_{k,t} - E_{k,t}$. The negative of the unemployment surprise is used such that a decrease in the unemployment rate is recorded as a positive news surprise.

Table 1 describes the units of each of the indicators, the mean absolute deviation for the unscaled forecasting errors, and the mean of $S_{k,t}$ for each of the indicators. The group of indicators that primarily contain information about the real side of the economy includes the Unemployment Rate, New Home Sales, Advance GDP, Consumer Confidence, and Capacity Utilization. The second group consists of core CPI and core PPI. Relative to the mean value of the indicator, analysts make small forecasting errors for capacity utilization and the unemployment rate but very large errors in forecasting core CPI inflation. It should be kept in mind that despite the standardization made to be able to compare responses

across indicators, analysts in general are much more likely to be surprised by news about inflation than they are about real indicators. It is interesting to note that consensus forecasts systematically underpredict real variables while they systematically overpredict inflation. This indicates the presence of asymmetries in analysts' loss functions with greater penalties for overly optimistic forecasts than for errors due to pessimism.

I follow Kuttner (2001) and Bernanke and Kuttner (2005) in using Fed Funds futures rates to gauge markets' expectations for future monetary policy. The sample consists of daily data from October 18th, 1991 through October 20th, 2006.[2] The Fed Funds Futures data is taken from Thomson Financial's Datastream database. The series codes are CFF1191, CFF1291,...., CFF0407. These contracts are available for between five and thirteen months in advance of month m for the sample period and provide a measure of the current stance of monetary policy and the market's expectation for future monetary policy. Hamilton (forthcoming) performs several econometric tests on Fed Funds Futures and finds that they are excellent predictors of future monetary policy. Hamilton's econometric tests are partly in response to work by Piazzesi and Swanson (2008) that argues that Fed Funds Futures are a biased measure of market expectation of Federal Reserve policy. In any case, Fed Funds Futures are the best available daily measure of monetary policy expectations.

Letting $R_t^{f,m}$ denote the Fed Funds futures contract settling $m = 1, .., 6$, full months ahead, the change between date t and $t-1$ in the market's expectation for the risk-free rate m full months ahead is

$$E_t R_m - E_{t-1} R_m = R_t^{f,m} - R_{t-1}^{f,m}.$$

The effect of the surprise on the market's expectation of the Fed Funds rate m months ahead is then estimated for indicator k using

$$R_t^{f,m} - R_{t-1}^{f,m} = \alpha_0 + \alpha_1 S_{k,t} + \varepsilon_t. \quad (1)$$

[2]While the Chicago Board of Trade began offering Federal Funds futures contracts in October 1988, the market was not very liquid until 1991 such that I exclude the first three years from the sample.

Table 2 contains the results from estimating this equation for each of the indicators. With the exception of Advance GDP, all the regressions have the expected signs and are significant at almost all horizons with the greatest effects being seen in the 6 month ahead contracts. The signs on Advance GDP are always positive but never significant. The lack of significance is likely due to the small sample size since it is the only indicator sampled at a quarterly rather than a monthly frequency instead of any fundamental difference in the way the market reacts to GDP news.

Some of the coefficients on PPI surprises are not significant at the 10% level for the longer-term Fed Funds Futures contracts. It is somewhat counterintuitive that core CPI news has a stronger effect than core PPI news since movements in the PPI tend to induce movements in the CPI rather than the converse. The PPI is usually released one day before the CPI. One possible explanation is that agents may be waiting a day to trade on the news until they have information about both indicators such that the coefficient on the CPI is partly capturing the effect of shocks to the PPI as well.

4 The Effect of News on Returns

Having ascertained that markets understand the Federal Reserve's policy rule, we now turn to the question of how they use this understanding to value assets. To this end, this section estimates the effect of news announcements on returns after including changes in the Fed Funds Futures rates as controls. The data on equities consist of four stock indexes: the Dow Jones Composite Average, the NASDAQ Composite, the NYSE Composite, and the S&P 500 Composite. I assess the effect of news surprises on government T-bill and bonds using 90-day, six-month, one year, five-year, and ten-year yields.

Figure 1 shows the responses of daily returns for the Dow Jones Industrial Average to each of the standardized surprises; the same graphs for changes in the Nasdaq, the NYSE, and the S&P 500 look quite similar to figure 1. Consistent with earlier literature, there

is no readily discernible pattern between surprises in the real indicators and returns and a weak negative relationship between shocks to core CPI and returns. Nor does it seem to be the case that either the lack of a relationship between real news and returns or the weak relationship between inflation news and returns is driven by a few large outliers.

I estimate

$$R_t = \gamma + \beta^* S_{k,t} + \sum_{m=1}^{6} \delta_m \left(R_t^{f,m} - R_{t-1}^{f,m} \right) + \varepsilon_t \tag{2}$$

and, since there may be substantial collinearity in the changes Fed Funds Futures rates of different maturity on announcement days,

$$R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t. \tag{3}$$

For equities, $R_t = \frac{P_t^{close} - P_{t-1}^{close}}{P_{t-1}^{close}}$ where P_t^{close} is the price of the asset at the end of day t. For T-bills and bonds, $R_t = Yield_t - Yield_{t-1}$. I take asset price data from the Global Financial Database.

To assess how much of the news effect can be attributed to changes in monetary policy expectations, I also compare the estimates from (2) and (3) with the results from estimating

$$R_t = \gamma + \beta S_{k,t} + \upsilon_t. \tag{4}$$

Table 3 reports the coefficients on the news variables in equations (3) and (4) for equity markets. The results from estimating equation (2) were quite similar to those obtained from estimating (3). β^* and β are substantively the same for all seven indicators. Although the signs occasionally change, they often change in the "wrong" direction and almost all of the coefficients related to news about real variables remain insignificant. There is thus no evidence to support the notion that equity markets' response to macroeconomic news is mediated through changes in monetary policy expectations.

Table 4 reports the δ_3 coefficients from estimating (3). The results suggest weak evidence

that markets react to the portion of the news containing information about future monetary policy. With the exception of the Nasdaq, the coefficients from estimating the equations for Unemployment, GDP Advance, Capacity Utilization, CPI, and PPI are negative although they are not usually statistically significant at the 5% level. These results suggest that equity markets react insignificantly to both the information about future cash flows and the information about future monetary policy the news contains.

The results so far indicate that, if there exists an asymmetry in the reaction of equity markets to news about the real side of the economy, it is not because agents form different expectations about monetary policy depending on whether the economy is below or above its long run trend in real activity. It may still be the case that the lack of a response to news about the real side of the macroeconomy is due to an asymmetry and unrelated to cyclical differences in the content of the news for monetary policy expectations. To explore this possibility, I check whether the asymmetry McQueen and Roley (1993), Boyd, Hu, and Jagannathan (2005), and Andersen, Bollerslev, Diebold, and Vega (2007) find exists in these data. The data cover only the mild recession of 2001 and the last few months of the recession of the early 1990s such that the sample is too small to run separate regressions for both the recession and expansion periods. Tables 5 and 6, however, reports the results of the regression when I exclude all observations that fall on the NBER recession dates in 1991, 1992, and 2001 such that the sample covers only expansionary periods.

In this sample and at this frequency, there is no evidence of asymmetry in the response of equities to macro news: The results in tables 5 and 6 are very similar to those reported in tables 3 and 4 where both recession and expansion dates are included. In any case, by using changes in policy expectations as a control variable, this paper rules out the possibility that any asymmetries that do exist are due to asymmetric changes in policy expectations. Instead, the results suggest that the lack of significance this paper and other work may be due to "noisy" news surprises as Rigobon and Sack (2006) argue.

It is tempting to think that the lack of significance in the coefficients on the changes

in Fed Funds Futures on announcement days is an artifact of illiquidity in the Fed Funds Futures market. However, table 7 illustrates that including changes in the Fed Funds Futures rate explains the bulk of the response of government bond and T-bill markets: Most of the coefficients on the news variables become insignificant after the inclusion of changes in monetary policy expectations with the exception of those on unemployment. Thus, the problem does not appear to lie with using Fed Funds Futures as an indicator of monetary policy or changes in the discount rate.[3]

The only news that consistently has statistically significant effects is core CPI news while core PPI news usually has economically significant effects. The finding that CPI news has more pronounced effects is likely due to the timing of the release schedule as discussed in section 3. While the coefficients on core CPI news usually decrease slightly in magnitude when the regressions also control for changes in monetary policy expectations, they remain highly statistically significant in both the full sample and in the expansion sample.

The negative reaction to inflation shocks is consistent with the results of Rigobon and Sack (2006). However, the evidence here rules out the possibility that equity markets respond badly to inflation surprises simply because they imply tighter future monetary policy. Since this paper uses an event study framework, the findings are also evidence against Fama's (1981) proxy theory. Finally, because the Fed Funds rate is closely related to other future risk-free rates, the findings in tables 3 and 5 indicate that theories for the correlation between inflation and stock returns that rely on investors confusing nominal discount rates cannot explain all of the effect. Instead, the results suggest instead that investors suffer from less obvious forms of money illusion, such as improper adjustments for changes in the real value of corporate obligations after inflationary shocks, or that inflation induces falls in equities because the US tax code is nominal rather than real.

[3]The significantly negative response of yields to positive news about unemployment at longer maturities is puzzling. I therefore considered whether the same effect was present when using nonfarm payroll employment data, which is released at the same time as the unemployment rate. After controlling for changes in the Fed Funds rate the effect of nonfarm payroll employment surprises on longer term yields is indeed positive, consistent with the view that the slope of the yield curve increases with robust economic growth. The negative effect of positive news on unemployment is thus likely a statistical anomaly.

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Table 1: Summary Statistics for Indicators

Indicator	Reporting Units	Mean $A_{k,t}$	$\lvert A_{k,t} - E_{k,t} \rvert$ Mean	Mean of $S_{k,t}$	No. of Obs.
Unemp. Rate	Levels (SA, %)	5.42	0.114	0.299	180
New Home Sales	Levels (SA, Thous.)	886	51.6	0.195	181
GDP Advance	Q/Q % Ch. (SAAR)	3.08	0.668	0.199	60
Cons. Conf.	SA Index (1985=100)	101	3.87	0.086	180
Cap. Utilization	SA Index (max=100)	80.3	0.244	0.084	180
Core CPI	M/M % Ch. (SA)	0.108	0.174	-0.106	180
Core PPI	M/M % Ch. (SA)	0.209	0.071	-0.164	180

Notes: 1) $A_{k,t}$ denotes the actual number of the indicator released on the announcement day, $E_{k,t}$ denotes the consensus expectation of the indicator, and $S_{k,t} = \frac{A_{k,t} - E_{k,t}}{\hat{\sigma}_k}$ where $\hat{\sigma}_k$ is the standard deviation of $A_{k,t} - E_{k,t}$ in the sample. 2) SA denotes seasonally adjusted. 3) SAAR denotes seasonally adjusted at annualized rate. 4) An unemployment surprise is defined as lower than expected unemployment such that an increase indicates improving macroeconomic conditions.5) Sample is October 18th, 1991 - October 20th, 2006.

Table 2: The Effect of Surprises on Expectations of Future Monetary Policy

Indicator	1-mo. ahead	2-mo.	3-mo.	4-mo.	5-mo.	6-mo.
Unemployment	**0.0133**	**0.0188**	**0.025**	**0.0252**	**0.0296**	**0.0313**
	(3.17)	(4.41)	(5.04)	(4.48)	(4.76)	(4.54)
New Home Sales	**0.0046**	**0.0067**	**0.0066**	**0.0078**	**0.0109**	**0.0120**
	(3.46)	(3.94)	(3.40)	(3.25)	(3.89)	(4.01)
GDP Advance	0.0033	0.0039	0.0060	0.0052	0.0065	0.0065
	(1.20)	(1.01)	(1.18)	(0.93)	(0.96)	(0.84)
Consumer Confidence	**0.0033**	**0.0086**	**0.0111**	**0.0122**	**0.0141**	**0.0152**
	(2.15)	(3.80)	(4.86)	(4.65)	(4.77)	(4.57)
Capacity Utilization	**0.0067**	**0.0088**	**0.0103**	**0.012**	**0.0126**	**0.0145**
	(3.94)	(4.56)	(4.51)	(4.48)	(4.10)	(4.21)
Core CPI	**0.0053**	**0.0083**	**0.0089**	**0.0116**	**0.0128**	**0.0158**
	(2.94)	(3.48)	(3.22)	(3.53)	(3.49)	(3.93)
Core PPI	**0.0040**	**0.0053**	0.0053	**0.0069**	0.0059	0.0058
	(2.05)	(2.35)	(1.95)	(2.22)	(1.55)	(1.51)

Notes: 1) The numbers in the table are the α coefficients from estimating $R_t^{f,m} - R_{t-1}^{f,m} = \alpha_0 + \alpha_1 S_{k,t} + \varepsilon_t$ for each of the m month ahead Fed Funds Futures contracts for each of the indicators. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The sample is October 18th, 1991 - October 20th, 2006.

Table 3: News Effects on Equity Returns

Indicator	Dow		Nasdaq		NYSE		S&P500	
	β	β^*	β	β^*	β	β^*	β	β^*
Unemp.	−0.157	0.083	−0.169	−0.263	−0.322	0.147	−0.380	−0.030
	(−0.20)	(0.10)	(−0.13)	(−0.18)	(−0.43)	(0.18)	(−0.44)	(−0.99)
New Homes	−0.478	−0.543	0.576	−0.106	−0.368	−0.569	−0.251	−0.546
	(−0.79)	(−0.72)	(0.49)	(−0.09)	(−0.57)	(−0.85)	(−0.34)	(−0.72)
GDP Adv.	1.284	1.626	1.217	1.259	0.701	1.100	0.776	1.122
	(1.03)	(1.31)	(0.59)	(0.60)	(0.54)	(0.87)	(0.53)	(0.77)
Cons. Conf.	0.292	0.194	**2.344**	1.940	0.124	0.018	0.367	0.188
	(0.44)	(0.27)	(2.02)	(1.56)	(0.19)	(0.03)	(0.48)	(0.23)
Cap. Util.	0.111	0.416	1.387	1.367	0.609	0.836	0.963	1.193
	(0.14)	(0.51)	(1.17)	(1.09)	(0.82)	(1.07)	(1.17)	(1.38)
Core CPI	**−3.331**	**−3.054**	**−4.249**	**−4.289**	**−3.008**	**−2.755**	**−3.264**	**−3.051**
	(−4.47)	(−4.00)	(−3.77)	(−3.69)	(−4.23)	(−3.77)	(−4.12)	(−3.74)
Core PPI	−0.903	−0.871	−1.790	−1.883	−1.130	−1.112	−1.396	−1.393
	(−1.30)	(−1.23)	(−1.67)	(−1.74)	(−1.60)	(−1.56)	(−1.81)	(−1.78)

Notes: 1) The numbers in the table are the β and β^* coefficients $(x1000)$ on the news surprises from estimating $R_t = \gamma + \beta S_{k,t} + \upsilon_t$ and $R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t$ for each of the indicators. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The sample is October 18th, 1991 - October 20th, 2006.

Table 4: Responses to Changes in Monetary Policy Expectations

Indicator	Dow	Nasdaq	NYSE	S&P500
Unemp.	−9.28	3.65	−18.12	−13.53
	(−0.75)	(0.17)	(−1.52)	(−0.99)
New Homes	9.95	**99.81**	28.93	43.04
	(0.39)	(2.27)	(1.17)	(1.53)
GDP Adv.	**−63.75**	−16.65	**−74.22**	−66.16
	(−2.00)	(−0.32)	(−2.27)	(−1.76)
Cons. Conf.	7.68	36.26	9.40	15.78
	(0.35)	(0.94)	(0.44)	(0.64)
Cap. Util.	−30.33	1.95	−22.53	−22.88
	(−1.19)	(0.05)	(−0.93)	(−0.85)
Core CPI	−29.97	4.31	−27.32	−23.04
	(−1.53)	(0.14)	(−1.46)	(−1.10)
Core PPI	−6.45	18.64	−3.64	−0.45
	(−0.33)	(0.62)	(−0.18)	(−0.02)

Notes: 1) The numbers in the table are the coefficients ($\delta_3 x1000$) on the changes in monetary policy expectations from estimating equation $R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t$ for each of the indicators. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The sample is October 18th, 1991 - October 20th, 2006.

Table 5: News Effects on Equity Returns, Expansion Dates Only

Indicator	Dow		Nasdaq		NYSE		S&P500	
	β	β^*	β	β^*	β	β^*	β	β^*
Unemp.	−0.652	−0.321	−0.717	−0.855	−0.764	−0.172	−0.841	−0.404
	(−0.81)	(−0.37)	(−0.53)	(−0.59)	(−0.97)	(−0.20)	(−0.94)	(−0.42)
New Homes	−0.688	−0.803	0.499	−0.404	−0.537	−0.797	−0.422	−0.796
	(−1.02)	(−1.14)	(0.42)	(−0.33)	(−0.80)	(−1.16)	(−0.55)	(−1.01)
GDP Adv.	1.11	1.36	0.756	0.775	0.424	0.727	0.443	0.710
	(0.86)	(1.06)	(0.36)	(0.36)	(0.31)	(0.56)	(0.29)	(0.48)
Cons. Conf.	−0.373	−0.323	1.94	1.68	−0.424	−0.399	−0.218	−0.233
	(−0.52)	(−0.44)	(1.54)	(1.29)	(−0.61)	(−0.56)	(−0.27)	(−0.28)
Cap. Util.	0.064	0.438	1.25	1.26	0.529	0.810	0.894	1.18
	(0.08)	(0.53)	(1.01)	(0.97)	(0.69)	(1.01)	(1.06)	(1.33)
Core CPI	**−3.41**	**−3.06**	**−4.30**	**−4.22**	**−3.06**	**−2.75**	**−3.32**	**−3.05**
	(−4.43)	(−3.87)	(−3.72)	(−3.51)	(−4.20)	(−3.66)	(−4.08)	(−3.63)
Core PPI	−1.08	−1.06	−2.04	−2.14	−1.30	−1.30	**−1.58**	**−1.60**
	(−1.50)	(−1.46)	(−1.85)	(−1.91)	(−1.77)	(−1.75)	(−1.97)	(−1.97)

Note: 1) The numbers in the table are the coefficients ($x1000$) on the news surprises from estimating $R_t = \gamma + \beta S_{k,t} + \upsilon_t$ and $R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t$ for each of the indicators with observations falling on NBER recession dates dropped. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The full sample is October 18th, 1991 - October 20th, 2006.

Table 6: Responses to Changes in Monetary Policy Expectations, Expansion Dates Only

Indicator	Dow	Nasdaq	NYSE	S&P500
Unemp.	−12.72	5.30	−22.73	−16.77
	(−0.99)	(0.25)	(−0.20)	(−0.42)
New Homes	17.14	**13.19**	37.35	54.47
	(0.64)	(2.85)	(1.42)	(1.82)
GDP Adv.	**−77.44**	−20.29	**−96.09**	**−87.36**
	(−2.07)	(−0.33)	(−2.54)	(−2.00)
Cons. Conf.	−9.71	38.16	−3.85	1.56
	(−0.40)	(0.89)	(−0.56)	(0.06)
Cap. Util.	−38.20	−1.08	−28.68	−29.13
	(−1.50)	(−0.03)	(−1.16)	(−1.07)
Core CPI	−35.41	−8.27	−31.58	−27.68
	(−1.73)	(−0.27)	(−1.63)	(−1.27)
Core PPI	−3.06	19.00	0.16	3.85
	(−0.15)	(0.60)	(0.01)	(0.17)

Note: 1) The numbers in the table are the coefficients ($\delta_3 x1000$) on the changes in monetary policy expectations from estimating equation $R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t$ for each of the indicators with observations falling on NBER recession dates dropped. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The full sample is October 18th, 1991 - October 20th, 2006.

Table 7: News Effects on Government Bill and Bond Yields

Indicator	90-Day T-Bill		6-Month T-Bill		1-Year		5-Year		10-Year	
	β	β^*	β	β^*	β	β^*	β	β^*	β	β^*
Unemp.	**4.12**	−0.66	**5.56**	−0.87	**5.04**	−2.77	2.18	**−3.84**	1.55	**−2.62**
	(3.29)	(-0.68)	(3.71)	(-0.86)	(2.52)	(-1.82)	(1.19)	(-2.43)	(1.17)	(-2.23)
New Homes	**2.17**	0.21	**2.40**	0.10	2.66	−0.42	**2.84**	0.59	**2.57**	0.98
	(2.23)	(0.26)	(2.33)	(0.12)	(1.96)	(-0.40)	(2.79)	(0.75)	(3.28)	(1.53)
GDP Adv.	**2.68**	2.00	**3.84**	**2.73**	5.09	2.38	3.30	1.59	2.46	1.04
	(2.12)	(1.73)	(3.15)	(3.34)	(1.92)	(1.48)	(1.47)	(0.88)	(1.31)	(0.69)
Cons. Conf.	**1.84**	−0.11	**3.29**	1.05	**4.57**	1.80	**4.70**	**2.27**	**3.86**	**1.79**
	(2.18)	(-0.14)	(4.10)	(1.47)	(4.18)	(1.79)	(5.11)	(2.73)	(5.02)	(2.60)
Cap. Util.	**2.74**	−0.32	**2.84**	−0.13	**4.19**	−0.00	**3.53**	0.27	**2.69**	0.49
	(2.80)	(-0.42)	(3.38)	(-0.23)	(2.90)	(-0.00)	(3.00)	(0.27)	(3.28)	(0.70)
Core CPI	1.62	−0.74	**2.32**	−0.02	**4.19**	1.31	**4.60**	**2.10**	**3.28**	1.47
	(1.52)	(-0.92)	(2.44)	(-0.03)	(3.52)	(1.55)	(4.13)	(2.47)	(3.64)	(1.98)
Core PPI	0.97	−0.06	1.34	0.06	2.26	0.46	1.48	−0.00	**1.75**	0.73
	(1.09)	(-0.08)	(1.55)	(0.11)	(1.57)	(0.41)	(1.23)	(0.00)	(2.01)	(1.04)

Notes: 1) The numbers in the table are the β and β^* coefficients $(x1000)$ on the news surprises from estimating $R_t = \gamma + \beta S_{k,t} + \upsilon_t$ and $R_t = \gamma + \beta^* S_{k,t} + \delta_3 \left(R_t^{f,3} - R_{t-1}^{f,3} \right) + \varepsilon_t$ for each of the indicators. 2) T-statistics are in parentheses. 3) Bold-faced numbers denote significance at the 5% level. 4) The sample is October 18th, 1991 - October 20th, 2006.

Figure 1: Percent Change in Dow Jones Industrial Average on Announcement Days. The sample is October 18th, 1991 - October 20th, 2006.