

# Federal Reserve Policy's Impact On Economic Releases

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## Executive summary

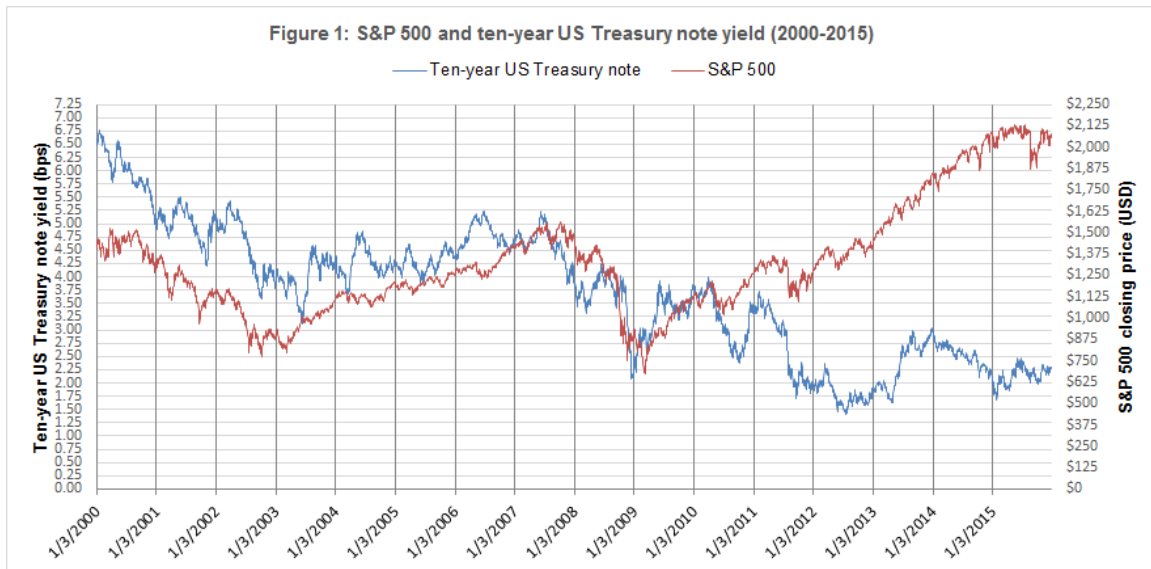
Financial analysts, economists, and public policy makers often expect the release of economic indicators to influence financial-market volatility, volume, prices, or rates of return. Typically, investors anxiously await economic releases reporting on jobs, the Consumer Price Index (CPI), and GDP. Market movements may occur when indicators show results distinctly above or below market expectations. For example, if a released indicator is better for corporations than expected, one might anticipate that equity prices will head higher.

While past research has examined this issue, the present study updates its findings, especially in light of recent unprecedented Federal Reserve actions stemming from the most recent US economic downturn. These actions include setting a funds rate between zero and one-fourth of 1 percent, as well as the quantitative-easing programs QE1, QE2, and QE3, which ballooned the Fed's balance sheet of bonds from \$900 billion to almost \$4.5 trillion by the time the programs ended in 2014. This study investigates the effects of a realized differential between expectations and announcements (an "expectation differential") on the equity, bond, and commodity markets and whether the Fed's actions changed those relationships.

Finding a relationship between the expectation differential and trends in the financial markets would provide useful information about how macroeconomic indicators affect security pricing and volatility. Furthermore, knowledge of an expectation-differential effect could lead to superior returns for investors who project a different indicator value than the market consensus. With a correct indicator estimate, an investor could anticipate market movements before the effects of the publication of the indicator. On the other hand, concluding that financial markets do not move when an economic indicator's actual value differs significantly from the expected value could provide further evidence for the efficient market hypothesis (EMH), which states that market prices incorporate all relevant market information in advance of any announcement. According to the EMH, no significant market movements should result from a data release since the market will have already incorporated any deviations from expectations.

# Introduction

Research has shown that monetary policy heavily influences macroeconomic announcement effects on financial markets, and additional research has concluded that a surprise in the announcement causes the effects, not the announcement itself. More research has shown that the macroeconomic announcement effects on bond and equity markets follow a simple behavioral pattern: in response to better-than-expected news in a release, equity markets will trend higher for the day, while bond markets will trend lower. However, all of this research was completed prior to the unprecedented Federal Reserve monetary policy stemming from the latest economic downturn. This study concludes that macroeconomic announcement effects on bond and equity markets no longer follow the simple pattern described above.



## Terminology

<b>Term</b>	<b>Definition</b>
Period of accommodative federal funds rates	The actual federal funds rate was less than 1.89 percent
Period of restrictive federal funds rates	The actual federal funds rate was greater than 1.89 percent
Period of declining intended federal funds rates	The most recent change to the intended federal funds rate and the change immediately preceding it were both rate decreases
Period of rising intended federal funds rates	The most recent change to the intended federal funds rate and the change immediately preceding it were both rate increases
Period of stable intended federal funds rates	The most recent change to the intended federal funds rate was a rate increase, or the change immediately preceding the most recent change was a rate increase, but not both
Positive announcement surprise	The data contained in the macroeconomic indicator release beat the market consensus
Negative announcement surprise	The data contained in the macroeconomic indicator release did not beat the market consensus

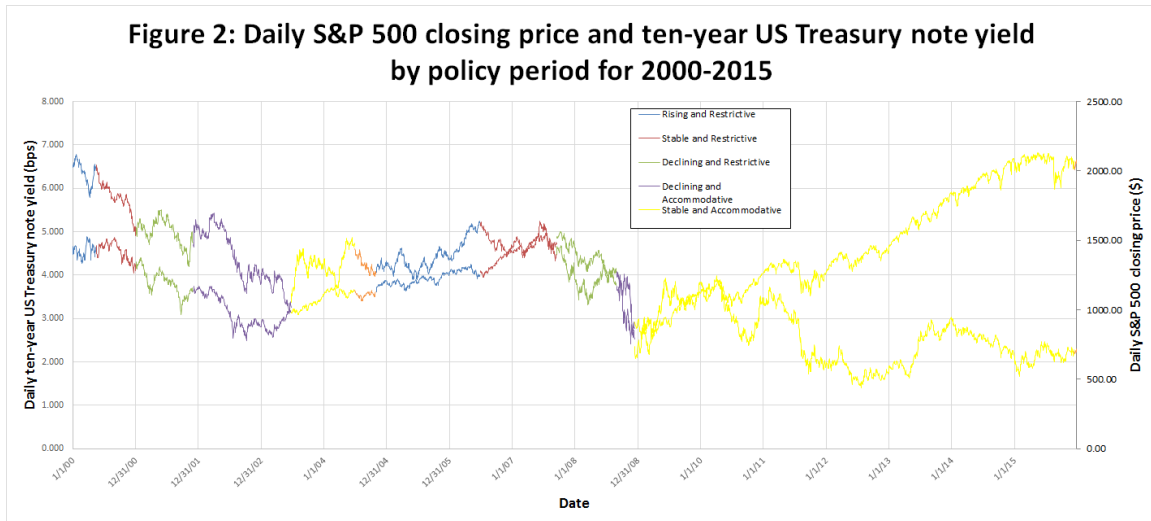
**Table 1: Important terminology**

## Federal Reserve Monetary Policy Periods: 2000–2015

<i>Period start</i>	<i>Period end</i>	<i>Policy direction</i>	<i>Policy</i>
1/1/2000	5/16/2000	Rising	Restrictive
5/16/2000	1/3/2001	Stable	Restrictive
1/3/2001	12/1/2001	Declining	Restrictive
12/1/2001	6/25/2003	Declining	Accommodative
6/25/2003	6/30/2004	Stable	Accommodative
6/30/2004	11/1/2004	Rising	Accommodative
11/1/2004	6/29/2006	Rising	Restrictive
6/29/2006	9/18/2007	Stable	Restrictive
9/18/2007	9/1/2008	Declining	Restrictive
9/1/2008	12/16/2008	Declining	Accommodative
12/16/2008	12/17/2015	Stable	Accommodative
12/17/2015	Present	Rising	Accommodative

**Table 2: Federal Reserve monetary policy periods**

**Figure 2: Daily S&P 500 closing price and ten-year US Treasury note yield by policy period for 2000-2015**



## Results

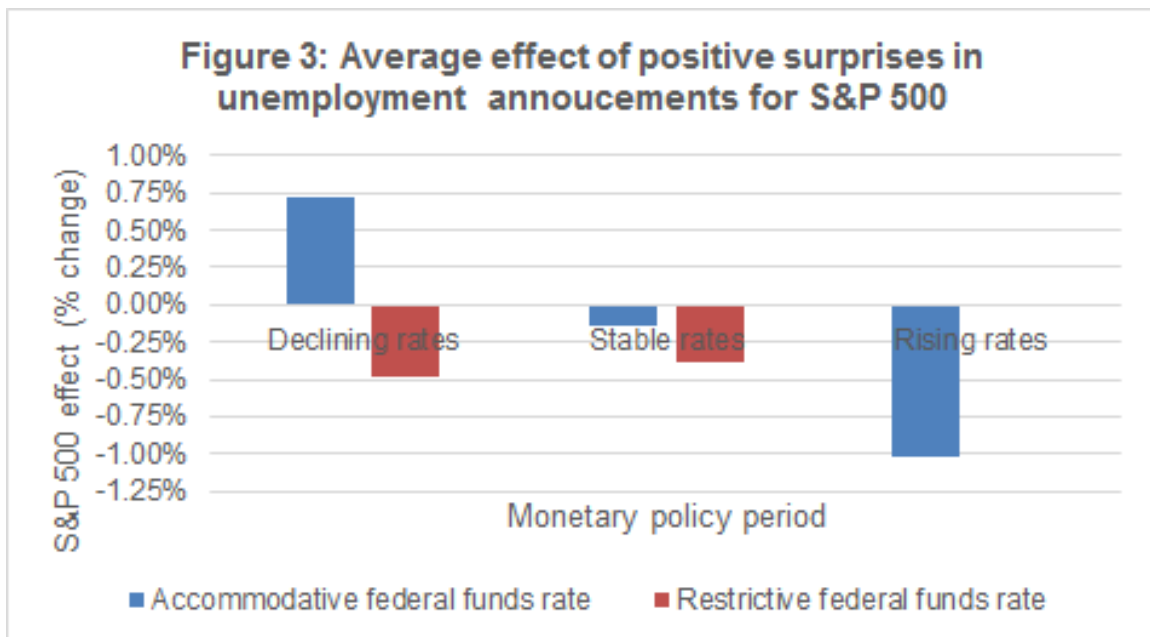
In general, macroeconomic announcement effects on bond and equity markets did not follow the expected pattern from 2000 to 2015. Equity and bond markets were equally likely to have unexpected macroeconomic announcement effects. Unexpected macroeconomic announcement effects were more likely when the indicator beat the market consensus. An unexpected market reaction was most likely to occur during a period of stable intended federal funds rates, and least likely to occur during periods of rising rates. An unexpected market reaction was most likely to occur in response to an unemployment rate release, and least likely to occur in response to a CPI or GDP release. Unexpected reactions were more likely to occur while rates were below the 2000–2015 average. They were greater during declining and rising periods and greater during periods of accommodative federal funds rates.

Bond markets were most volatile during periods of accommodative and rising rates, periods of declining or rising intended rates, and periods of accommodative rates. Equity

markets were most volatile during periods of below-average declining rates, periods of declining intended rates, and periods of accommodative rates. Market reactions were similar regardless of whether the surprise was positive or negative.

### ***Effects of Differences in the State of the Economy***

Boyd, Jagannathan, and Hu (2001) found that a positive surprise (i.e., a decrease) in the unemployment rate decreases stock prices during recessions but increases stock prices during expansions. Their study examined positive surprises in the unemployment rate under each type of Federal Reserve monetary policy. A positive surprise in the unemployment rate only caused equity markets to trend higher during periods of declining and accommodative interest rates. During periods of restrictive rates, equity markets trended lower regardless of the intended rate. Equity markets also trended lower during periods with accommodative but stable or rising rates. A positive unemployment-rate announcement had no effect during a period of rising and restrictive rates.



Christiansen and Rinaldo (2007) found that the effects of macroeconomic announcements were much greater during recessions for both the bond and equity markets. However, Poitras's (2004) research indicates that even though announcements do have an effect on the S&P 500, the effects do not differ in alternate states of the economy. Poitras observed that the average effect on equity markets was greatest during periods of declining rates. Only periods of rising and accommodative rates led to a negative average announcement effect.

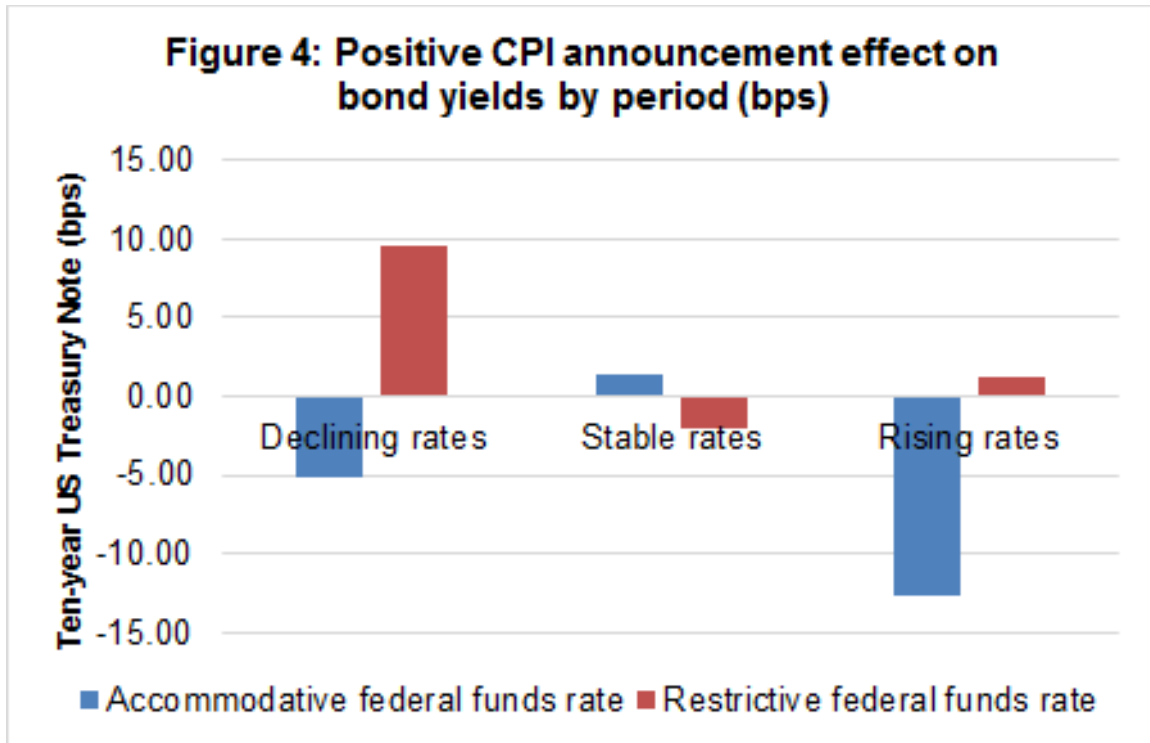
### ***Effects of Bad News vs. Good News***

Andersen et al. (2003) found a “sign effect”: bad announcement surprises have a greater impact than good announcement surprises—that is, an asymmetrical market reaction. This is consistent with the economic theory of loss aversion, which states that people prefer avoiding large losses to realizing large gains. From 2000 to 2015, good surprise effects were slightly more volatile than bad surprise effects for ten-year US Treasury notes and the S&P 500, by 0.75 basis points and a 0.114 percent change, respectively. These observed effects do not support Andersen et al.'s finding of a sign effect.

### ***Effect of Announcements on Bond Returns***

Balduzzi, Elton, and Green (2001) found significant, negative relationships between positive surprises from either the nonfarm-payrolls report or CPI announcements, on the one hand, and the prices of Treasury bonds, on the other hand. Negative surprises led to corresponding increases in bond prices. Similarly, their study observed positive relationships between positive unemployment-rate announcement surprises and Treasury yields during periods of restrictive rates. However, this relationship was negative during periods of accommodative rates. Their study found similar negative relationships between negative unemployment-rate surprises and Treasury yields when rates were accommodative. They observed negative relationships between negative CPI surprises and Treasury yields while rates were stable or rising.



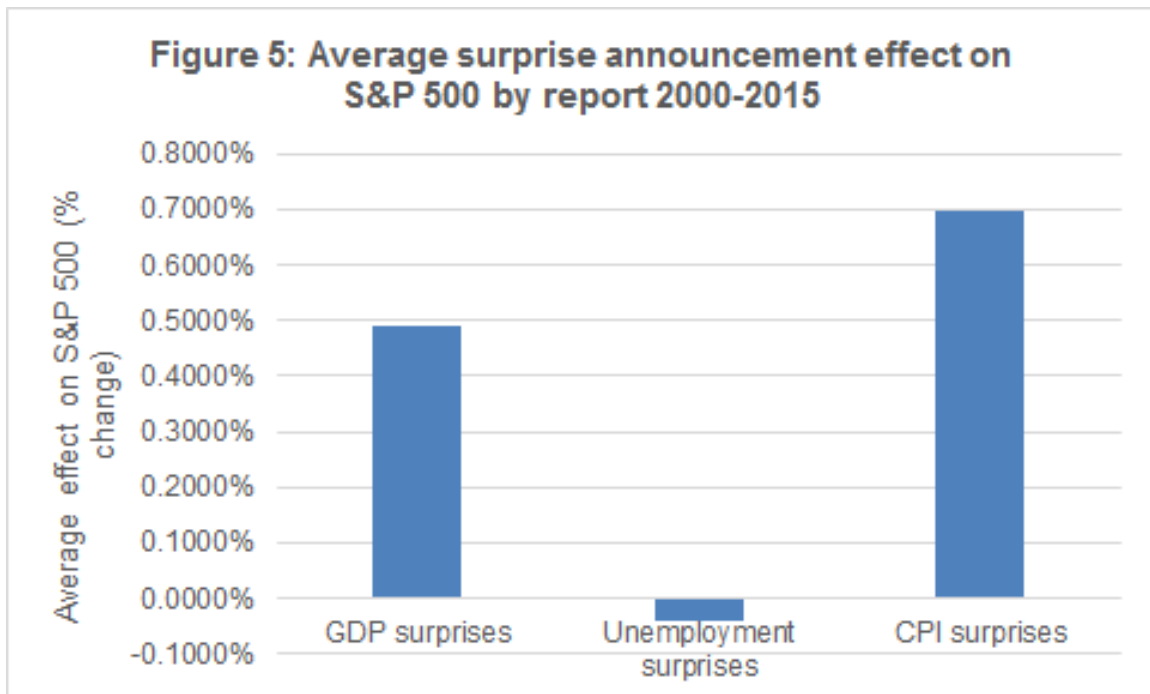


Kim, McKenzie, and Faff's (2004) study indicated that bond market returns were negatively correlated with surprises in the CPI, while Barnhart (1989) concluded bond markets were unaffected by inflation surprises. Kim, McKenzie, and Faff (2004) believed that their results implied that bonds were treated as substitutes for stocks. The average effect of a CPI surprise on bond markets was negative, while the average GDP and unemployment-rate announcement effects were both positive. This supports the previously found negative correlation between CPI surprises and bond markets. However, the volatility on dates of CPI-announcement surprises was about average, showing that the CPI surprise did not affect the market greatly, and possibly supporting Barnhart's (1989) conclusion.

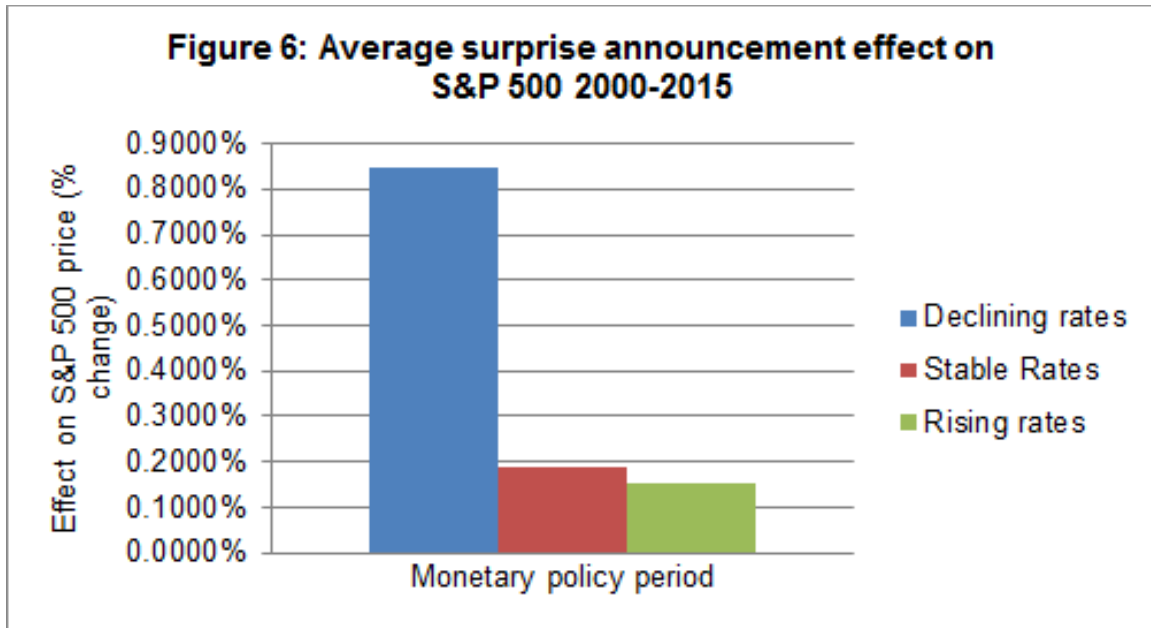
### ***Effect of Announcements on Equity Returns***

Kim, McKenzie, and Faff (2004) also found that few announcements significantly affected the equities markets. However, surprises in the CPI correlated very strongly and positively with stock market returns. Of the three announcements observed in this study,

CPI announcements had the greatest average effect on equities markets, trending positively by 0.6983 percent, followed by GDP with a positive 0.4910 percent trend. The average effect of an unemployment rate surprise was the least, causing the S&P to trend downward by 0.0408 percent. Additionally, Kim, McKenzie, and Faff observed that the average volatility on dates of CPI announcements was significantly higher than on dates of GDP or unemployment-rate announcements.



Bernanke and Kuttner (2005) discovered that a 0.25 percent cut in the federal funds rate target tended to lead to a 1 percent increase in broad stock indices. Bernanke and Kuttner believed that their findings suggested that monetary-policy surprises affect the equity markets through their effects on expected future excess returns or on expected future dividends. The average effects of surprise announcements on equity markets from 2000 to 2015 were greatest during periods when rates were declining, nearly 4.5 times more compared to periods of stable or rising rates. If Bernanke and Kuttner are correct, these findings show that equity markets expect greater future excess returns and dividends during periods of declining intended federal funds rates, not just on the day of a decrease.



Poitras's (2004) study found that announcement releases from government surveys could not explain even 2 percent of the daily change in the S&P 500, but that the change in the discount rate alone could explain more than 9 percent of the S&P 500. Poitras believed this indicates that market participants give greater weight to changes in public policy than they do to surveys giving historical information.

## Conclusions

Markets' reactions to major macroeconomic announcements following the implementation of aggressive Fed monetary policy have differed from markets' reactions prior to 2000. After 2000, the effect of macroeconomic announcements did not follow expected behavioral patterns, such as equity markets trending lower in response to better-than-expected indicator news. This change could be due to the value market participants place on the information contained in the release compared to the value of expected changes to monetary policy. This could explain why the expected reaction has reversed, because it also means investors expect higher interest rates to increase the

cost of borrowing capital and decrease companies' willingness to spend and expand. For the same reasons, equity markets would react by trending higher and bond markets would trend lower in response to worse-than-expected news because investors will expect lower interest rates, decreasing the cost of borrowing capital.

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